

Southern Water Services Final Draft Water Resource Management Plan 24 Annex 17: Strategic Environmental Assessment Environmental Report

Appendix I: Constrained Options Assessments

May 2025
Version 5

Qualitative scoring system.

Score	Description	Symbol
Major/Significant Positive Effect	Major positive effect of the water resource option on this objective	+++
Moderate Positive Effect	Moderate positive effect of the water resource option on this objective	++
Minor Positive Effect	Minor positive effect of the water resource option on this objective	+
Neutral	Neutral effect of the water resource option on this objective	0
Minor Negative Effect	Negative effect of the water resource option on this objective	-
Moderate Negative Effect	Moderate effect of the water resource option on this objective	--
Major/Significant Negative Effect	Major negative effect of the water resource option on this objective	---
Uncertain	The water resource option has an uncertain relationship to the objective or the relationship is dependent on the way in which the aspect is managed. In addition, insufficient information may be available to enable an assessment to be made.	?

SWS_HAZ_EF-LKR_ALL_ALL_dmp haz high											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
	Deliver reliable and resilient water supplies	0	0	+++	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Minor positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive	28						Positive	28	
		Negative	-3						Negative	-2	

SWS_HAZ_EF-LKR_ALL_ALL_dmp haz low											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	Minor positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive	7					Positive	8		
		Negative	-3					Negative	-2		

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Demand Management Strategy

Southern Water

Demand Management Strategy includes:

CR - Metering - smart

CR - Tariffs / fees

CR - Water efficiency (education / communication)

SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
	Deliver reliable and resilient water supplies	0	0	++	0	Moderate positive effects upon operation due to water being kept within the environment.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive	16					Positive	16		
		Negative	-3					Negative	-2		

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Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	Minor positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive Negative	7 -3					Positive Negative	7 -2		

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SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
	Deliver reliable and resilient water supplies	0	0	++	0	Moderate positive effects upon operation due to water being kept within the environment.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive	16					Positive	16		
		Negative	-3					Negative	-2		

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SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	Minor positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive	7					Positive	7		
		Negative	-3					Negative	-2		

SWS_HAZ_EF-LKR_ALL_ALL_dmp hrz medium											
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SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
	Deliver reliable and resilient water supplies	0	0	++	0	Moderate positive effects upon operation due to water being kept within the environment.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive	16					Positive	16		
		Negative	-3					Negative	-2		

SWS_HAZ_EF-LKR_ALL_ALL_dmp hse low											
Demand Management Strategy											
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Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment		Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	Minor positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive	7					Positive	7		
		Negative	-3					Negative	-2		

SWS_HAZ_EF-LKR_ALL_ALL_dmp hse medium											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
	Deliver reliable and resilient water supplies	0	0	++	0	Moderate positive effects upon operation due to water being kept within the environment.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive	16					Positive	16		
		Negative	-3					Negative	-2		

SWS_HAZ_EF-LKR_ALL_ALL_dmp hsw medium											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
	Deliver reliable and resilient water supplies	0	0	++	0	Moderate positive effects upon operation due to water being kept within the environment.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics											
			Positive	16				Positive	16		
			Negative	-3				Negative	-2		

SWS_HAZ_EF-LKR_ALL_ALL_dmp hwz low											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	Minor positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0	
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0	
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0	
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0	
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0	
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0	
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0	
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0	
SEA Metrics		Positive Negative	Positive Negative	7 -3					Positive Negative	7 -2		

SWS_HAZ_EF-LKR_ALL_ALL_dmp iow low											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	Minor positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive	7					Positive	7		
		Negative	-3					Negative	-2		

SWS_HAZ_EF-LKR_ALL_ALL_dmp iow medium											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
	Deliver reliable and resilient water supplies	0	0	++	0	Moderate positive effects upon operation due to water being kept within the environment.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive	16					Positive	16		
		Negative	-3					Negative	-2		

SWS_HAZ_EF-LKR_ALL_ALL_dmp kme low											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	Minor positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive	7					Positive	7		
		Negative	-3					Negative	-2		

SWS_HAZ_EF-LKR_ALL_ALL_dmp kme medium											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
	Deliver reliable and resilient water supplies	0	0	++	0	Moderate positive effects upon operation due to water being kept within the environment.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive	16					Positive	16		
		Negative	-3					Negative	-2		

SWS_HAZ_EF-LKR_ALL_ALL_dmp kmw low											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	Minor positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive	7					Positive	7		
		Negative	-3					Negative	-2		

SWS_HAZ_EF-LKR_ALL_ALL_dmp kmw medium											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
	Deliver reliable and resilient water supplies	0	0	++	0	Moderate positive effects upon operation due to water being kept within the environment.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive	16					Positive	16		
		Negative	-3					Negative	-2		

SWS_HAZ_EF-LKR_ALL_ALL_dmp ktz low											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	Minor positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive	7					Positive	7		
		Negative	-3					Negative	-2		

SWS_HAZ_EF-LKR_ALL_ALL_dmp ktz medium											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
	Deliver reliable and resilient water supplies	0	0	++	0	Moderate positive effects upon operation due to water being kept within the environment.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive	16					Positive	16		
		Negative	-3					Negative	-2		

SWS_HAZ_EF-LKR_ALL_ALL_dmp sbz low											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	Minor positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive	7					Positive	7		
		Negative	-3					Negative	-2		

SWS_HAZ_EF-LKR_ALL_ALL_dmp sbz medium											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
	Deliver reliable and resilient water supplies	0	0	++	0	Moderate positive effects upon operation due to water being kept within the environment.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive	16					Positive	16		
		Negative	-3					Negative	-2		

SWS_HAZ_EF-LKR_ALL_ALL_dmp shz low											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation				
		+	-	+	-						
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	Minor positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive	7					Positive	7		
		Negative	-3					Negative	-2		

SWS_HAZ_EF-LKR_ALL_ALL_dmp shz medium											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
	Deliver reliable and resilient water supplies	0	0	++	0	Moderate positive effects upon operation due to water being kept within the environment.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive	16					Positive	16		
		Negative	-3					Negative	-2		

SWS_HAZ_EF-LKR_ALL_ALL_dmp snz low											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	Minor positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive	7					Positive	7		
		Negative	-3					Negative	-2		

SWS_HAZ_EF-LKR_ALL_ALL_dmp snz medium											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
	Deliver reliable and resilient water supplies	0	0	++	0	Moderate positive effects upon operation due to water being kept within the environment.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive	16					Positive	16		
		Negative	-3					Negative	-2		

SWS_HAZ_EF-LKR_ALL_ALL_dmp swz low											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	Minor positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive	7					Positive	7		
		Negative	-3					Negative	-2		

SWS_HAZ_EF-LKR_ALL_ALL_dmp swz medium											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Moderate positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	++	0
	Deliver reliable and resilient water supplies	0	0	++	0	Moderate positive effects upon operation due to water being kept within the environment.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive	16					Positive	16		
		Negative	-3					Negative	-2		

SWS_HAZ_HI-TFR_HWZ_ALL_oan2											
Otterbourne to Andover to Near Basingstoke - Crabwood to Micheldever											
Southern Water											
Transfer from Otterbourne to Andover to Near Basingstoke. This scheme is designed to support network improvements needed for UTMRD transfer to Hampshire and/or the strategic scheme from IoW/South Hampshire											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	The option intersects the Bransbury Common SSSI (17.16% favourable, 82.84% unfavourable - recovering) / GWDTE and River Test SSSI (17.91% favourable, 37.53% unfavourable - recovering, 43.52% unfavourable - no change, 1.03% unfavourable - declining) therefore potential for direct effects. Brockley Warren SSSI, Crab Wood SSSI and LNR are also within 2000m. The option also lies within SSSI Impact Risk Zones. The option also intersects priority habitat including coastal and floodplain grazing marsh and deciduous woodland. The option may disturb habitats and groundwater dependent terrestrial ecosystems. The HRA ToLS (2021) identifies uncertain effects for the River Itchen SAC (4.5km East of proposed option). If the route is hydrologically connected, an effect pathway may exist during the construction phase of the option.	Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Undertake HRA AA to address likely significant effects identified for various N2K sites.	0	--	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	Agricultural land classification ranges from Grade 3-4 and non-agricultural. There are historic landfill sites located within 500m, however given the distance from the route, no effects are anticipated.	Land reinstated upon completion. Best practice construction measures to be implemented, however residual construction effects likely.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The option predominately lies within flood zone 1, but does pass through flood zones 2 and 3. There is potential for construction phase to impact flood risk. The option is not likely to affect flood risk.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	The option lies within SPZ2 and intersects the River Itchen Chalk and River Test Chalk WFD groundwater bodies. Chalk groundwaters are a sensitive receptor. Groundwater and surface water pollution is possible during construction. The option also intersects several nitrate vulnerable zones and one WFD river waterbody. The WFD (2021) screening assessment	Best practice mitigation measures likely to be implemented during construction.	0	0	0	0

						identified further WFD assessment is not required.					
	Deliver reliable and resilient water supplies	0	0	+	0	The option will increase transfer capacity, providing increased resilience.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	There are no AQMAs within 2000m. There is likely to be impacts on air quality during the construction phase.	Best construction practices and pollution prevention and control measures e.g. damping.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	There is not anticipated to be any effects on the climate resilience of the local environment as a result of this option as water levels are not likely to be significantly affected.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option lies within the Hampshire Downs National Landscape Character Area. Construction is likely to cause visual disturbance but the pipeline will be buried once operational.	Implement temporary screening during construction. Reinstate landscape to original state once pipeline is buried.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	The option intersects a Grade II listed building and is within close proximity to Lainston House Registered Park and Garden. There are two further conservation areas and a number of listed buildings within 500m. There is potential for the construction phase to affect the setting of these historic assets. There is potential that the pipeline excavation will impact buried archaeology, if present.	Re-route the pipeline or utilise direction drilling to avoid direct effects on historic assets. Best practice methods likely to be implemented to minimise effects on the setting of historic assets. Archaeology Watching Brief may be required depending on the presence or absence of archaeology along the route.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are play spaces, churches and religious grounds, schools, playing fields, sports facilities, an airfield, and a golf club within 500m. The pipeline also passes through a golf course. There is potential that the community and users of these community facilities will be disrupted during the construction phase, however this is anticipated to be minor and temporary. IMD deciles range from 8 to 10 along the pipeline route.	Best practice measures will likely be implemented to minimise disturbance during construction. However, effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The pipeline passes through a golf course and there are also other recreational facilities including sports facilities, playing fields and play spaces within 500m. The pipeline may also lead to the diversion of public rights of way during the construction phase.	Best practice measures will likely be implemented to minimise disturbance during construction. However, effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Construction will require the use of materials and will generate waste, including excavated materials.	Source materials locally and reinstate dug materials where possible.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The pipeline intersects a major road. There is not anticipated to be any impacts on railways, national cycle routes or national trails. Moderate and temporary effects have been identified for the construction phase.	Use of directional drilling where possible to minimise disruption and other best practice methods, however minor residual effects likely to remain.	0	-	0	0
SEA Metrics		Positive Negative	1 -22					Positive Negative	1 -15		

SWS_HAZ_RE-DRO_ALL_ALL_di-ha											
TUBS and NEU Ban - HA WRZ											
Southern water											
Temporary use bans and Non-essential use bans											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Temporary use bans and non-essential use bans in the Andover area may help protect biodiversity, GWDTE and priority habitat by conserving water in the natural environment. The HRA Tols (2021) indicated the following Natura sites that may be affected: Salisbury Plain SAC (Distance N/A); Mottisfont Bats SAC (Distance N/A); Emer Bog SAC (Distance N/A); River Itchen SAC (Distance N/A); Solent & Southampton Water RAMSAR (Distance N/A); Solent & Southampton Water SPA (Distance N/A); Solent Maritime SAC (Distance N/A); The New Forest SAC (Distance N/A). The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to sites which ecosystems are dependent upon ground and surface water. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	A temporary use ban and non-essential use ban may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction which will help maintain river flows and protect ground water and surface water bodies. WFD assessment (2020) concluded no further assessment is required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	By reducing demand through temporary use band and non-essential use ban, option maintains resilience of water for essential services.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available.	N/A	0	0	0	0
Climatic Factors	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The option is for a temporary use ban and non-essential use ban. By reducing demand and potentially reducing abstraction the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented in drought conditions, it will not result in the long term resilience of the local environment.	N/A	0	0	+	0
	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of private gardens, and use of ornamental fountains etc will be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to have a significant effect on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Temporary use ban and non-essential use ban is likely to have minor negative effects on the community and social well-being as there will be restrictions on irrigation of gardens and allotments and use of water for recreational purposes. There may also be a small increased risk of fires in allotments as vegetation dries out.	Allowing allotments limited supplies of water. Ensuring high levels of communication before, during and following the implementation of these measures.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Assuming commercial properties including gardens are exempt from bans and restrictions there is likely to be only a minor effect on tourism and recreation. Non-commercial tourism sites may be affected.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effect on waste production or resource use.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effects on built assets and infrastructure.	N/A	0	0	0	0
SEA Metrics		Positive	4					Positive	4		
		Negative	-3					Negative	-3		

SWS_HAZ_RE-DRO_ALL_ALL_do_di_eme_regi											
Emergency restrictions: Hampshire Andover											
Southern water											
Drought Option: Emergency Drought Orders allow water companies to restrict supplies to customers through the imposition of rota cuts and/or the introduction of standpipes. These measures exist to deal with the very remote possibility of a drought much worse than any seen in the last century or more in the UK. Emergency Drought Orders have not been put in place in the UK since 1976. Ministers have made it clear that such measures should be avoided at all costs and introduced only as a last resort. The Company will make full use of all other measures before considering whether the severity of drought conditions mean that Emergency Drought Orders might be required. The full range of measures available under Emergency Drought Order include powers: To limit the use of water for such purposes as it considers necessary (i.e. further measures not specified in the Drought Direction 2011); To introduce rota cuts; and To set up, and supply water by means of, stand-pipes or water tanks. Level of intervention for this option: Unprecedented drought conditions. We intend the need for these to only arise in conditions of civil emergency and as such our emergency plan covers this in more detail.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) identified no likely significant effects as there are no N2K sites within the Hampshire Andover WRZ. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Emergency restrictions may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is only to be used in severe drought circumstances so is therefore not likely to affect flood risk or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	++	0	Option maintains resilience of water for essential services.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have temporary effects on visual amenity as restricted water use may impact parks and gardens reliant on public water supply.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	---	Emergency restrictions such as rota cuts and imposition of standpipes may have major negative effects on social well-being, with the potential for breakdown of social cohesion and impacts on public health. Imposition of standpipes will particularly effect people with limited mobility or other disabilities. Businesses that use water and do not have access to private water supply will be largely affected with the potential for substantial economic losses. There may also be an increased risk of fires as public access to water is restricted.	Ensure high level of communication with customers before, during and after the restrictions have been imposed.	0	0	0	---
	Maintain and enhance tourism and recreation	0	0	0	--	Tourism and recreation is likely to be affected as water restrictions may force some tourist attractions and recreational activities to temporarily close.	N/A	0	0	0	--
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive	7					Positive	7		
		Negative	-13					Negative	-13		

SWS_HAZ_RE-DRP_ALL_ALL_do_di_res_regi											
Restriction to non-essential use; Hampshire Andover											
Southern water											
Drought Option: The Company has recourse to a range of restrictions to Non-Essential Use. However, it can take a significant time to apply for and then implement a Drought Order. The Company might decide not to exercise all its powers until severe drought conditions are reached. Can be applied on a WRZ basis. Level of intervention for this option: Severe drought conditions.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) identified no likely significant effects for the N2K sites within the WRZ: Salisbury Plain SAC (Distance N/A). The HRA Tols indicates the option may be of benefit to sites which ecosystems are dependent upon ground and surface water. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Non-essential use restrictions may marginally impact soil quality, however the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Non-essential use restrictions are not anticipated to effect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicates short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	By reducing the amount of water required for supply through restrictions to non-essential use, the option maintains resilience of water for essential services.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of gardens, and use of ornamental fountains for example, may be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	--	Restrictions on non-essential use is likely to have moderate negative effects on the community and social well-being as there may be imposed restrictions on irrigation of gardens and allotments and outdoor plants, restrictions of use of water for swimming pools, restriction of washing vehicles and non-domestic property exteriors. Restrictions may apply to all customers, domestic and commercial so potential for economic impacts.	Ensuring high level of communication with customers before, during and following the implementation of the measure.	0	0	0	--
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation sites dependant on public water supply may be affected due to non-essential restrictions.		0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive	4					Positive	4		
		Negative	-6					Negative	-6		

SWS_HAZ_RE-OTH_REP_ALL_bs_kmt_resil											
Reduce transfer to other commercial customers: Hampshire Andover											
Southern Water											
Drought Option: In the event of a drought the Company would hold discussions with a commercial customer with regards to the resources position and their supply.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option may reduce the amount of water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during drought conditions and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) indicated no likely significant effect on Natura 2000 sites.	N/A	0	0	+	0
	Soil	0	0	0	0	There is not anticipated to be any effects on soil quality as a result of this option.	N/A	0	0	0	0
	Water	0	0	0	0	The option is not likely to be affected by flooding or lead to the exacerbation of flood risk.	N/A	0	0	0	0
Water	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and is only to be implemented in drought conditions. Option aims to reduce the water required for supply to other commercial customers, therefore potentially resulting in a reduction in abstraction. WFD assessment (2020) states no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to commercial companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the resilience of supply for these commercial customers.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	No effect on air emissions is anticipated from this option.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data has been provided for this option. Neutral effects have been estimated for construction and operation at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to commercial companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water within the natural environment. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	-	The reduction in the amount of water supplied to commercial customers may have an impact on the local economy if they are not able to carry out their business activity or have to operate at a reduced capacity. However, there is potential that the wider population will benefit from this option.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	+	-
	Maintain and enhance tourism and recreation	0	0	0	-	Given the option is to reduce the transfer of water for commercial customers, tourism and recreation could be affected if these customers rely on water to support these activities.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive	5					Positive	5		
		Negative	-3					Negative	-3		

SWS_HAZ_RE-OTH_REP_ALL_bs_vws_resil											
Reduce transfer to other water companies: Hampshire Andover											
Southern Water											
Drought Option: In the event of a drought the Company would hold discussions with neighbouring Companies with regards to their resources position and their supply. There are three main bulk transfers to the South East: its entitlement to 25% of the yield of the River Medway Scheme, the Sheldwich Scheme, and the Bewl-Darwell transfer. This option considers reduction of the transfer from Veolia Water Southeast to SWS Kent Thanet. The trigger for this would be when rainfall and groundwater level trigger is exceeded and/or if Veolia Water Southeast is not affected as much as Kent Thanet WRZ.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Given the option reduces the transfer of water to other companies in the event of a drought, there is potential that water will be retained within the natural environment. Ecosystems may already be under severe stress therefore additional water retained in the natural environment will be beneficial. The HRA ToLS (2021) identified that the option unlikely to impact Hampshire Andover WRZ N2K sites, as scheme is geographically separated from WRZ. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The option may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	It is not likely the option will affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply to other water companies, therefore may result in a reduction in abstraction. WFD assessment (2020) identified no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to other water companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the other water companies.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available for this option.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to other companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	The reduction in the amount transferred to other water companies may have some effects on the wider population outside of Southern Water's boundary. However, this will only occur where groundwater levels are exceeded and if the Veolia Water Southeast is not affected as much as SWS Kent Thanet WRZ.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation has the potential to be affected if the reduction in water to other companies results in restrictions for water based activities.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive	4					Positive	4		
		Negative	-3					Negative	-3		

SWS_HAZ_RE-TFR_IKT_ALL_do_si_tan_resil											
Tankering: Hampshire Andover											
Southern											
Tankering water from adjacent WRZs or other water companies would be considered in severe droughts. Can be applied on a WRZ basis.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	Depending on the number of vehicles required for the operation there may be a negative impact on nearby habitat from an increase in vehicle emissions.	Emission levels can be mitigated by using low emission vehicles (including electric vehicles) and strategic timing of transport e.g. avoiding driving lorries during rush hour.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option will supply water to Andover in an emergency circumstance of severe drought.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	--	Option will cause an increase in emissions during transportation of water. This option is only to be implemented in severe circumstances therefore an increase in emissions will only be temporary.	Emission levels can be mitigated by using low emission vehicles (including electric vehicles) and strategic timing of transport e.g. avoiding driving lorries during rush hour.	0	0	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	-	There is no carbon data available for this option. There may be some negative effects from an increase in carbon emissions associated with tankering, however these are anticipated to be minor due to the temporary nature of the option.	Option only to be implemented in severe drought, emissions can be mitigated for by using low emission vehicles.	0	0	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	This option is to be used only in severe drought and not a long term option. It will not affect resilience to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Visual amenity may be affected by an increase in lorries on the roads. This option is only to be implemented in severe circumstances therefore effects on visual amenity will be temporary.	Can be mitigated by strategic timing of transport of tankers.	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	-	Increased traffic may impact on built heritage e.g. conservation areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	Can be mitigated by strategic timing of transport of tankers.	0	0	0	-

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Noise from vehicles and increase in air pollution can cause disturbance in populated areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	Can be mitigated by using electric vehicles and strategic timing of transport of tankers e.g. avoiding driving tankers during rush hour.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Increase in congestion on roads from tankers and effects on visual amenity may have an effect on recreation and tourism in Andover. This option is only to be implemented in severe circumstances therefore effects on recreation and tourism will be temporary.	Best practice mitigation techniques to reduce impacts.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	--	Use of fuel resources.	Fuel utilisation may be reduced by strategic timing of transport vehicles e.g. avoid driving tankers in rush hour.	0	0	0	-
	Avoid negative effects on built assets and infrastructure	0	0	0	-	Depending on the number of tankers required for the operation, there may be an increase in congestion on roads. This option is only to be implemented in severe circumstances therefore negative effects will only be temporary.	Can be mitigated by strategic timing of transport of tankers e.g. avoiding driving tankers in rush hour.	0	0	0	-
SEA Metrics		Positive	1					Positive	1		
		Negative	-15					Negative	-9		

SWS_HKZ_EF-CRE_ALL_ALL_do_di_res_regi											
Restriction to non-essential use; Hampshire Near Basingstoke											
Hampshire Near Basingstoke											
Drought Option: The Company has recourse to a range of restrictions to Non-Essential Use. However, it can take a significant time to apply for and then implement a Drought Order. The Company might decide not to exercise all its powers until severe drought conditions are reached. Can be applied on a WRZ basis. Level of intervention for this option: Severe drought conditions.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) identified no likely significant effects as there are no N2K sites within the Hampshire Kingsclere WRZ. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Non-essential use restrictions may marginally impact soil quality, however the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Non-essential use restrictions are not anticipated to effect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicates short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	By reducing the amount of water required for supply through restrictions to non-essential use, the option maintains resilience of water for essential services.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of gardens, and use of ornamental fountains for example, may be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	--	Restrictions on non-essential use is likely to have moderate negative effects on the community and social well-being as there may be imposed restrictions on irrigation of gardens and allotments and outdoor plants, restrictions of use of water for swimming pools, restriction of washing vehicles and non-domestic property exteriors. Restrictions may apply to all customers, domestic and commercial so potential for economic impacts.	Ensuring high level of communication with customers before, during and following the implementation of the measure.	0	0	0	--
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation sites dependant on public water supply may be affected due to non-essential restrictions.		0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive	4					Positive	4		
		Negative	-6					Negative	-6		

SWS_HAZ_EF-LKR_ALL_ALL_dmp hkz high											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
	Deliver reliable and resilient water supplies	0	0	+++	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Minor positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive	28					Positive	28		
		Negative	-3					Negative	-2		

SWS_HKZ_HI-TFR_HAZ_ALL_oan3											
Otterbourne to Andover to Near Basingstoke - Micheldever to Near Basingstoke											
Southern Water Services											
Transfer from Otterbourne to Andover to Near Basingstoke. This scheme is designed to support network improvements needed for UTMRD transfer to Hampshire and/or the strategic scheme from IoW/South Hampshire											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	The option lies within an SSSI Impact Risk Zone. The option also intersects priority habitat including coastal and floodplain grazing marsh, deciduous woodland and lowland calcareous grassland. HRA ToLS identifies no likely significant effect on River Itchen SAC located 14.8km north of the option. High level construction phase INNS risk, as pipeline route passes through sensitive habitats. No INNS risk during operational phase as water is treated and free of INNS.	Ecological surveys prior to construction. Provide habitat compensation and relocation where required.	0	-	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	Land is classed as Grade 3 and 4 therefore potential for disturbance during construction phase. Historic landfill within 500m and authorised within 2000m, however no direct impacts.	Reinstate land following construction.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The option predominately lies within flood zone 1 but does pass through areas of flood zones 2 and 3 which may result in impacts for construction. The pipeline is not likely to influence flood risk.	Implement best practice measures to reduce flood risk but potential for residual effects.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	The option intersects SPZ1 and 2 and two chalk WFD groundwater bodies, potential sensitive receptors. One WFD river waterbody, chalk rivers and several nitrate vulnerable zones are also intersected. Construction may result in potential leaching of contaminants to surface and groundwater. WFD screening suggests no further waterbodies require assessment.	Implement pollution prevention and control measures. Use appropriate bedding materials and directional drilling where possible to minimise disturbance.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	The option will improve water transfer within the region, increasing water resilience.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Construction is likely to cause an increase in air emissions.	Best construction practices and pollution prevention and control measures e.g. damping.	0	-	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	The option is not anticipated to effect water levels. No change in resilience of the local water environment to climate change is therefore anticipated.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option intersects the North Wessex Downs AONB and Hampshire Downs and Thames Basin Heaths National Landscape Character Area. Visual disturbance is likely during construction but the pipeline will be buried once operational.	Implement temporary screening during construction. Reinstate landscape to original state once pipeline is buried.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The option lies within the Hurstbourne Priors Conservation Area and Kingsclere conservation area is within 500m. The Hurstbourne Registered Park and Garden is within close proximity to the pipeline and there is listed buildings and scheduled monuments within 500. Construction affect the setting of these historic assets but effects will be temporary. There is potential that excavation for the pipeline will impact buried archaeology.	Implement temporary screening during construction. Reinstate landscape to original state once pipeline is buried. Archaeological Watching Brief may be required during construction phase depending on the presence / absence of archaeology.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are allotments, playing fields, golf courses and play spaces within 500m and the option also passes through a sports facilities. Disruption to the community and users of these community facilities is possible during construction. IMD deciles 4-9 along extent of pipeline.	Implement traffic management plan to minimise disruption. Best construction practices such as damping and use of plant silencers.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The option intersects a sports facility and there may be diversions to public rights of way during the construction phase which may impact recreation. This is likely to be minor and temporary.	Implement best practice measures to minimise effects, however likely that residual effects will remain.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Construction is likely to require materials and resources, and will generate waste, including excavated materials.	Source materials locally and reinstate dug materials where possible.	0	-	0	0

	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option is likely to impact transport infrastructure as it intersects major roads and a railway. There is likely to be moderate and temporary impacts during the construction phase.	Use of directional drilling and other best practice construction methods where possible to minimise disruption.	0	-	0	0
SEA Metrics		Positive	1					Positive	1		
		Negative	-19					Negative	-11		

SWS_HKZ_RE-DRO_ALL_ALL_di-hk											
TUBS and NEU Ban - HK WRZ											
Southern water											
Temporary use bans and Non-essential use bans											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Temporary use bans and non-essential use bans in the Kingsclere area may help protect GWDTE and priority habitat by conserving water in the environment. The HRA Tols (2021) indicated the following Natura sites that may be affected: Salisbury Plain SAC (Distance N/A); Mottisfont Bats SAC (Distance N/A); Emer Bog SAC (Distance N/A); River Itchen SAC (Distance N/A); Solent & Southampton Water RAMSAR (Distance N/A); Solent & Southampton Water SPA (Distance N/A); Solent Maritime SAC (Distance N/A); The New Forest SAC (Distance N/A). The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to sites which ecosystems are dependent upon ground and surface water. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	A temporary use ban and non-essential use ban may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	By reducing demand through temporary use band and non-essential use ban, option maintains resilience of water for essential services.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available.	N/A	0	0	0	0
Climatic Factors	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The option is for a temporary use ban and non-essential use ban. By reducing demand and potentially reducing abstraction the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented in drought conditions, it will not result in the long term resilience of the local environment.	N/A	0	0	+	0
	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of private gardens, and use of ornamental fountains etc will be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to have a significant effect on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Temporary use ban and non-essential use ban is likely to have minor negative effects on the community and social well-being as there will be restrictions on irrigation of gardens and allotments and use of water for recreational purposes. There may also be a small increased risk of fires in allotments as vegetation dries out.	Allowing allotments limited supplies of water. Ensuring high levels of communication before, during and following the implementation of these measures.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Assuming commercial properties including gardens are exempt from bans and restrictions there is likely to be only a minor effect on tourism and recreation. Non-commercial tourism sites may be affected.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effect on waste production or resource use.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effects on built assets and infrastructure.	N/A	0	0	0	0
SEA Metrics		Positive	4					Positive	4		
		Negative	-3					Negative	-3		

SWS_HKZ_RE-DRO_ALL_ALL_do_di_eme_regi											
Emergency restrictions: Hampshire Near Basingstoke											
Southern water											
Drought Option: Emergency Drought Orders allow water companies to restrict supplies to customers through the imposition of rota cuts and/or the introduction of standpipes. These measures exist to deal with the very remote possibility of a drought much worse than any seen in the last century or more in the UK. Emergency Drought Orders have not been put in place in the UK since 1976. Ministers have made it clear that such measures should be avoided at all costs and introduced only as a last resort. The Company will make full use of all other measures before considering whether the severity of drought conditions mean that Emergency Drought Orders might be required. The full range of measures available under Emergency Drought Order include powers: To limit the use of water for such purposes as it considers necessary (i.e. further measures not specified in the Drought Direction 2011); To introduce rota cuts; and To set up, and supply water by means of, stand-pipes or water tanks. Level of intervention for this option: Unprecedented drought conditions. We intend the need for these to only arise in conditions of civil emergency and as such our emergency plan covers this in more detail.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) identified no likely significant effects as there are no N2K sites within the Kingsclere WRZ. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Emergency restrictions may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is only to be used in severe drought circumstances so is therefore not likely to affect flood risk or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	++	0	Option maintains resilience of water for essential services.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have temporary effects on visual amenity as restricted water use may impact parks and gardens reliant on public water supply.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	---	Emergency restrictions such as rota cuts and imposition of standpipes may have major negative effects on social well-being, with the potential for breakdown of social cohesion and impacts on public health. Imposition of standpipes will particularly effect people with limited mobility or other disabilities. Businesses that use water and do not have access to private water supply will be largely affected with the potential for substantial economic losses. There may also be an increased risk of fires as public access to water is restricted.	Ensure high level of communication with customers before, during and after the restrictions have been imposed.	0	0	0	---
	Maintain and enhance tourism and recreation	0	0	0	--	Tourism and recreation is likely to be affected as water restrictions may force some tourist attractions and recreational activities to temporarily close.	N/A	0	0	0	--
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive	7							Positive	7
		Negative	-13							Negative	-13

SWS_HKZ_RE-OTH_REP_ALL_bs_kmt_resil											
Drought option: Reduce transfer to other commercial customers - HKZ											
Southern Water											
Drought option: In the event of a drought the Company would hold discussions with a commercial customer with regards to the resources position and their supply.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option may reduce the amount of water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during drought conditions and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) indicated no likely significant effect on Natura 2000 sites.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	There is not anticipated to be any effects on soil quality as a result of this option.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is not likely to be affected by flooding or lead to the exacerbation of flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and is only to be implemented in drought conditions. Option aims to reduce the water required for supply to other commercial customers, therefore potentially resulting in a reduction in abstraction. WFD assessment (2020) states no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to commercial companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the resilience of supply for these commercial customers.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	No effect on air emissions is anticipated from this option.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data has been provided for this option. Neutral effects have been estimated for construction and operation at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to commercial companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water within the natural environment. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	-	The reduction in the amount of water supplied to commercial customers may have an impact on the local economy if they are not able to carry out their business activity or have to operate at a reduced capacity. However, there is potential that the wider population will benefit from this option.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	+	-
	Maintain and enhance tourism and recreation	0	0	0	-	Given the option is to reduce the transfer of water for commercial customers, tourism and recreation could be affected if these customers rely on water to support these activities.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive	5					Positive	5		
		Negative	-3					Negative	-3		

SWS_HKZ_RE-OTH_REP_ALL_bs_vws_resil											
Reduce transfer to other water companies: Hampshire Near Basingstoke											
Southern Water											
Drought Option: In the event of a drought the Company would hold discussions with neighbouring Companies with regards to their resources position and their supply. There are three main bulk transfers to the South East: its entitlement to 25% of the yield of the River Medway Scheme, the Sheldwich Scheme, and the Bewl-Darwell transfer. This option considers reduction of the transfer from Veolia Water Southeast to SWS Kent Thanet. The trigger for this would be when rainfall and groundwater level trigger is exceeded and/or if Veolia Water Southeast is not affected as much as Kent Thanet WRZ.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Given the option reduces the transfer of water to other companies in the event of a drought, there is potential that water will be retained within the natural environment. Ecosystems may already be under severe stress therefore additional water retained in the natural environment will be beneficial. The ToLS (2021) identified that the option unlikely to impact Hampshire Kingsclere WRZ N2K sites, as scheme is geographically separated from WRZ. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The option may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	It is not likely the option will affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply to other water companies, therefore may result in a reduction in abstraction. WFD assessment (2020) identified no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to other water companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the other water companies.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available for this option.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to other companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	The reduction in the amount transferred to other water companies may have some effects on the wider population outside of Southern Water's boundary. However, this will only occur where groundlevels are exceeded and if the Veolia Water Southeast is not affected as much as SWS Kent Thanet WRZ.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation has the potential to be affected if the reduction in water to other companies results in restrictions for water based activities.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive	4					Positive	4		
		Negative	-3					Negative	-1		

SWS_HKZ_RE-TFR_IKT_ALL_do_si_tan_resil											
Tankering: Tankering: Hampshire Near Basingstoke											
Southern											
Tankering water from adjacent WRZs or other water companies would be considered in severe droughts. Can be applied on a WRZ basis.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	Depending on the number of vehicles required for the operation, an increase in emissions may have negative impacts on nearby habitat.	Emission levels can be mitigated by using low emission vehicles (including electric vehicles) and strategic timing of transport e.g. avoiding driving lorries during rush hour.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option will supply water to Kingsclere in an emergency circumstance of severe drought.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	--	Option will cause an increase in emissions during transportation of water. This option is only to be implemented in severe circumstances therefore an increase in emissions will only be temporary.	Emission levels can be mitigated by using low emission vehicles (including electric vehicles) and strategic timing of transport e.g. avoiding driving lorries during rush hour.	0	0	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	-	There is no carbon data available for this option. There may be some negative effects from an increase in carbon emissions associated with tankering, however these are anticipated to be minor due to the temporary nature of the option.	Option only to be implemented in severe drought, emissions can be mitigated for by using low emission vehicles.	0	0	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	This option is to be used only in severe drought and not a long term option. It will not affect resilience to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Visual amenity may be affected by an increase in lorries on the roads. This option is only to be implemented in severe circumstances therefore effects on visual amenity will be temporary.	Can be mitigated by strategic timing of transport of tankers.	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	-	Increased traffic may impact on built heritage e.g. conservation areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	N/A	0	0	0	-

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Noise from vehicles and increase in air pollution can cause disturbance in populated areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	Can be mitigated by using electric vehicles and strategic timing of transport of tankers e.g. avoiding driving tankers during rush hour.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Increase in congestion on roads from tankers and effects on visual amenity may have an effect on recreation and tourism in Kingsclere. This option is only to be implemented in severe circumstances therefore effects on recreation and tourism will be temporary.	Best practice mitigation techniques to reduce impacts.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	--	Use of fuel resources.	Fuel utilisation may be reduced by strategic timing of transport vehicles e.g. avoid driving tankers in rush hour.	0	0	0	-
	Avoid negative effects on built assets and infrastructure	0	0	0	-	Depending on the number of tankers required for the operation, there may be an increase in congestion on roads. This option is only to be implemented in severe circumstances therefore negative effects will only be temporary.	Can be mitigated by strategic timing of transport of tankers e.g. avoiding driving tankers in rush hour.	0	0	0	-
SEA Metrics		Positive	1					Positive	1		
		Negative	-15					Negative	-9		

SWS_HRZ_EF-CRE_ALL_ALL_do_di_res_regi											
Restriction to non-essential use; Hampshire Rural											
Southern Water											
Drought Option: The Company has recourse to a range of restrictions to Non-Essential Use. However, it can take a significant time to apply for and then implement a Drought Order. The Company might decide not to exercise all its powers until severe drought conditions are reached. Can be applied on a WRZ basis. Level of intervention for this option: Severe drought conditions.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Construction Effects		Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) identified no likely significant effects for the N2K sites within the Hampshire Rural WRZ (Mottisfont Bats SAC). There is not likely to have benefits as the site is not dependent upon on ground or surface water flows for ecosystem function. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Non-essential use restrictions may marginally impact soil quality, however the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Non-essential use restrictions are not anticipated to effect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicates short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	By reducing the amount of water required for supply through restrictions to non-essential use, the option maintains resilience of water for essential services.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of gardens, and use of ornamental fountains for example, may be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	--	Restrictions on non-essential use is likely to have moderate negative effects on the community and social well-being as there may be imposed restrictions on irrigation of gardens and allotments and outdoor plants, restrictions of use of water for swimming pools, restriction of washing vehicles and non-domestic property exteriors. Restrictions may apply to all customers, domestic and commercial so potential for economic impacts.	Ensuring high level of communication with customers before, during and following the implementation of the measure.	0	0	0	--
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation sites dependant on public water supply may be affected due to non-essential restrictions.		0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive	4					Positive	4		
		Negative	-6					Negative	-6		

SWS_HAZ_EF-LKR_ALL_ALL_dmp hrz high											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
	Deliver reliable and resilient water supplies	0	0	+++	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Minor positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive 28 Negative -3		Positive 28 Negative -2							

SWS_HRZ_HI-GRW_ALL_ALL_nw_gwa_tim_westi											
Romsey - new boreholes to replace shallow adit											
Southern Water											
Romsey Drill new boreholes to replace shallow adit. Activity at local quarry impacts water quality. Existing boreholes that supply Romsey WSW are either out of service or operating below their full capacity due to quality issues. The well and adit system on site is also operating below capacity due to turbidity issues. Option proposes drilling 3 new boreholes and recommissioning an old borehole to increase the DO of the site. Treatment issues also need addressing at Romsey WSW.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	--	<p>There are no designated sites within 500m, however the River Test SSSI (17.91% favourable, 37.53% unfavourable - recovering, 43.52% unfavourable - no change, 1.03% unfavourable - declining) / GWDTE is within 2000m. The option is within a SSSI Impact Risk Zone. There is potential that the construction phase will have indirect effects on the River Test SSSI / GWDTE and potentially the operational phase from increased groundwater abstraction if hydrological links are present. There is woodland and priority habitats within close proximity to the option and therefore may be impacts. The HRA ToLS (2021) identified likely significant effects for Solent and Southampton Water SPA and Ramsar (located 9.4km to the south). Construction of the pipeline includes as part of this option crosses a watercourse that it hydrologically connected to the SPA and Ramsar. During construction, the mobilisation of any sediment, or the addition of any pollutant to the watercourse, could result in adverse effects to the habitats of the SPA and Ramsar downstream. This could in turn have likely significant effects on some or all of the qualifying bird species cited in the SPA and Ramsar. No likely significant effects were identified for New Forest Ramsar, SPA and SAC (approximately 8.8km to the south-west), Emer Bog SAC (6.1km to the south-east) and Mottisfont Bats SAC (approximately 3.2km to the west).</p> <p>Very low risk of spread / transfer of INNS as the source water is likely to be entirely free of INNS. It is assumed that groundwater is free of INNS, and that accessing it will not permit any additional inputs of INNS.</p>	<p>Best practice mitigation to minimise impacts, including preventing loss of habitat during construction, reinstatement of habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Potential for residual effects on SSSI / GWDTE to remain. Future design will need to undertake ecology surveys. The HRA Enhanced Tier 2 Screening identified that the likely significant effects for the Solent and Southampton Water SPA and Ramsar are mitigable. Construction phase works will follow best practice guidelines e.g. use of a robust CEMP detailing mitigation measures to minimise potential impacts with the use of DMPs, pollution prevention, coverage of construction stockpiles during adverse weather conditions to minimise potential effects of pollution and run-off. Construction dust could be mitigated through wet cutting/crushing and vacuum drilling. Upgrading plant to minimise particulate production e.g. use of particulate filters, catalytic converters to</p>	0	-	0	-

							minimise NOx production and use of low sulphur fuels is likely to minimise impacts to qualifying species. Sensitive lighting with down ward facing cowling would be used to reduce light pollution and insect draw.				
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The option is within Grade 3 agricultural land, there may be disturbance to the soil during the construction phase and there may also be a permanent loss as a result of the option. There are historic and authorised landfill sites within 500m with potential to disturb contaminated material during construction.	Reinstate land where possible, however potential for the option to lead to the permanent loss of soil due to the new boreholes. Best practice techniques to prevent potential disturbance of contaminated material during construction.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is located within Flood Zone 1 therefore low risk of flooding at the construction and operational phase. Option is not likely to exacerbate flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	-	There is potential for impacts on the construction phase on the water environment, including groundwater as the option involves drilling new boreholes. There is also potential for impacts on the quality and level of groundwater due to increased abstraction during operation. Water quality is already impacted by nearby activity at a quarry. The option is within the River Test Chalk and Central Hants Lambeth Group WFD ground waterbodies, and also lies within SPZs. Further WFD Assessment on operational effects is required.	Best practice construction measures to be implemented to mitigate effects therefore residual effects are unlikely for construction phase. Residual effects for operational have the potential to remain.	0	0	0	-
	Deliver reliable and resilient water supplies	0	0	+	0	The option will increase abstraction with a default benefit of 5Ml/d and therefore may lead to more resilient supplies.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	There are no AQMAs within 2000m. Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	No carbon data available for the option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of	0	-	0	-

							materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.				
	Reduce vulnerability to climate change risks and hazards	0	0	+	-	There is potential for benefits for the surface water environment in relation to resilience to climate change may as it involves abstracting from groundwater resources. However, there is likely to be negative effects for the resilience of groundwater.	Monitor groundwater levels.	0	0	+	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	-	The option is within the South Hampshire Lowlands NCA. There are likely to be minor negative impacts on landscape character and visual amenity during the construction phase. There is potential for above ground infrastructure therefore operational impacts identified.	Best practice will be implemented to avoid negative effects, ground will be reinstated, however likely to be some disturbance to landscape during works. Implement screening and other best practice techniques to minimise operational impacts.	0	-	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are listed buildings within 500m and there are conservation areas, listed buildings and a registered park and garden within 2000m. The construction phase may impact the setting of these assets. Excavation may impact archaeology, if present.	Best practice mitigation measures to be implemented to minimise setting effects during construction. Given there is potential to impact buried archaeology, an Archaeology Watching Brief may be required during the construction phase. Further work may be required to determine the significance of the effect depending on the presence / absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The option is within 500m of play spaces, playing fields, sports facilities, and a church. There is potential for the community and users of these community facilities to be impacted during the construction phase, however this is likely to be minor and temporary. The option is within IMD decile 7.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0

	Maintain and enhance tourism and recreation	0	-	0	0	There are play spaces, playing fields, a national cycle route and sports facilities within 500m which may be disrupted during the construction phase. There is potential that the construction phase may lead to disruption to users of public rights of way. Minor impacts on recreation therefore identified for the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste, including excavation materials.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	There are major roads and a national cycle trail within 500m. There is potential for these assets, as well as the local road network, to be impacted during the construction phase.	Best practice mitigation measures including a Traffic Management Plan to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics			Positive Negative	2 -26				Positive Negative	2 -15		

SWS_HRZ_HI-IMP_HSW_ALL_rob1											
Romsey Town & Broadlands valve (HSW to HR)											
Southern Water											
Romsey Town & Broadlands valve (HSW to HR)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	The option is for an existing transfer. No new infrastructure likely to be required therefore no impacts identified. HRA ToLS (2021) identified no likely significant effects given there is no new infrastructure. No additional risk for the transfer of INNS.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No new infrastructure as existing transfer therefore neutral effects identified for soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No new infrastructure therefore no additional flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No new infrastructure therefore neutral effects identified for water resources. WFD Screening Assessment (2020) identified no impact as it is an existing transfer and further WFD assessment is therefore not required.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	0	0	The option transfers water which leads to more resilient supplies, however as this is an existing transfer, additional positive effects have not been identified.	N/A	0	0	0	0
Air	Reduce and minimise air emissions	0	0	0	0	No new infrastructure therefore no additional impacts on air quality.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	No new infrastructure, utilising existing transfer and water levels are not likely to be significantly affected, therefore no additional impacts on the climate resilience of the local environment.	N/A	0	0	0	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No new infrastructure therefore no additional impacts on landscape.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No new infrastructure therefore no additional impacts on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	No new infrastructure therefore no additional impacts on the local community.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	No new infrastructure therefore no additional impacts on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	No new infrastructure therefore no additional impact on resources and waste.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	No new infrastructure therefore no additional impacts on built assets and the built environment.	N/A	0	0	0	0
SEA Metrics		Positive 0 Negative 0				Positive 0 Negative 0					

SWS_HRZ_HI-TFR_HSW_ALL_bro											
Romsey Town and Broadlands valve (HSW to HR)											
Southern Water											
Modelling suggests a new WBS in Palmerstone Street with a flow-rate of 5 MI/d is viable.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	-	0	0	Danebury Hill SSSI, Broughton Down and Danebury Hillfort LNR are both within 2000m. However, given the localised nature of the works, effects are not likely. The option lies within SSSI Impact Risk Zones. There is woodland, Ancient Woodland and priority habitats within 500m and there may be minimal indirect impacts on these. The HRA ToLS (2021) identified no likely significant effects for Mottisfont Bats SAC (located approximately 3.km to the south); Salisbury Plain SPA and SAC (located 5.2km to the west); Porton Down SPA (located 5.2km to the west); The New Forest SAC, SPA and Ramsar (located 14.5km to the south); and Emer Bog SAC (located 15km to the south-east). This is primarily due to the localised nature of the works and the distance from the N2K sites. There is no additional risk for the transfer/ movement of INNS.	Best practice methods to be implemented to minimise disturbance effects. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys.	0	-	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The option is located in Grade 3 and Grade 4 agricultural land. There is potential for minor disturbance during the works. There are no historic or authorised landfill sites within 500m.	Ground will be reinstated therefore residual effects unlikely.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	-	0	-	Part of the option is located within Flood Zone 2 and 3 therefore potential for flood risk to affect construction and operation.	Ensure best practice techniques during construction and operation to minimise flood risk.	0	-	0	-
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	The site is located within 500m of Wallop Brook, which is a main river, and is designated as a chalk river. There is likely to be minimal risk of impacting the quality of these rivers during the construction phase given works are localised. The option is not located within a SPZ. No further WFD assessment is required.	Implement best practice to minimise any impacts on nearby water receptors.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	The option will increase the resilience of supplies by providing an additional 5MI/d.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	There are no AQMAs within 2000m. There is likely to be very minimal impacts on air quality during construction given the nature of the works therefore neutral effects have been identified.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Water levels are not anticipated to be significantly affected therefore neutral effects have been identified for climate resilience.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option is located in the Hampshire Downs NCA. There are likely to be minor impacts on the landscape as a result of the works. Operational impacts are not anticipated given the works are minor, part of the option is within an airfield and the other at an existing building.	Best practice measures to be implemented to minimise effects during construction although temporary effects during construction may remain.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	There are listed buildings and a conservation area within 500m of the part of the option. There is not anticipated to impacts on the setting of these historic assets given the localised nature of the works. No impacts on archaeology are anticipated.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	Part of the option is within Middle Wallop Airfield and there is a school within 500m of the second part of the option. No impacts on the local community are anticipated given the nature of the works. The option is within IMD decile 7 and 8.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	No effects on recreation are anticipated as a result of the works given their localised nature.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste.	Likely to be limited opportunity to implement sustainable design measures to reduce the impact, therefore it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	There are major roads within 2000m. No effects are anticipated given the nature of the works.	N/A	0	0	0	0
SEA Metrics		Positive 1 Negative -9				Positive 1 Negative -7					

SWS_HRZ_RE-DRO_ALL_ALL_di-hr											
TUBS and NEU Ban - HR WRZ											
Southern water											
Temporary use bans and Non-essential use bans											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Temporary use bans and non-essential use bans in Rural Hampshire may help protect GWDTE and priority habitat by conserving water in the environment. The HRA Tols (2021) indicated the following Natura sites that may be affected: Salisbury Plain SAC (Distance N/A); Mottisfont Bats SAC (Distance N/A); Emer Bog SAC (Distance N/A); River Itchen SAC (Distance N/A); Solent & Southampton Water RAMSAR (Distance N/A); Solent & Southampton Water SPA (Distance N/A); Solent Maritime SAC (Distance N/A); The New Forest SAC (Distance N/A). The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to sites which ecosystems are dependent upon ground and surface water. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	A temporary use ban and non-essential use ban may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	By reducing demand through temporary use band and non-essential use ban, option maintains resilience of water for essential services.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The option is for a temporary use ban and non-essential use ban. By reducing demand and potentially reducing abstraction the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented in drought conditions, it will not result in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of private gardens, and use of ornamental fountains etc will be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to have a significant effect on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Temporary use ban and non-essential use ban is likely to have minor negative effects on the community and social well-being as there will be restrictions on irrigation of gardens and allotments and use of water for recreational purposes. There may also be a small increased risk of fires in allotments as vegetation dries out.	Allowing allotments limited supplies of water. Ensuring high levels of communication before, during and following the implementation of these measures.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Assuming commercial properties including gardens are exempt from bans and restrictions there is likely to be only a minor effect on tourism and recreation. Non-commercial tourism sites may be affected.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effect on waste production or resource use.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effects on built assets and infrastructure.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -3				Positive 4 Negative -3					

SWS_HRZ_RE-DRO_ALL_ALL_do_di_eme_regi											
Emergency restrictions: Hampshire Rural											
Southern water											
Drought Option: Emergency Drought Orders allow water companies to restrict supplies to customers through the imposition of rota cuts and/or the introduction of standpipes. These measures exist to deal with the very remote possibility of a drought much worse than any seen in the last century or more in the UK. Emergency Drought Orders have not been put in place in the UK since 1976. Ministers have made it clear that such measures should be avoided at all costs and introduced only as a last resort. The Company will make full use of all other measures before considering whether the severity of drought conditions mean that Emergency Drought Orders might be required. The full range of measures available under Emergency Drought Order include powers: To limit the use of water for such purposes as it considers necessary (i.e. further measures not specified in the Drought Direction 2011); To introduce rota cuts; and To set up, and supply water by means of, stand-pipes or water tanks. Level of intervention for this option: Unprecedented drought conditions. We intend the need for these to only arise in conditions of civil emergency and as such our emergency plan covers this in more detail.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) identified no likely significant effects for the N2K sites within the Hampshire Rural WRZ: Porton Down SPA, Salisbury Plain SAC and Mottisfont Bats SAC. The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to sites (Porton Down SPA and Salisbury Plain SAC) which contain GWDTE or are dependent on surface water flows. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Emergency restrictions may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is only to be used in severe drought circumstances so is therefore not likely to affect flood risk or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0

	Deliver reliable and resilient water supplies	0	0	++	0	Option maintains resilience of water for essential services.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have temporary effects on visual amenity as restricted water use may impact parks and gardens reliant on public water supply.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	---	Emergency restrictions such as rota cuts and imposition of standpipes may have major negative effects on social well-being, with the potential for breakdown of social cohesion and impacts on public health. Imposition of standpipes will particularly effect people with limited mobility or other disabilities. Businesses that use water and do not have access to private water supply will be largely affected with the potential for substantial economic losses. There may also be an increased risk of fires as public access to water is restricted.	Ensure high level of communication with customers before, during and after the restrictions have been imposed.	0	0	0	---
	Maintain and enhance tourism and recreation	0	0	0	--	Tourism and recreation is likely to be affected as water restrictions may force some tourist attractions and recreational activities to temporarily close.	N/A	0	0	0	--
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 7 Negative -13				Positive 7 Negative -13					

SWS_HRZ_RE-OTH_REP_ALL_bs_kmt_resil											
Drought option: Reduce transfer to other commercial customers - HRZ											
Southern Water											
Drought option: In the event of a drought the Company would hold discussions with a commercial customer with regards to the resources position and their supply.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option may reduce the amount of water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during drought conditions and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) indicated no likely significant effect on Natura 2000 sites.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	There is not anticipated to be any effects on soil quality as a result of this option.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is not likely to be affected by flooding or lead to the exacerbation of flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and is only to be implemented in drought conditions. Option aims to reduce the water required for supply to other commercial customers, therefore potentially resulting in a reduction in abstraction. WFD assessment (2020) states no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to commercial companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the resilience of supply for these commercial customers.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	No effect on air emissions is anticipated from this option.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data has been provided for this option. Neutral effects have been estimated for construction and operation at this stage.	N/A	0	0	0	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to commercial companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water within the natural environment. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	-	The reduction in the amount of water supplied to commercial customers may have an impact on the local economy if they are not able to carry out their business activity or have to operate at a reduced capacity. However, there is potential that the wider population will benefit from this option.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	+	-
	Maintain and enhance tourism and recreation	0	0	0	-	Given the option is to reduce the transfer of water for commercial customers, tourism and recreation could be affected if these customers rely on water to support these activities.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics			Positive Negative	5 -3					Positive Negative	5 -3	

SWS_HRZ_RE-OTH_REP_ALL_bs_vws_resil											
Reduce transfer to other water companies: Hampshire Rural											
Southern Water											
Drought Option: In the event of a drought the Company would hold discussions with neighbouring Companies with regards to their resources position and their supply. There are three main bulk transfers to the South East: its entitlement to 25% of the yield of the River Medway Scheme, the Sheldwich Scheme, and the Bewl-Darwell transfer. This option considers reduction of the transfer from Veolia Water Southeast to SWS Kent Thanet. The trigger for this would be when rainfall and groundwater level trigger is exceeded and/or if veolia Water Southeast is not affected as much as Kent Thanet WRZ.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Given the option reduces the transfer of water to other companies in the event of a drought, there is potential that water will be retained within the natural environment. Ecosystems may already be under severe stress therefore additional water retained in the natural environment will be beneficial. The HRA ToLS (2021) identified that the option unlikely to impact Hampshire Rural WRZ N2K sites (Mottisfont Bats SAC, Salisbury Plain SAC), as scheme is geographically separated from WRZ. No INNS risk/transfer associated with this option.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The option may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	It is not likely the option will affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply to other water companies, therefore may result in a reduction in abstraction. WFD assessment (2020) identified no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to other water companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the other water companies.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available for this option.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to other companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	The reduction in the amount transferred to other water companies may have some effects on the wider population outside of Southern Water's boundary. However, this will only occur where groundwater levels are exceeded and if the Veolia Water Southeast is not affected as much as SWS Kent Thanet WRZ.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation has the potential to be affected if the reduction in water to other companies results in restrictions for water based activities.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -3				Positive 3 Negative -3					

SWS_HRZ_RE-TFR_IQT_ALL_do_si_tan_resil											
Tankering: Hampshire Rural											
Southern											
Tankering water from adjacent WRZs or other water companies would be considered in severe droughts. Can be applied on a WRZ basis.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	Depending on the number of vehicles required for the operation, an increase in emissions may have negative impacts on nearby habitat.	Emission levels can be mitigated by using low emission vehicles (including electric vehicles) and strategic timing of transport e.g. avoiding driving lorries during rush hour.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option will supply water to rural areas in Hampshire in an emergency circumstance of severe drought.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	--	Option will cause an increase in emissions during transportation of water. This option is only to be implemented in severe circumstances therefore an increase in emissions will only be temporary.	Emission levels can be mitigated by using low emission vehicles (including electric vehicles) and strategic timing of transport e.g. avoiding driving lorries during rush hour.	0	0	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	-	There is no carbon data available for this option. There may be some negative effects from an increase in carbon emissions associated with tankering, however these are anticipated to be minor due to the temporary nature of the option.	Option only to be implemented in severe drought, emissions can be mitigated for by using low emission vehicles.	0	0	0	-

	Reduce vulnerability to climate change risks and hazards	0	0	0	0	This option is to be used only in severe drought and not a long term option. It will not affect resilience to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Visual amenity may be affected by an increase in lorries on the roads. This option is only to be implemented in severe circumstances therefore effects on visual amenity will be temporary.	Can be mitigated by strategic timing of transport of tankers.	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	-	Increased traffic may impact on built heritage e.g. conservation areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	N/A	0	0	0	-
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Noise from vehicles and increase in air pollution can cause disturbance in populated areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	Can be mitigated by using electric vehicles and strategic timing of transport of tankers e.g. avoiding driving tankers during rush hour.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Increase in congestion on roads from tankers and effects on visual amenity may have an effect on recreation and tourism in Hampshire. This option is only to be implemented in severe circumstances therefore effects on recreation and tourism will be temporary.	Can be mitigated by strategic timing of transport of tankers e.g. avoiding driving tankers in rush hour.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	--	Use of fuel resources.	Fuel utilisation may be reduced by strategic timing of transport vehicles e.g. avoid driving tankers in rush hour.	0	0	0	-
	Avoid negative effects on built assets and infrastructure	0	0	0	-	Depending on the number of tankers required for the operation, there may be an increase in congestion on roads. This option is only to be implemented in severe circumstances therefore negative effects will only be temporary.	Can be mitigated by strategic timing of transport of tankers e.g. avoiding driving tankers in rush hour.	0	0	0	-
SEA Metrics		Positive 1 Negative -15				Positive 1 Negative -9					

SWS_HSE_EF-CRE_ALL_ALL_do_di_res_regi											
Restriction to non-essential use; Hampshire Southampton East											
Southern Water											
Drought Option: The Company has recourse to a range of restrictions to Non-Essential Use. However, it can take a significant time to apply for and then implement a Drought Order. The Company might decide not to exercise all its powers until severe drought conditions are reached. Can be applied on a WRZ basis. Level of intervention for this option: Severe drought conditions.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) identified no likely significant effects for the N2K sites within the Hampshire Southampton East WRZ: (Emer Bog SAC, River Itchen SAC, Solent Maritime SAC, Solent & Southampton Water RAMSAR and SPA). All N2K within the WRZ GWDTEs or are partially dependent upon surface flows therefore option has the potential to have beneficial effects by mitigating the impacts of drought and aiding in drought recovery by increasing rates of recharge post drought when restrictions are still in place. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Non-essential use restrictions may marginally impact soil quality, however the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Non-essential use restrictions are not anticipated to effect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicates short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0

	Deliver reliable and resilient water supplies	0	0	+	0	By reducing the amount of water required for supply through restrictions to non-essential use, the option maintains resilience of water for essential services.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of gardens, and use of ornamental fountains for example, may be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	--	Restrictions on non-essential use is likely to have moderate negative effects on the community and social well-being as there may be imposed restrictions on irrigation of gardens and allotments and outdoor plants, restrictions of use of water for swimming pools, restriction of washing vehicles and non-domestic property exteriors. Restrictions may apply to all customers, domestic and commercial so potential for economic impacts.	Ensuring high level of communication with customers before, during and following the implementation of the measure.	0	0	0	--
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation sites dependant on public water supply may be affected due to non-essential restrictions.		0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -6				Positive 4 Negative -6					

SWS_HAZ_EF-LKR_ALL_ALL_dmp hse high											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
	Deliver reliable and resilient water supplies	0	0	+++	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Minor positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive 28 Negative -3		Positive 28 Negative -2							

SWS_HSE_HI-IMP_HSW_ALL_tot1											
Test to Lower Itchen pipeline (Southampton link main)											
Southern Water											
This option is a transfer from Test Surface Water WSW to the areas served by Otterbourne WSW. The option involves a 21.5 km 600mm HPPE pipeline and a new high-lift pumping station at Test Surface Water WSW.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	<p>The pipeline passes through the River Test SSSI / GWDTE (17.91% favourable, 37.53% unfavourable - recovering, 43.52% unfavourable - no change, 1.03% unfavourable - declining) and the Lower Test Valley SSSI / GWDTE (65.15% favourable, 34.85% unfavourable - recovering). As such, there is potential for direct effects. The Ratlake Meadows SSSI / GWDTE (100% unfavourable - recovering) and Trodds Copse SSSI / GWDTE (13.76% favourable, 86.24% unfavourable - recovering) are within 500m therefore potential for indirect effects. The option is within SSSI risk zones.</p> <p>The HRA ToLS identifies likely significant effects on the Solent and Southampton SPA/RAMSAR, Solent Maritime SAC and Solent and Dorset Coast SPA due to silt smothering / habitat loss during the construction phase along with noise / visual disturbance to qualifying species. Uncertain effects on Emer Bog SAC and River Itchen SACs, located 500m and 450m from the option respectively. Emer Bog may be effected from changes in groundwater availability as hydrological pathways may be present between the proposed pipeline route and the designated habitats on site. Construction may result in the creation of dust and other airborne pollution, that could have adverse effects on habitats if deposition was of a high enough rate. Effects on the River Itchen are uncertain as the proposed pipeline crosses over the Monk's Brook watercourse near Deer Park Farm House, which connects to the Itchen. Any sedimentation or pollution in the Monks Brook could feasibly flow into the Itchen. The presence of a weir and sluice gates on the Monk's Brook may reduce the likelihood of this happening but further assessment would be required.</p> <p>High level construction phase INNS risk, as western end of pipeline route passes through sensitive wetland habitats that are part of a Ramsar and SSSI. No INNS risk during operational phase as water is treated and free of INNS.</p>	<p>Construction best practice mitigation will be adhered to in order to reduce disturbance effects on biodiversity, but these effects cannot be eliminated due to the presence of the construction site and so it's likely for temporary adverse effects to remain. LSE identified for Solent and Southampton Water SPA / Ramsar and for Solent and Dorset Coast SPA are not considered mitigatable because the option runs through the designated site. This option could be realigned to avoid the footprint of the designated site however this would not preclude likely significant effects from being caused on the site and its qualifying features because the endpoint of the pipeline is very close to the Site. No mitigation measures identified. LSE during construction phase for Solent Maritime SAC are considered mitigatable through use of best practice guidelines such as use of a robust CEMP. Uncertain effects during construction phase identified for Emer Bog SAC and River Itchen SAC are considered mitigatable through use of best practice guidelines. HRA AA required to address LSE</p>	0	---	0	0

							for Solent and Southampton Water SPA / Ramsar and for Solent and Dorset Coast SPA.				
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	-	The option results in construction occurring within Grade 2, 3, 4 & 5 agricultural land and also urban land. The option involves passing through four historical landfill sites and there are three authorised landfill sites within 2000m of the option. It is assumed that the pipeline will be installed using a mixture of excavation and directional drilling works, therefore there is a possibility that contamination could leach out of the landfill. Therefore, an adverse effect is possible for the construction phase. During the operational phase, there will be a loss of agricultural (non-brownfield) land due to the new high-lift pumping station, resulting in an adverse effect.	Follow construction best practice mitigation to avoid contamination to land during construction phase. Reinstate land following works.	0	-	0	-
Water	Increase resilience and reduce flood risk	0	-	0	0	The option is located predominately within flood zone 1 but does pass through areas of flood zone 2 and 3. There is a risk of flooding during construction, however operational impacts not anticipated.	Follow construction best practice mitigation and sign up to Environment Agency flood alerts.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	The option is located next to a number of main rivers, including chalk rivers, meaning if there was a pollution event during construction, the quality of these water bodies could be lowered and the WFD status of the main river could be impacted. During the operational phase the option does not result in increased abstraction, meaning there will be no impacts on ground water or surface water levels. The option is within SPZs. WFD screening (2020) suggests no waterbodies require further assessment.	Adhere to construction best practice pollution prevention measures during works.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	++	0	This option results in the conveyance of water from one WTW to another WTW in a different region, opening up water resources to other areas where they could be needed, increasing resilience across regions.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	-	There are no AQMAS or AQM sites within 2000m of the option. Due to the use of machinery and plant for the construction phase, it is likely for temporary adverse effects to occur due to emissions creation. During the operational phase, minimal emissions will be released through operational plant required at the new pumping station, however this is likely to be minimal.	Construction best practice will be followed and outlined for contractors. Emissions will still occur and therefore minor adverse effects are anticipated.	0	-	0	-

Climatic Factors	Reduce embodied and operational carbon emissions	0	--	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has moderate construction and minor operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available	0	--	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	The option is unlikely to result in a change in water levels. Therefore, no likely effect on vulnerability of the water environment on climate change anticipated.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	-	There are no designated sites for landscape within the vicinity of the option. However, due to the presence of plant, machinery, site personnel and site compounds during the construction phase, it is likely for temporary adverse effects to occur. During the operational phase the only new above ground infrastructure will be the new pumping station which is thought to have very minimal effects on landscape.	Follow construction best practice mitigation. Investigate the use of visual screening for works areas if necessary. Ensure the finish of the pumping station is in keeping with local architecture.	0	-	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The option does not pass through a conservation area, but there are a number of these located within 500m of the pipeline. Broadlands Registered Park and Garden and Cranbury Park Registered Park and Garden as well as a scheduled monument is within 500m of the pipeline. The setting of these historic assets could be impacted by the works due to its close proximity e.g. through the tracking of vehicles. During the operational phase there are no anticipated effects due to the majority of assets being buried and the new pumping station not being located near to heritage features. The pipeline excavation may impact buried Archaeology if present.	Construction best practice mitigation should be followed to avoid impacts on heritage features. A CTMP (Construction Traffic Management Plan) should be produced to ensure that access routes to the site and site compounds do not disturb heritage features. Archaeological Watching Brief may be required during construction phase depending on presence / absence of archaeology.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are churches and religious grounds, play spaces, playing fields within 500m of the pipeline. The pipeline also passes through a small section of a golf course and school. It is assumed that the new pipeline could be installed under these sites using a directional drilling methodology to avoid disturbance. However, it is likely that there will be some disruption to the community and users of these community facilities from dust, noise and vibration, resulting in temporary adverse effects. During the	Reinstate ground following works. Adhere to construction best practice to keep disturbance to population to a minimum.	0	-	0	0

						operational phase the new pumping station is not near to these features and so no operational phase effects are anticipated. IMD deciles 7-9 along extent of the pipeline.					
	Maintain and enhance tourism and recreation	0	-	0	0	A national cycle route is within proximity to the pipeline, as well as greenspace sites. It is assumed that the new pipeline could be installed under these sites using a directional drilling methodology to avoid disturbance. However, it is likely that there will be some disruption from dust, noise and vibration to users of these sites, resulting in temporary adverse effects. There is also potential for diversions to public rights of ways which could impact recreation. During the operational phase the new pumping station is not near to these features and so no operational phase effects are anticipated.	Reinstate ground following works. Adhere to construction best practice to keep disturbance to population to a minimum.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Construction phase will require excavation and generation of excavated material. Resources required for construction.	Opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	There are a number of main roads and railways that the option crosses under. It is possible for temporary disturbance to the railway to occur during the construction phase e.g. through implementing speed limits due to site workers in close proximity to the railway line. Additionally, it is possible to damage these structures through drilling/laying pipelines in close proximity to the existing assets. During the operational phase these new assets will not require ongoing works (maybe occasionally maintenance visits) and so no effect is anticipated.	Construction best practice mitigation should be adhered to in order to avoid impacts on existing assets. Stakeholder consultation should be undertaken during the design stage to make sure other asset owners are aware of the works.	0	-	0	0
SEA Metrics				Positive	4			Positive	4		
				Negative	-29			Negative	-25		

SWS_HSE_HI-IMP_PRT_ALL_pwg											
Import from Portsmouth Water's Import from Portsmouth Water source to Moor Hill reservoir											
Southern Water											
Import from Portsmouth Water's Import from Portsmouth Water source to Moor Hill reservoir											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	The option is for an existing transfer. No new infrastructure likely to be required therefore no impacts identified. HRA ToLS (2021) identified no likely significant effects given there is no new infrastructure. No additional risk for the transfer of INNS.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No new infrastructure as existing transfer therefore neutral effects identified for soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No new infrastructure therefore no additional flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No new infrastructure therefore neutral effects identified for water resources. WFD Screening Assessment (2020) identified no impact as it is an existing transfer and further WFD assessment is therefore not required.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	0	0	The option transfers water which leads to more resilient supplies, however as this is an existing transfer, additional positive effects have not been identified.	N/A	0	0	0	0
Air	Reduce and minimise air emissions	0	0	0	0	No new infrastructure therefore no additional impacts on air quality.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	No new infrastructure, utilising existing transfer and water levels are not likely to be significantly affected, therefore no additional impacts on the climate resilience of the local environment.	N/A	0	0	0	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No new infrastructure therefore no additional impacts on landscape.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No new infrastructure therefore no additional impacts on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	No new infrastructure therefore no additional impacts on the local community.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	No new infrastructure therefore no additional impacts on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	No new infrastructure therefore no additional impact on resources and waste.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	No new infrastructure therefore no additional impacts on built assets and the built environment.	N/A	0	0	0	0
SEA Metrics		Positive 0 Negative 0				Positive 0 Negative 0					

SWS_HSE_HI-REU_RE1_ALL_bit40											
Portsmouth Harbour WTW (40Ml/d)											
Treat wastewater from Budds Farm WwTW in the Central Area and pump to immediately upstream of the tidal limit at Woodmill on the River Itchen to support abstractions at Gaters Mill to be transferred to Otterbourne WSW for treatment and distribution to the Western Area.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	---	The pipeline crosses the River Itchen SSSI (10.37% favourable, 55.74% unfavourable - recovering, 27.99% unfavourable - no change and 5.51% unfavourable - declining) / GWDTE / SAC several times therefore potential for direct effects. There is also potential for impacts as a result of discharge. Portsdown SSSI (9.19% favourable, 88.22% unfavourable - recovering, 2.59% destroyed), Langstone Harbour SSSI (8.39% favourable, 91.05% unfavourable - recovering, 0.56% unfavourable - no change) / GWDTE, Solent Maritime SAC, and Chichester and Langstone Harbours SPA and Ramsar are also within 500m. There are also additional designated sites within 2000m with potential for indirect effects and the option is within SSSI Impact Risk Zones. River Itchen is a chalk river and therefore abstraction may have an impact on sensitive habitats. The pipeline passes through Ancient Woodland, woodland and priority habitats and areas of Priority Habitat including coastal and floodplain grazing marsh, deciduous woodland, good quality semi-improved grassland, lowland fens, lowland meadows and lowland calcareous grassland. Potential for direct effects on these habitats. The HRA ToLS (2021) identified likely significant effects for River Itchen SAC, Chichester and Langstone Harbours SPA and Ramsar, and Solent Maritime SAC during both construction and operational phases. Uncertain effects were identified for Solent & Southampton Water SPA and Ramsar, Solent and Dorset Coast Potential SPA, Portsmouth Harbour SPA and Ramsar. Very low risk of transfer of INNS as the treated source water is likely to be entirely free of INNS. Construction phase risk of INNS is considered to be low.	Best practice mitigation to prevent impact on designated sites, however potential for residual effects to remain. Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. LSE identified for River Itchen SAC, Solent Maritime SAC, Chichester and Langstone Harbours SPA / Ramsar are considered to be partially mitigatable. Construction works will follow best practice guidelines e.g. use of a robust CEMP. Operational effects remain uncertain because it is unknown if the competent authorities regularly check on outfall or conditions of designated sites to ensure that discharge does not negatively impact receiving waterbodies. Uncertain construction effects for Solent & Southampton Water SPA / Ramsar and Solent and Dorset Coast	0	--	0	--

							Potential SPA can be mitigated through use of best practice guidelines such as use of a robust CEMP. Operational phase impacts cannot be mitigated because increase in effluent to the River Itchen has the potential to travel downstream and impact habitats within the sites. Uncertain effects for the Portsmouth Harbour Ramsar Site are considered to be mitigated through use of construction best practices and during operations, no operational impacts are predicted as Portsmouth Harbour Ramsar is located within a separate tidal basin. HRA AA required to address residual uncertain effects for LSE for River Itchen SAC, Solent Maritime SAC, Chichester and Langstone Harbours SPA / Ramsar.				
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The pipeline passes through Grade 1 and 2 agricultural land as well as Grade 3, 4, urban and non-agricultural land. There is likely to be disturbance to these soils during construction. The pipeline passes through historic and authorised landfill, and is within 500m of multiple other authorised and historic landfill sites therefore potential for disturbance to contaminants during construction.	Reinstate land following construction. Implement best practice techniques for working in and within close proximity to landfills. Consider realignment if possible, to avoid impacts.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	Option predominately located within Flood Zone 1, whilst crossing into Flood Zone 2 and 3 at multiple locations, particularly within the River Itchen floodplain. This may have an impact on construction.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	--	The pipeline crosses water bodies, including main rivers and chalk rivers, which could be impacted during construction. The option is within SPZs. Given the option aims to increase abstraction, there is a potential for impacts on flows, quality and levels within the River Itchen, however this will be supported by the transfer of treated water. River Itchen is a chalk river therefore abstraction may have an effect on sensitive features. The WFD assessment identifies that further WFD assessment is required for the River Itchen and two waterbodies not part of a river WB catchment.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain. Further WFD assessment is required.	0	--	0	--

	Deliver reliable and resilient water supplies	0	0	++	-	The option will support the resilience of the water supply as it transfers treated water to support abstraction. However, as it involves abstraction from a chalk river, it is not considered to be resilient in the long-term given water company commitments to ceasing chalk river abstraction.	N/A	0	0	++	-
Air	Reduce and minimise air emissions	0	-	0	0	Option does not pass through any AQMAs although there are AQMAs within 500m and 2000m including Eastleigh AQMA No.1 (A335), which is in close proximity. However, construction is likely to have minor and temporary impact.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	---	0	---	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has major construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	---	0	---
	Reduce vulnerability to climate change risks and hazards	0	0	+	-	The option aims to abstract water and therefore is likely to have negative effects on the local environment by removing water. However, given the abstraction is supported by treated water, the effects may not be as significant. Minor negative and positive effect identified.	Monitor water levels.	0	0	++	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	Option located within South Coast Plain, South Hampshire Lowlands and Hampshire Downs National Character Areas. Chichester Harbour AONB and South Downs National Park is within 500m of the option. There is potential for impacts on landscape and visual during the construction phase. However, this is likely to be minor and temporary.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	---	0	0	The option passes through Townhill Registered Park and Garden, and Fort Widley Scheduled Monument, therefore potential for direct effects. It also passes through conservation areas and is within 500m of listed buildings, scheduled monuments and conservation areas. The construction phase has the potential to impact the setting of these historic assets. The pipeline may impact buried archaeology during excavation.	The pipeline should be rerouted to avoid direct effects or the use of trenchless techniques should be implemented. Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of	0	-	0	0

							archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The pipeline passes through a cemetery, playing fields, sports facilities, public park or garden and golf courses. It is also within 500m of playing fields, public parks or gardens, schools, play spaces, allotments, medical facilities, churches and religious ground, and other community facilities. The wider community and users of these community facilities are likely to be disrupted during the construction works. IMD deciles range for 3 to 10 along the pipeline route.	Route alignment to be amended or use of trenchless techniques to avoid direct impacts on community assets and land to be reinstated. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	--	0	0	Give the pipeline passes through playing fields, sports facilities, golf courses and other recreational community spaces, there is a potential for impacts on recreation. Option crosses National Cycle Network and within 500m of South Downs National Park. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The pipeline crosses major roads, railways and national cycle routes. The construction phase therefore has the potential to result in moderate and temporary effects from disruption.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive 5 Negative -73						Positive 8 Negative -43			

SWS_HSE_HI-REU_RE1_ALL_bpcm60											
Combine Portsmouth Harbour WTW & Fareham WTW (modular 0-60MI/d)											
Southern											
This option requires the treatment of wastewater streams at both Budd's Farm WwTW and Peel Common WwTW with tertiary treatment to a quality suitable to support flows into the River Itchen for increases abstraction. The treated effluent will be pumped in separate pipes from the WwTWs to a meeting point then pumped in a single pipe to the discharge immediately upstream of the tidal limit of the River Itchen at Woodmill.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	---	Option crosses River Itchen SSSI (10.37% favourable, 55.74% unfavourable - recovering, 27.99% unfavourable - no change and 5.51% unfavourable - declining) in several locations therefore potential for direct effects. Option within 500m of Langstone Harbour SSSI (91.05% unfavourable - recovering, 8.39% favourable, 0.56% unfavourable - no change) and Portsdown SSSI (88.22% unfavourable - recovering, 9.19% favourable), both of which are biological SSSI. Entire option located within SSSI Impact Risk Zone. River Itchen is a chalk river and therefore abstraction may have an impact on sensitive habitats. Option crosses River Itchen SAC and within 2km of Solent Maritime SAC. Within 2km of Chichester and Langstone Harbours SPA, Portsmouth Harbour SPA, Solent & Southampton SPA and Solent and Dorset Coast SPA. Option within 500m of Titchfield Haven National Nature Reserve. Within 2km of Solent & Southampton Water Ramsar site, Portsmouth Harbour Ramsar site and Chichester and Langstone Harbours Ramsar site. Option crosses at least six areas of Ancient Woodland and areas of Priority Habitats including coastal and floodplain grazing marsh, deciduous woodland, good quality semi-improved grassland, lowland fens, lowland meadows, lowland calcareous grassland and mudflats. The HRA ToLS (2021) identified likely significant effects for River Itchen SAC (0km proposed option discharges into the SAC), Solent Maritime SAC (0.1km S of proposed option), and Chichester and Langstone Harbours SPA (within 0.1km SE of proposed option), and Chichester and Langstone Harbours SPA and Ramsar site (within 0.1km SE of proposed option). These were identified for both construction and operation. Uncertain effects were identified for Solent &	Re-route the pipeline to avoid designated sites. Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. LSE impacts identified for Chichester and Langstone Harbours Ramsar / SPA, River Itchen SAC and Solent Maritime SAC, and the uncertain effects identified for Solent & Southampton Water SPA / Ramsar and the Solent and Dorset Coast Potential SPA for the construction phase are considered to be mitigatable through use of best practice guidelines such as use of a robust CEMP. Operational phase impacts remain uncertain because it is unknown if the competent authorities regularly check on outfall or conditions of designated sites to ensure that quality of water bodies receiving discharge is protected. Uncertain effects for Portsmouth Harbour SPA / Ramsar are considered to be mitigated through	0	0	0	--

						Southampton Water SPA and Ramsar (0.5km S of proposed option), Solent and Dorset Coast Potential SPA (within 0.1km SW of proposed option), and Portsmouth Harbour SPA and Ramsar (within 3km S of proposed option). Very low risk of transfer of INNS as the treated water is likely to be entirely free of INNS. Construction phase risk of INNS is considered to be low.	construction best practice guidelines. During operation, impacts are considered mitigated because it is determined that EA ensures discharge permits are adhered to and that discharge does not cause an unacceptable impact on the environment. HRA AA required to address uncertain effects for Chichester and Langstone Harbours Ramsar / SPA, River Itchen SAC and Solent Maritime SAC.				
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	Option crosses three authorised landfill sites and six historic landfill sites. Within 500m of multiple other authorised and historic landfill sites. There is potential to disturb contaminated material during construction. Option predominately located on grade 3 and grade 4 agricultural land, while crossing areas of grade 1 and grade 2 agricultural land, non-agricultural land and urban land. Likely disturbance to these soils during construction.	Land reinstated upon completion. Best practicable means to prevent potential disturbance of contaminated material during construction. Consider realignment if possible, to avoid impacts.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	Option predominately located within Flood Zone 1, whilst crossing into Flood Zone 2 and 3 at multiple locations, particularly within the River Itchen floodplain. This may have an impact on construction.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	Option crosses watercourses, including multiple main rivers. Option does not cross any SPZs, however adjacent to SPZ Zone I and Zone II, both in one location. Option involves abstraction from River Itchen and discharge immediately upstream of the tidal limit of the River Itchen at Woodmill, which may affect flows, water quality and levels. WFD screening identified that one additional waterbody (GB107042022580 Itchen) requiring further WFD assessment due to the impacts of new or increased surface water abstraction during the operation of the site.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain. Further WFD assessment is required.	0	-	0	--
	Deliver reliable and resilient water supplies	0	0	+++	-	The option will support the resilience of the water supply as it transfers treated water to support abstraction. Capacity of modular 0-60Ml/d, increasing resilience. However, given the River Itchen is a chalk river and the option proposes abstraction, it not resilient in the long-term given water company commitments for chalk river abstraction.	N/A	0	0	+++	-

Air	Reduce and minimise air emissions	0	-	0	0	Option does not pass through any AQMAs although there are AQMAs within 500m and 2000m. However, construction is likely to have minor and temporary impact.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	---	0	0	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon) and construction activities. The relative carbon scale identified that the option has major construction carbon emissions (relative to other WRSE Regional Plan options). No operational data provided.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	---	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	-	The option aims to abstract water and therefore is likely to have negative effects on the local environment by removing water. However, given the abstraction is supported by treated water, the effects may not be as significant. Minor negative and positive effect identified.	N/A	0	0	+	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	Option located within South Coast Plain, South Hampshire Lowlands and Hampshire Downs National Character Areas. Chichester Harbour AONB and South Downs National Park is within 500m of the option. Potential for impacts on landscape character and visual amenity during construction.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	---	0	0	Option crosses Townhill Park Grade II Registered Park and Garden. Option crosses one Scheduled Monument and within 500m of multiple other Scheduled Monuments. Option within 500m of multiple listed buildings. Option crosses three Conservation Areas and within 500m of multiple other conservation areas. Construction may affect the setting of the historic assets, however this will be temporary. Potential impact on buried archaeology, if present.	Option routing or use of trenchless techniques to avoid historic assets. Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	Option crosses the grounds of one school and within 500m of multiple other schools, medical facilities and other important buildings. Option crosses Itchen Valley Country Park, Riverside Park, two golf courses, a cemetery and multiple playing fields. Option within 500m of other Public Parks or Gardens, religious grounds, play spaces, playing fields, allotments and tennis courts. Option crosses one Noise Action Planning Important Area. Option crosses	Route alignment to be amended or use of trenchless techniques to avoid direct impacts on community assets and land to be reinstated. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction.	0	-	0	0

						areas of IMD deciles 10, 9, 8, 7, 5 and 3. Disturbance to the local community will be temporary in nature.	However, temporary effects are likely to still occur.					
	Maintain and enhance tourism and recreation	0	--	0	0	Option crosses Itchen Valley Country Park, Riverside Park, two golf courses, and multiple playing fields. Option within 500m of other Public Parks or Gardens, play spaces, playing fields and tennis courts. Option crosses National Cycle Network and within 500m of South Downs National Park. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, temporary effects are likely to still occur.	0	-	0	0	
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0	
	Avoid negative effects on built assets and infrastructure	0	--	0	0	Option crosses railways, major roads (including M27 and A3(M)) and National Cycle Network routes. Likely to be moderate and temporary impacts during the construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0	
SEA Metrics			Positive Negative	9 -62	Positive Negative							9 -28

SWS_HSE_HI-REU_RE1_ALL_bpcm90											
Combine Portsmouth Harbour WTW & Fareham WTW (modular 60-90MI/d)											
Southern											
This option requires the treatment of wastewater streams at both Budd's Farm WwTW and Peel Common WwTW with tertiary treatment to a quality suitable to support flows in to the River Itchen for increases abstraction. The treated effluent will be pumped in separate pipes from the WwTWs to a meeting point then pumped in a single pipe to the discharge immediately upstream of the tidal limit of the River Itchen at Woodmill.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	---	Option crosses River Itchen SSSI (10.37% favourable, 55.74% unfavourable - recovering, 27.99% unfavourable - no change and 5.51% unfavourable - declining) in several locations therefore potential for direct effects. Option within 500m of Langstone Harbour SSSI (91.05% unfavourable - recovering, 8.39% favourable, 0.56% unfavourable - no change) and Portsdown SSSI (88.22% unfavourable - recovering, 9.19% favourable), both of which are biological SSSI. Entire option located within SSSI Impact Risk Zone. River Itchen is a chalk river and therefore abstraction may have an impact on sensitive habitats. Option crosses River Itchen SAC and within 2km of Solent Maritime SAC. Within 2km of Chichester and Langstone Harbours SPA, Portsmouth Harbour SPA, Solent & Southampton SPA and Solent and Dorset Coast SPA. Option within 500m of Titchfield Haven National Nature Reserve. Within 2km of Solent & Southampton Water Ramsar site, Portsmouth Harbour Ramsar site and Chichester and Langstone Harbours Ramsar site. Option crosses at least six areas of Ancient Woodland and areas of Priority Habitats including coastal and floodplain grazing marsh, deciduous woodland, good quality semi-improved grassland, lowland fens, lowland meadows, lowland calcareous grassland and mudflats. The HRA ToLS (2021) identified likely significant effects for River Itchen SAC (0km proposed option discharges into the SAC), Solent Maritime SAC (0.1km S of proposed option), and Chichester and Langstone Harbours SPA (within 0.1km SE of proposed option), and Chichester and Langstone Harbours SPA and Ramsar site (within 0.1km SE of proposed option). These were identified for both construction and operation. Uncertain effects were identified for Solent & Southampton Water SPA and Ramsar (0.5km S of proposed option), Solent and Dorset Coast Potential SPA	Re-route the pipeline to avoid designated sites. Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. LSE impacts identified for Chichester and Langstone Harbours Ramsar / SPA, River Itchen SAC and Solent Maritime SAC, and the uncertain effects identified for Solent & Southampton Water SPA / Ramsar and the Solent and Dorset Coast Potential SPA for the construction phase are considered to be mitigatable through use of best practice guidelines such as use of a robust CEMP. Operational phase impacts remain uncertain because it is unknown if the competent authorities regularly check on outfall or conditions of designated sites to ensure that quality of water bodies receiving discharge is protected. Uncertain effects for Portsmouth Harbour SPA / Ramsar are considered to	0	--	0	--

						(within 0.1km SW of proposed option), and Portsmouth Harbour SPA and Ramsar (within 3km S of proposed option). Very low risk of transfer of INNS as the treated water is likely to be entirely free of INNS. Construction phase risk of INNS is considered to be low.	be mitigated through construction best practice guidelines. During operation, impacts are considered mitigated because it is determined that EA ensures discharge permits are adhered to and that discharge does not cause an unacceptable impact on the environment. HRA AA required to address uncertain effects for Chichester and Langstone Harbours Ramsar / SPA, River Itchen SAC and Solent Maritime SAC.				
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	Option crosses three authorised landfill sites and six historic landfill sites and is within 500m of multiple other authorised and historic landfill sites. There is potential to disturb contaminated material during construction. Option predominately located on grade 3 and grade 4 agricultural land, while crossing areas of grade 1 and grade 2 agricultural land, non-agricultural land and urban land. Therefore, likely disturbance to these soils during construction.	Land reinstated upon completion. Best practicable means to prevent potential disturbance of contaminated material during construction. Consider realignment if possible, to avoid impacts.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	Option predominately located within Flood Zone 1, whilst crossing into Flood Zone 2 and 3 at multiple locations. This may have an effect on construction.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	Option crosses watercourses, including multiple main rivers. Option does not cross any SPZs, however adjacent to SPZ Zone I and Zone II, both in one location. Option involves abstraction from River Itchen and discharge immediately upstream of the tidal limit of the River Itchen at Woodmill, which may affect flows, water quality and levels. WFD screening identified that one additional waterbody (GB107042022580 Itchen) requiring further WFD assessment due to the impacts of new or increased surface water abstraction during the operation of the site.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain. Further WFD assessment is required.	0	-	0	--
	Deliver reliable and resilient water supplies	0	0	+++	-	The option will support the resilience of the water supply as it transfers treated water to support abstraction. Capacity of modular 60-90MI/d, increasing resilience. However, given the River Itchen is a chalk river and the option proposes abstraction, it not resilient in the long-term given water company commitments for chalk river abstraction.	N/A	0	0	+++	-

Air	Reduce and minimise air emissions	0	-	0	0	Option does not pass through any AQMAs although there are AQMAs within 500m and 2000m. However, construction is likely to have minor and temporary impact.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	--	0	0	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities. The relative carbon scale identified that the option has moderate construction carbon emissions (relative to other WRSE Regional Plan options). No operational carbon data available.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	--	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	-	The option aims to abstract water and therefore is likely to have negative effects on the local environment by removing water. However, given the abstraction is supported by treated water, the effects may not be as significant. Minor negative and positive effect identified.	N/A	0	0	0	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	Option located within South Coast Plain, South Hampshire Lowlands and Hampshire Downs National Character Areas. Chichester Harbour AONB and South Downs National Park is within 500m of the option. Potential for impacts on landscape character and visual amenity during construction.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	---	0	0	Option crosses Townhill Park Grade II Registered Park and Garden. Option crosses one Scheduled Monument and within 500m of multiple other Scheduled Monuments. Option within 500m of multiple listed buildings. Option crosses three Conservation Areas and within 500m of multiple other conservation areas. Construction may affect the setting of the historic assets, however this will be temporary. Potential impact on buried archaeology, if present.	Option routing or use of trenchless techniques to avoid historic assets. Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	Option crosses one school and within 500m of multiple other schools, Important Buildings and medical facilities. Option crosses Itchen Valley Country Park, Riverside Park, two golf courses, a cemetery and multiple playing fields. Option within 500m of other Public Parks or Gardens, religious grounds, play spaces, playing fields, allotments and tennis courts. Option crosses one Noise Action Planning Important Area. Option crosses areas of IMD deciles 10, 9, 8, 7, 5 and 3. Disturbance to the local community and users of the community facilities may be moderate and temporary in nature.	Option routing should be considered to avoid crossing the school, golf courses, playing fields, cemetery and parks, including Itchen Valley Country Park or use of directional drilling. Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	--	0	0	Option crosses Itchen Valley Country Park, Riverside Park, two golf courses, and multiple playing fields. Option within 500m of other Public Parks or Gardens, play spaces, playing fields and tennis courts. Option crosses National Cycle Network and within 500m of South Downs National Park. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	Option crosses railways, major roads (including M27 and A3(M)) and National Cycle Network routes. Likely to be moderate and temporary impacts during the construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive 9 Negative -58				Positive 8 Negative -28					

SWS_HSE_HI-REU_RE1_ALL_por9											
Portswood WwTW Indirect Potable Water Reuse (8.5Ml/d)											
Southern Water											
Portswood WwTW has a consented DWF of approximately 28 Ml/d, although there are reports that the true minimum flow is closer to 20 Ml/d. There is little room for expansion at Portswood WwTW therefore it is proposed to pump the effluent to a new tertiary treatment plant at Import from Portsmouth Water WSW (owned by Portsmouth Water). The treated effluent from the new tertiary treatment plant at Import from Portsmouth Water WSW will be pumped to a discharge location immediately upstream of the tidal limit at Woodmill. This will offset increased abstractions at Gaters Mill during scheme operation when sustainability reductions would otherwise restrict abstraction. There are two treatment options available:(1) The abstracted water will be pumped via a new pipeline and pumping station to Otterbourne WSW for treatment and distribution. (2) The Water will be treated at the existing Import from Portsmouth Water WSW plant. The treated water will be transferred to Southern Water by a recently constructed bulk transfer main from Import from Portsmouth Water WSW to the Otterbourne distribution network which has capacity to transfer an additional 15 Ml/d.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	---	The pipeline passes through River Itchen GWDTE / SAC therefore potential for direct effects. The River Itchen is also a SSSI, however this is geological. The pipeline is within a SSSI risk zone. There is also a LNR within 2000m which may be indirectly affected during construction. There are direct effects identified for woodland, ancient woodland and priority habitats. The HRA ToLS (2021) identified likely significant effects for River Itchen SAC (0km proposed option intersects and discharges into the SAC) as a result of construction activities potentially polluting the site and operation effects from alternations in abstraction. Uncertain effects were identified for Solent & Southampton Water Ramsar and SPA (1.5km S of proposed option), and Solent and Dorset Coast Potential SPA (0km proposed option discharges into the Potential SPA). Effluent will be pumped from one water treatment works to another, where it will be treated before discharge, this means the risk of INNS transfer is low. Construction has a moderate risk of INNS transfer.	Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. However, likely residual effects on designated sites. LSE identified for River Itchen SAC and uncertain effects identified for Solent & Southampton Water RAMSAR / SPA and Solent and Dorset Coast Potential SPA. Effects are considered to be partially mitigatable through use of construction best practices such as a robust CEMP. However, there is still a possibility of noise and visual disturbance for species which may use habitats near construction working areas for the pipeline even though outside of the designated site boundaries. Operational phase of option is unlikely to have negative impact upon the designated site. However, operational phase should include the monitoring of	0	--	0	--

							pipeline crossing points during extreme weather events for all identified N2k sites. Undertake HRA AA to address residual uncertain effects identified for identified N2k sties.				
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The pipeline passes through Grade 2 and Grade 4 agricultural land and urban land. There is likely to be disturbance to these soils during construction works. The pipeline also passes through a historic landfill and contaminants may be disturbed during the works.	Land reinstated upon completion. Best practice construction measures to be implemented, however residual construction effects likely.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The pipeline is predominately within FZ1 but there are large areas of FZ2 and FZ3 along the pipeline route which may impact the construction phase.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	+	--	There is potential for impact on water quality during construction given the pipeline crosses waterbodies, including main rivers. The pipeline is within SPZs. There is potential water levels will be affected from increased abstraction, however this option proposes to provide additional transfer to support the flows therefore positive effects have also been identified. The WFD screening assessment (2020) identified further WFD assessment is required.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain. Undertake WFD assessment.	0	--	+	--
	Deliver reliable and resilient water supplies	0	0	+	0	The option will increase resilience by reusing treated effluent to support flows for abstraction.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	--	0	0	The pipeline passes through Eastleigh AQMA No.1 (A335). There is likely to be impacts on air quality during the construction phase.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the	0	-	0	-

							electricity grid is decarbonised, greener energy will be available.				
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	There is potential for the option to benefit the resilience of the local environment by providing additional flows to support abstraction.	Monitor river levels.	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	South Downs National Park is within 500m. Potential for impacts on landscape character and visual amenity during construction.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The pipeline passes through a conservation area, and is within close proximity listed buildings, scheduled monuments and other conservation areas. The construction phase may impact the setting of the historic assets, however this is likely to be minimal and temporary. The pipeline excavation may impact buried archaeology.	Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The pipeline passes through a cemetery and playing fields, and county parks. The pipeline is also within 500m of play spaces, public parks and gardens, allotments, sport facilities, playing fields, and other community facilities. There is likely to be disruption to the community and users of these community facilities during construction. IMD deciles range from 4 to 10 along the pipeline route.	Re-route the pipeline to avoid direct impacts on the cemetery. Best practice measures will likely be implemented to minimise disturbance during construction. However, moderate yet temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The pipeline intersects national cycle routes, playing fields and county parks, and may also lead to the diversions of public rights of way during the construction phase. Recreation therefore has the potential to be affected during the construction phase, however this will be minor and temporary.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials.	Opportunity to implement sustainable design measures and reuse excavated material on site, to reduce impact.	0	-	0	0

	Avoid negative effects on built assets and infrastructure	0	--	0	0	The pipeline intersects railway, major roads, and national cycle routes. There is likely to be moderate and temporary impacts during construction.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still remain.	0	-	0	0
SEA Metrics		Positive		3				Positive		3	
		Negative		-47				Negative		-27	

SWS_HSE_HI-REU_RE1_ALL_por13											
Portswood WwTW Indirect Potable Water Reuse (13MI/d)											
Southern Water											
<p>Portswood WwTW has a consented DWF of approximately 28 MI/d, although there are reports that the true minimum flow is closer to 20 MI/d. There is little room for expansion at Portswood WwTW therefore it is proposed to pump the effluent to a new tertiary treatment plant at Import from Portsmouth Water WSW (owned by Portsmouth Water). The treated effluent from the new tertiary treatment plant at Import from Portsmouth Water WSW will be pumped to a discharge location immediately upstream of the tidal limit at Woodmill. This will offset increased abstractions at Gaters Mill during scheme operation when sustainability reductions would otherwise restrict abstraction. There are two treatment options available:(1) The abstracted water will be pumped via a new pipeline and pumping station to Otterbourne WSW for treatment and distribution. (2) The Water will be treated at the existing Import from Portsmouth Water WSW plant. The treated water will be transferred to Southern Water by a recently constructed bulk transfer main from Import from Portsmouth Water WSW to the Otterbourne distribution network which has capacity to transfer an additional 15 MI/d.</p> <p>The GIS code SWS_HSE_HI-REU_ALL_ALL_por9_por14 does not exist on the GIS platform therefore the following GIS code has been used to assess this option: SWS_HSE_HI-REU_ALL_ALL_por9_por13. This code relates to option SWS_HSE_HI-REU_RE1_ALL_por9 which aligns with this option in terms of description, however this option is for a higher capacity.</p>											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	---	<p>The pipeline passes through River Itchen GWDTE / SAC therefore potential for direct effects. The River Itchen is also a SSSI, however this is geological. The pipeline is within a SSSI risk zone. There is also a LNR within 2000m which may be indirectly affected during construction. There are direct effects identified for woodland, ancient woodland and priority habitats. The HRA ToLS (2021) identified likely significant effects for River Itchen SAC (0km proposed option intersects and discharges into the SAC) as a result of construction activities potentially polluting the site and operation effects from alternations in abstraction. Uncertain effects were identified for Solent & Southampton Water Ramsar and SPA (1.5km S of proposed option), and Solent and Dorset Coast Potential SPA (0km proposed option discharges into the Potential SPA). Effluent will be pumped from one water treatment works to another, where it will be treated before discharge, this means the risk of INNS transfer is low. Construction has a moderate risk of INNS transfer.</p>	<p>Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. However, likely residual effects on designated sites. LSE identified for River Itchen SAC and uncertain effects identified for Solent & Southampton Water RAMSAR / SPA and Solent and Dorset Coast Potential SPA. Effects are considered to be partially mitigatable through use of construction best practices such as a robust CEMP. However, there is still a possibility of noise and visual disturbance for species which may use habitats near construction working areas for the pipeline even though outside of the designated site boundaries. Operational phase of option is unlikely to have negative impact upon the</p>	0	--	0	--

							designated site. However, operational phase should include the monitoring of pipeline crossing points during extreme weather events for all identified N2k sites. Undertake HRA AA to address residual uncertain effects identified for identified N2k sties.				
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The pipeline passes through Grade 2 and Grade 4 agricultural land and urban land. There is likely to be disturbance to these soils during construction works. The pipeline also passes through a historic landfill and contaminants may be disturbed during the works.	Land reinstated upon completion. Best practice construction measures to be implemented, however residual construction effects likely.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The pipeline is predominately within FZ1 but there are large areas of FZ2 and FZ3 along the pipeline route which may impact the construction phase.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	+	--	There is potential for impact on water quality during construction given the pipeline crosses waterbodies, including main rivers. The pipeline is within SPZs. There is potential water levels will be affected from increased abstraction, however this option proposes to provide additional transfer to support the flows therefore positive effects have also been identified. The WFD screening assessment (2020) identified further WFD assessment is required.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain. Undertake WFD assessment.	0	--	+	--
	Deliver reliable and resilient water supplies	0	0	+	0	The option will increase resilience by reusing treated effluent to support flows for abstraction.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	--	0	0	The pipeline passes through Eastleigh AQMA No.1 (A335). There is likely to be impacts on air quality during the construction phase.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and moderate operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative	0	-	0	-

							materials. As the electricity grid is decarbonised, greener energy will be available.				
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	There is potential for the option to benefit the resilience of the local environment by providing additional flows to support abstraction.	Monitor river levels.	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	South Downs National Park is within 500m. Potential for impacts on landscape character and visual amenity during construction.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The pipeline passes through a conservation area, and is within close proximity listed buildings, scheduled monuments and other conservation areas. The construction phase may impact the setting of the historic assets, however this is likely to be minimal and temporary. The pipeline excavation may impact buried archaeology.	Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The pipeline passes through a cemetery and playing fields, and county parks. The pipeline is also within 500m of play spaces, public parks and gardens, allotments, sport facilities, playing fields, and other community facilities. There is likely to be disruption to the community and users of these community facilities during construction. IMD deciles range from 4 to 10 along the pipeline route.	Re-route the pipeline to avoid direct impacts on the cemetery. Best practice measures will likely be implemented to minimise disturbance during construction. However, moderate yet temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The pipeline intersects national cycle routes, playing fields and county parks, and may also lead to the diversions of public rights of way during the construction phase. Recreation therefore has the potential to be affected during the construction phase, however this will be minor and temporary.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials.	Opportunity to implement sustainable design measures and reuse excavated material on site, to reduce impact.	0	-	0	0

	Avoid negative effects on built assets and infrastructure	0	--	0	0	The pipeline intersects railway, major roads, and national cycle routes. There is likely to be moderate and temporary impacts during construction.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still remain.	0	-	0	0
SEA Metrics		Positive		3				Positive		3	
		Negative		-47				Negative		-27	

SWS_HSE_HI-REU_RE1_ALL_woI5											
Woolston WwTW Indirect Potable Reuse (5MI/d)											
This option is for additional treatment to the effluent at Woolston WwTW and sending this to Otterbourne WSW (circa 4.8 MI/d), from where it is sent to discharge to the River Itchen upstream of the abstraction for Gaters Mill WSW. The scheme also involves discharge pipe from Otterbourne WSW to the River Itchen.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	+	-	<p>The pipeline passes through River Itchen SSSI (10.37% favourable, 55.74% unfavourable - recovering, 27.99% unfavourable - no change, 5.51% unfavourable - declining, 0.39% destroyed) and the River Itchen SAC, both of which are GWDTE. It is also within 500m of Lee-on-the-Solent to Itchen Estuary SSSI (73.40% favourable, 26.60% unfavourable - no change), Solent and Southampton Water SPA and Ramsar, Chessel Bay LNR and Peartree Green LNR. The option is within SSSI Impact Risk Zones. The River Itchen is a chalk river. There is potential for direct effects on woodland including Ancient Woodland and deciduous woodland Priority Habitat, as well as other Priority Habitats such as coastal and floodplain grazing marsh during construction. During operation, the water will be discharged into the River Itchen to support abstraction. The discharge point is within the River Itchen SSSI and there may be effects from changes in water levels, however there is potential for positive effects if abstraction is supported by additional water discharges.</p> <p>The HRA ToLS (2021) identified likely significant effects on Solent and Southampton Water Ramsar and SPA site (0.1km south). Likely significant effects are also identified for River Itchen SAC which the option crosses four times SPA (<100m). There is potential for damage or the loss of habitat area within, on the site boundary, or close enough to have significant impacts on these sites. Due to the close proximity, there is also the potential for sediment and pollution caused by the construction work occurring nearby. There remains the potential for further damage to the habitat during the operational phase, should the pipeline ever need to be repaired by a method requiring its excavation. There is also the potential for impacts to the internationally important wintering waterfowl, for which the Ramsar and SPA, and SAC, is designated thorough disturbance, dust and light pollution</p>	<p>Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. The HRA Tier 2 Enhanced Screening identified that the likely significant effects are not guaranteed to be mitigable and the effects remain uncertain.</p>	0	--	+	-

						caused by construction works. Very low transfer / movement of INNS as treated water will be free from INNS.					
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The pipeline passes through Grade 3 and Grade 4 agricultural land, and urban land. There is likely to be disturbance to these soils during the construction phase. There pipeline passes through three historic landfill sites and therefore are other historic landfill sites within 500m; as such, there is potential that the construction phase will disturb contaminants.	Land reinstated upon completion. Best practice construction measures to be implemented for working within or within close proximity to landfill sites.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	There are significant areas within Flood Zones 2 and 3 along the pipeline route, although there are also large sections within Flood Zone 1. There is potential that the construction phase will be at risk of flooding. Otterbourne WSW and Woolston WwTW are within Flood Zone 1 whereas the discharge point is within Flood Zones 2 and 3.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	+	0	The pipeline intersects watercourses, including main rivers and chalk rivers. There is potential that the construction phase could lead to the contamination of these water bodies, affecting water quality. The pipeline is partly within SPZs. There is potential positive effects on the water environment as the scheme will reuse water to support abstraction thereby reducing pressure. Further WFD assessment will be required.	Best practice mitigation measures likely to be implemented during construction.	0	-	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	The option will increase the resilience of supplies by reusing treated effluent to support abstraction in the River Itchen.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Eastleigh AQMA No.1 (A335), AQMA No.2 (Bitterne Road West) and AQMA No. 11 (Victoria Road) are within 500m. There is likely to be impacts on air quality during the construction phase.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	0	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction emissions (relative to other WRSE Regional Plan options). Operational carbon emissions are not available.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon	0	-	0	0

							savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.				
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	There is potential for positive effects on the resilience of the local water environment to climate change as additional water will be supplied to the River Itchen to support abstraction.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option is within the South Hampshire Lowlands and Hampshire Downs NCAs. The South Downs National Park is within 500m. There is likely to be impacts to the landscape during the construction phase of the works. Operational impacts are unlikely.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The option is within two conservation areas. There are listed buildings, scheduled monuments, conservation areas and registered parks and gardens within 500m of the pipeline route. The construction phase may impact the setting of the historic assets, however this is likely to be minimal and temporary. The pipeline excavation may impact buried archaeology, if present.	Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The pipeline passes through public parks or gardens, a sports facility, playing fields, and also appears to pass through the edge of a cemetery. There are also noise action areas, public parks and gardens, playing fields, play spaces, schools, churches and religious grounds, allotments, medical facilities. There is likely to be disruption to the users of these community facilities and the wider community during construction. IMD deciles range from 1 to 10 along the pipeline route.	Re-route the pipeline to avoid direct impacts on the cemetery and other community assets. Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	--	0	0	The pipeline intersects national cycle routes, public parks or gardens, sports facilities and playing fields. Recreation therefore has the potential to be affected during the construction phase. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be some temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance on users of footpaths and other	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary	0	-	0	0

						public rights of way during the construction phase.	effects are likely to still occur.					
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0	
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The pipeline intersects railway, major roads, and national cycle routes. There is likely to be moderate and temporary impacts during construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0	
SEA Metrics			Positive Negative	4 -38					Positive Negative	4 -15		

SWS_HSE_HI-REU_RE1_ALL_wol8											
Woolston WwTW Indirect Potable Reuse (7.5MI/d)											
This option is for additional treatment to the effluent at Woolston WwTW and sending this to Otterbourne WSW (circa 7.5 MI/d), from where it is sent to discharge to the River Itchen upstream of the abstraction for Gaters Mill WSW. The scheme also involves discharge pipe from Otterbourne WSW to the River Itchen.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	+	-	The pipeline passes through River Itchen SSSI (10.37% favourable, 55.74% unfavourable - recovering, 27.99% unfavourable - no change, 5.51% unfavourable - declining, 0.39% destroyed) and the River Itchen SAC, both of which are GWDTE. It is also within 500m of Lee-on-the Solent to Itchen Estuary SSSI (73.40% favourable, 26.60% unfavourable - no change), Solent and Southampton Water SPA and Ramsar, Chessel Bay LNR and Peartree Green LNR. The option is within SSSI Impact Risk Zones. The River Itchen is a chalk river. There is potential for direct effects on woodland including Ancient Woodland and deciduous woodland Priority Habitat, as well as other Priority Habitats such as coastal and floodplain grazing marsh during construction. During operation, the water will be discharged into the River Itchen to support abstraction. The discharge point is within the River Itchen SSSI and there may be effects from changes in water levels, however there is potential for positive effects if abstraction is supported by additional water discharges. The HRA ToLS (2021) identified likely significant effects during construction associated with the River Itchen SAC. Very low transfer / movement of INNS as treated water will be free from INNS.	Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. HRA Stage 2 screening identified uncertain effects following implementation of construction best practice and the use of specialist machinery to minimise particulate production during construction, however effects remain uncertain.	0	--	+	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The pipeline passes through Grade 3 and Grade 4 agricultural land, and urban land. There is likely to be disturbance to these soils during the construction phase. There pipeline passes through three historic landfill sites and therefore are other historic landfill sites within 500m; as such, there is potential that the construction phase will disturb contaminants.	Land reinstated upon completion. Best practice construction measures to be implemented for working within or within close proximity to landfill sites.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	There are significant areas within Flood Zones 2 and 3 along the pipeline route, although there are also large sections within Flood Zone 1. There is potential that the construction phase will be at risk of flooding.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0

						Otterbourne WSW and Woolston WwTW are within Flood Zone 1 whereas the discharge point is within Flood Zones 2 and 3.					
	Protect and enhance the quality of the water environment and water resources	0	-	+	--	The pipeline intersects watercourses, including main rivers and chalk rivers. There is potential that the construction phase could lead to the contamination of these water bodies, affecting water quality. The pipeline is partly within SPZs. There is potential positive effects on the water environment as the scheme will reuse water to support abstraction thereby reducing pressure. WFD Screening identified two waterbodies which require further assessment associated with abstraction use during operation.	Best practice mitigation measures likely to be implemented during construction. Further WFD assessment will be required in relation to operational impacts.	0	-	+	--
	Deliver reliable and resilient water supplies	0	0	+	0	The option will increase the resilience of supplies by reusing treated effluent to support abstraction in the River Itchen.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Eastleigh AQMA No.1 (A335), AQMA No.2 (Bitterne Road West) and AQMA No. 11 (Victoria Road) are within 500m. There is likely to be impacts on air quality during the construction phase.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	0	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction emissions (relative to other WRSE Regional Plan options). Operational carbon emissions are not available.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	There is potential for positive effects on the resilience of the local water environment to climate change as additional water will be supplied to the River Itchen to support abstraction.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option is within the South Hampshire Lowlands and Hampshire Downs NCAs. The South Downs National Park is within 500m. There is likely to be impacts to the landscape during the construction phase of the works. Operational impacts are unlikely.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The option is within two conservation areas. There are listed buildings, scheduled monuments, conservation areas and registered parks and gardens within 500m of the pipeline route. The construction phase	Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to	0	-	0	0

						may impact the setting of the historic assets, however this is likely to be minimal and temporary. The pipeline excavation may impact buried archaeology, if present.	determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The pipeline passes through public parks or gardens, a sports facility, playing fields, and also appears to pass through the edge of a cemetery. There are also noise action areas, public parks and gardens, playing fields, play spaces, schools, churches and religious grounds, allotments, medical facilities. There is likely to be disruption to the users of these community facilities and the wider community during construction. IMD deciles range from 1 to 10 along the pipeline route.	Re-route the pipeline to avoid direct impacts on the cemetery and other community assets. Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	--	0	0	The pipeline intersects national cycle routes, public parks or gardens, sports facilities and playing fields. Recreation therefore has the potential to be affected during the construction phase. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be some temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The pipeline intersects railway, major roads, and national cycle routes. There is likely to be moderate and temporary impacts during construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive	4								
		Negative	-39								
				Positive							
				Negative							

SWS_HSE_HI-REU_RE1_ALL_wpi14											
Combined Woolston and Portswood WWTW Indirect Potable Reuse (13.5Ml/d)											
This scheme makes use of the treated effluent from Woolston WwTW and Portswood WwTW. It is proposed that up to the combined DWF (43 Ml/d) would be pumped to discharge location just upstream of the tidal limit at Woodmill in order to support flows abstracted at Gaters Mill. Due to space constraints at Woolston WwTW and Portswood WwTW, additional treatment plant would need to be sited en route to the proposed Otterbourne, potentially at Gaters Mill.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	--	<p>The pipeline passes through River Itchen GWDTE / SAC / SSSI (10.37% favourable, 55.74% unfavourable - recovering, 27.99% unfavourable - no change and 5.51% unfavourable - declining) therefore potential for direct effects. Lee-on-the Solent to Itchen Estuary SSSI (73.40% favourable, 26.60% unfavourable - no change) / GWDTE, Peartree Green LNR and Chessel Bay LNR are within 500m therefore potential for indirect effects. The pipeline is entirely within SSSI Impact Risk Zones. River Itchen is a chalk river and therefore abstraction may have an impact on sensitive habitats. Any discharges may also have an impact on designated sites, including the River Itchen SSSI. The pipeline passes through Ancient Woodland, and Priority Habitats including coastal and floodplain grazing marsh, coastal saltmarsh and deciduous woodland with potential for direct effects.</p> <p>The HRA ToLS (2020) identified likely significant effects for River Itchen SAC (option crosses through) during construction as a result of pollution potentially impacting the qualifying features. Uncertain effects were identified for Solent & Southampton Water Ramsar and SPA (50m west of proposed option), and Solent and Dorset Coast Potential SPA (0m west of proposed option), during construction.</p> <p>Very low risk of transfer of INNS as the treated source water is likely to be entirely free of INNS. Construction phase risk of INNS is considered to be low.</p>	<p>Best practice mitigation to prevent impact on designated sites, however potential for residual effects to remain. Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys.</p> <p>HRA ToLS identified uncertain effects on Solent & Southampton Water Ramsar / SPA and Solent and Dorset Coast Potential SPA which are considered to be mitigated through use of construction best practice guidelines. The method for the pipeline crossing of the River Itchen is currently unknown however best practice measures will be employed to ensure that the works do not result in negative impacts.</p> <p>LSE were identified for River Itchen SAC which are considered to be partially mitigated through use of a robust CEMP and through</p>	0	--	0	--

							the use of directional drilling of the pipeline below the watercourse with the excavation and receiving pits situated out with the SAC boundary. However, it is unknown how the pipeline will be installed at this time and therefore uncertain effects remain. HRA AA required to address residual uncertain effects for River Itchen SAC.				
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The pipeline passes through Grade 3, 4 and urban land. There is likely to be disturbance to these soils during construction. The pipeline passes through numerous historic landfills with other historic landfills within 500m therefore potential for disturbance to contaminants during construction.	Reinstate land following construction. Implement best practice techniques for working in and within close proximity to landfills. Consider realignment if possible, to avoid historic landfills.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	The option is within areas of Flood Zones 2 and 3 which may have an impact on construction. Impacts on operation unlikely given the pipeline is buried. The pipeline is unlikely to increase the risk of flooding.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	--	The pipeline crosses water bodies, including main rivers and chalk rivers, which could be impacted during construction. The option is within SPZs. Given the option aims to increase abstraction, there is a potential for impacts on flows, quality and levels within the River Itchen, however this will be supported by the transfer of treated water. River Itchen is a chalk river therefore abstraction may have an effect on sensitive features. The WFD assessment identifies that further WFD assessment is required.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain.	0	-	0	--
	Deliver reliable and resilient water supplies	0	0	+	-	The option will support the resilience of the water supply as it transfers treated water to support abstraction. However, as it involves abstraction from a chalk river, it is not considered to be resilient in the long-term given water company commitments to ceasing chalk river abstraction.	N/A	0	0	+	-
Air	Reduce and minimise air emissions	0	--	0	0	The option is in close proximity to Eastleigh AQMA No.1 (A335). AQMA No.2 (Bitterne Road West) and AQMA No. 11 (Victoria Road) are within 500m. There are likely to be impacts on air quality during construction.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	--	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified	Investigate use of renewables during construction and operation for energy	0	-	0	--

						that the option has minor construction and moderate operation carbon emissions (relative to other WRSE Regional Plan options).	supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.				
	Reduce vulnerability to climate change risks and hazards	0	0	0	-	The option aims to abstract water and therefore is likely to have negative effects on the local environment by removing additional water. However, given the abstraction is supported by treated water, the effects may not be as significant. Minor negative effect identified.	Monitor water levels.	0	0	0	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	Option is in South Hampshire Lowlands and Hampshire Downs NCAs. South Downs National Park is within 500m of the option. There is potential for impacts on landscape and visual during the construction phase. However, this is likely to be minor and temporary.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The pipeline passes through two conservation areas and is within 500m of listed buildings, registered park and garden, and scheduled monuments. There is potential for the setting of these historic assets to be affected during construction, however this is likely to be minor and temporary. There is potential that the pipeline excavation will impact archaeology.	Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The pipeline passes through a cemetery, playing fields, sports facilities, public park or garden and golf courses. It is also within 500m of playing fields, public parks or gardens, schools, play spaces, allotments, medical facilities, churches and religious ground, and other community facilities. The wider community and users of these community facilities are likely to be disrupted during the construction works. IMD deciles range for 2 to 10 along the pipeline route.	Re-route the pipeline to avoid the cemetery and use best practice or directional drilling to avoid or minimise impacts on other community facilities. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction and land will be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0

	Maintain and enhance tourism and recreation	0	--	0	0	The pipeline passes through recreational spaces, including Itchen Valley Country Park and Riverside Park, and crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance to users of national cycle routes, footpaths and other public rights of way during the construction phase. There is a potential for impacts on recreation.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The pipeline crosses major roads, railways and national cycle routes. The construction phase therefore has the potential to result in moderate and temporary effects from disruption.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive 1 Negative -54						Positive 1 Negative -29			

SWS_HSE_HI-REU_RE1_ALL_wpi21					
Combined Woolston and Portswood WWTW Indirect Potable Reuse (20.5MI/d)					
Southern Water					
This scheme makes use of the treated effluent from Woolston WwTW and Portswood WwTW. It is proposed that up to the combined DWF (43 MI/d) would be pumped to discharge location just upstream of the tidal limit at Woodmill in order to support flows abstracted at Gaters Mill. Due to space constraints at Woolston WwTW and Portswood WwTW, additional treatment plant would need to be sited en route to the proposed Otterbourne, potentially at Gaters Mill.					

SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	--	<p>The pipeline passes through River Itchen GWDTE / SAC / SSSI (10.37% favourable, 55.74% unfavourable - recovering, 27.99% unfavourable - no change and 5.51% unfavourable - declining) therefore potential for direct effects. Lee-on-the Solent to Itchen Estuary SSSI (73.40% favourable, 26.60% unfavourable - no change) / GWDTE, Peartree Green LNR and Chessel Bay LNR are within 500m therefore potential for indirect effects. The pipeline is entirely within SSSI Impact Risk Zones. River Itchen is a chalk river and therefore abstraction may have an impact on sensitive habitats. Any discharges may also have an impact on designated sites, including the River Itchen SSSI. The pipeline passes through Ancient Woodland, and Priority Habitats including coastal and floodplain grazing marsh, coastal saltmarsh and deciduous woodland with potential for direct effects.</p> <p>The HRA ToLS (2020) identified likely significant effects for River Itchen SAC (option crosses through) during construction as a result of pollution potentially impacting the qualifying features. Uncertain effects were identified for Solent & Southampton Water Ramsar and SPA (50m west of proposed option), and Solent and Dorset Coast Potential SPA (0m west of proposed option), during construction.</p> <p>Very low risk of transfer of INNS as the treated source water is likely to be entirely free of INNS. Construction phase risk of INNS is considered to be low.</p>	<p>Best practice mitigation to prevent impact on designated sites, however potential for residual effects to remain. Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys.</p> <p>HRA ToLS identified uncertain effects for Solent & Southampton Water Ramsar / SPA and Solent and Dorset Coast Potential SPA which are not considered to be mitigated. Construction impacts to the Solent and Southampton Water Ramsar could potentially be mitigated through best practice construction methods and mitigation. However uncertain effects remain because the number of crossings of the Itchen that would be required, and the proximity of the option to the Sites are such that it is considered that there may be effects on the myriad qualifying features cannot be completely ruled out. LSE were identified for River Itchen SAC which are considered partially mitigated. There may be potential for the works to avoid direct impacts to the</p>	0	--	0	--

							River Itchen SAC through the use of directional drilling of the pipeline below the watercourse with the excavation and receiving pits situated out with the SAC boundary, however it is unknown how the pipeline will be installed at this time. Further site investigations and surveys would be required to determine the likely impacts the pipeline would have on groundwater conditions. However, it is likely that construction methods could be selected to avoid significant impact to groundwater. HRA AA required to address residual uncertain effects for Solent & Southampton Water Ramsar / SPA and Solent and Dorset Coast Potential SPA and for River Itchen SAC.				
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The pipeline passes through Grade 3, 4 and urban land. There is likely to be disturbance to these soils during construction. The pipeline passes through numerous historic landfills with other historic landfills within 500m therefore potential for disturbance to contaminants during construction.	Reinstate land following construction. Implement best practice techniques for working in and within close proximity to landfills. Consider realignment if possible, to avoid historic landfills.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	The option is within areas of Flood Zones 2 and 3 which may have an impact on construction. Impacts on operation unlikely given the pipeline is buried. The pipeline is unlikely to increase the risk of flooding.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	--	The pipeline crosses water bodies, including main rivers and chalk rivers, which could be impacted during construction. The option is within SPZs. Given the option aims to increase abstraction, there is a potential for impacts on flows, quality and levels within the River Itchen, however this will be supported by the transfer of treated water. River Itchen is a chalk river therefore abstraction may have an effect on sensitive features. The WFD assessment identifies that further WFD assessment is required.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain.	0	-	0	--

	Deliver reliable and resilient water supplies	0	0	+	-	The option will support the resilience of the water supply as it transfers treated water to support abstraction. However, as it involves abstraction from a chalk river, it is not considered to be resilient in the long-term given water company commitments to ceasing chalk river abstraction.	N/A	0	0	+	-
Air	Reduce and minimise air emissions	0	--	0	0	The option is in close proximity to Eastleigh AQMA No.1 (A335). AQMA No.2 (Bitterne Road West) and AQMA No. 11 (Victoria Road) are within 500m. There are likely to be impacts on air quality during construction.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	--	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and moderate operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	--
	Reduce vulnerability to climate change risks and hazards	0	0	0	-	The option aims to abstract water and therefore is likely to have negative effects on the local environment by removing additional water. However, given the abstraction is supported by treated water, the effects may not be as significant. Minor negative effect identified.	Monitor water levels.	0	0	0	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	Option is in South Hampshire Lowlands and Hampshire Downs NCAs. South Downs National Park is within 500m of the option. There is potential for impacts on landscape and visual during the construction phase. However, this is likely to be minor and temporary.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The pipeline passes through two conservation areas and is within 500m of listed buildings, registered park and garden, and scheduled monuments. There is potential for the setting of these historic assets to be affected during construction, however this is likely to be minor and temporary. There is potential that the pipeline excavation will impact archaeology.	Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The pipeline passes through a cemetery, playing fields, sports facilities, public park or garden and golf courses. It is also within 500m of playing fields, public parks or gardens, schools, play spaces, allotments, medical facilities, churches and religious ground, and other community facilities. The wider community and users of these community facilities are likely to be disrupted during the construction works. IMD deciles range for 2 to 10 along the pipeline route.	Re-route the pipeline to avoid the cemetery and use best practice or directional drilling to avoid or minimise impacts on other community facilities. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction and land will be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	--	0	0	The pipeline passes through recreational spaces, including Itchen Valley Country Park and Riverside Park, and crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance to users of national cycle routes, footpaths and other public rights of way during the construction phase. There is a potential for impacts on recreation.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The pipeline crosses major roads, railways and national cycle routes. The construction phase therefore has the potential to result in moderate and temporary effects from disruption.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics			Positive Negative	1 -54				Positive Negative	1 -29		

SWS_HSE_HI-ROC_WT1_ALL_cpy_ott_30											
New SRO Portsmouth Transfer option - upgrade of treatment capacity at Otterbourne WSW											
Southern Water											
Upgrade treatment capacity at Otterbourne WSW by 30MI/d											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-

Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	<p>River Itchen SSSI (10.37% Favourable, 55.74% Unfavourable - Recovering, 27.99%, Unfavourable - No change, 5.51% Unfavourable - Declining) and River Itchen SAC, which are both GWDTE, are within 500m of option. The option is within a SSSI risk zone. There are also areas of woodland, Ancient Woodland and priority habitat in proximity to option. Shawford Down LNR is within 2000m. There is potential for disturbance impacts on habitats from noise and dust pollution during construction. However, it is not clear whether there will be any expansion works as part of the option. The River Itchen is a chalk river, however not anticipated to be directly affected.</p> <p>The HRA ToLS (2021) identified uncertain effects on the River Itchen SAC (within 400m of the option). It is assumed that this option takes place within the site of the existing WTW. The connectivity and control measures in terms of pollution control are unknown, so significant effects on the nearby river Itchen SAC are uncertain.</p> <p>The risk of the transfer / spread of INNS is likely to be very low given the works are within an existing WTW.</p>	<p>Best practice mitigation to minimise impacts. If applicable, ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. The Tier 2 HRA Screening identified that the uncertain effects are likely to be mitigable. With the use of careful construction management, most appropriately through the use of a CEMP, it should be possible to ensure that sediment and/or pollution are both controlled and not allowed to enter into any water infrastructure that may then see it transported to the SAC.</p>	0	-	0	0
	Soil	0	-	0	0	<p>The option is within Grade 3 agricultural land, there may be disturbance to the soil during the construction phase and there may also be a permanent loss as a result of the option. There is one historic landfill close to option, minor risk of contamination during construction.</p>	<p>Reinstate land where possible, however potential for the option to lead to the permanent loss if there is expansion on the existing site.</p>	0	0	0	0
	Water										
Water	Increase resilience and reduce flood risk	0	0	0	0	<p>The option is within Flood Zone 1 therefore low risk of flooding at the construction and operational phase. Option is not likely to exacerbate flood risk.</p>	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	<p>Upgrading the treatment capacity is likely to be within the existing works and therefore unlikely to exert influence on water quality. The WFD Screening Assessment (2021) identified further WFD Assessment is not required.</p>	<p>Best practice construction measures to be implemented to mitigate effects therefore residual effects are unlikely for construction phase.</p>	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	++	0	<p>Upgrading the treatment capacity will increase water resilience and maintain/improve water supplies.</p>	N/A	0	0	++	0

Air	Reduce and minimise air emissions	0	-	0	0	The option is not within an AQMA not are there any within 2km. Construction likely to have minor and temporary impact on air quality. Emissions during operation may increase but this is likely to be managed through the existing air quality limits / environmental permit therefore neutral effects identified.	Best practice mitigation measures to be implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	This option will increase water security, reducing vulnerability to future drought scenarios.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The South Downs National Park is within 500m and the option is within the Hampshire Downs NCA. There will likely be impacts on landscape character and visual amenity during the construction phase, however given this is an existing WTW site, it will likely be minor. If expansion of the site is required, operational impacts are not anticipated given it will be located adjacent to the existing site.	Best practice will be implemented to avoid negative effects, ground will be reinstated, however likely to be some disturbance to landscape during works. Implement screening and other best practice techniques to minimise operational impacts.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are three grade II listed buildings within 500m. The construction phase may impact the setting of these assets however, this is likely to be minimal as any expansion is likely to be within the existing WTW. Excavation may impact archaeology, if present, however this is likely to be limited as any construction works would be within the existing footprint of the works.	Best practice mitigation measures to be implemented to minimise setting effects during construction. An Archaeological Watching Brief may be required during the construction phase, depending on the nature of the works.	0	0	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are play spaces, playing fields and a public park within 500m of option. There is potential for the community and users of these facilities to be impacted during the construction phase, however this is likely to be minor and temporary. The option is within IMD decile 10.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	The option is within 500m of South Downs National Park, a national cycle route and open spaces that may be used for recreation. Minor impacts on recreation therefore identified for the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	Construction is likely to require additional materials. Increasing the treatment capacity is likely to create more waste.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	-
	Avoid negative effects on built assets and infrastructure	0	-	0	0	There are railway tracks, major roads and a cycle route within 500m of option. There may be minor disruption to the local road network during the construction phase.	Best practice mitigation measures including a Traffic Management Plan to be implemented to minimise effects during construction.	0	-	0	0
SEA Metrics			Positive	5				Positive	5		
			Negative	-14				Negative	-9		

SWS_HSE_HI-ROC_WT1_ALL_cpy_ott_60					
New SRO Portsmouth Transfer option - upgrade of treatment capacity at Otterbourne WSW					
Southern Water					

Upgrade treatment capacity at Otterbourne WSW by 60MI/d											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	<p>River Itchen SSSI (10.37% Favourable, 55.74% Unfavourable - Recovering, 27.99%, Unfavourable - No change, 5.51% Unfavourable - Declining) and River Itchen SAC, which are both GWDTE, are within 500m of option. The option is within a SSSI risk zone. There are also areas of woodland, Ancient Woodland and priority habitat in proximity to option. Shawford Down LNR is within 2000m. There is potential for disturbance impacts on habitats from noise and dust pollution during construction. However, it is not clear whether there will be any expansion works as part of the option. The River Itchen is a chalk river, however not anticipated to be directly affected.</p> <p>The HRA ToLS (2021) identified uncertain effects on the River Itchen SAC (within 400m of the option). It is assumed that this option takes place within the site of the existing WTW. The connectivity and control measures in terms of pollution control are unknown, so significant effects on the nearby river Itchen SAC are uncertain.</p> <p>The risk of the transfer / spread of INNS is likely to be very low given the works are within an existing WTW.</p>	Best practice mitigation to minimise impacts. If applicable, ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. The Tier 2 HRA Screening identified that the uncertain effects are likely to be mitigable. With the use of careful construction management, most appropriately through the use of a CEMP, it should be possible to ensure that sediment and/or pollution are both controlled and not allowed to enter into any water infrastructure that may then see it transported to the SAC.	0	-	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	<p>The option is within Grade 3 agricultural land, there may be disturbance to the soil during the construction phase and there may also be a permanent loss as a result of the option. There is one historic landfill close to option, minor risk of contamination during construction.</p>	Reinstate land where possible, however potential for the option to lead to the permanent loss if there is expansion on the existing site.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	<p>The option is within Flood Zone 1 therefore low risk of flooding at the construction and operational phase. Option is not likely to exacerbate flood risk.</p>	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	<p>Upgrading the treatment capacity is likely to be within the existing works and therefore unlikely to exert influence on water quality. The WFD Screening Assessment (2021) identified further WFD Assessment is not required.</p>	Best practice construction measures to be implemented to mitigate effects therefore residual effects are unlikely for construction phase.	0	0	0	0

	Deliver reliable and resilient water supplies	0	0	+++	0	Upgrading the treatment capacity will increase water resilience and maintain/improve water supplies.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	The option is not within an AQMA nor are there any within 2km. Construction likely to have minor and temporary impact on air quality. Emissions during operation may increase but this is likely to be managed through the existing air quality limits / environmental permit therefore neutral effects identified.	Best practice mitigation measures to be implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	This option will increase water security, reducing vulnerability to future drought scenarios.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The South Downs National Park is within 500m and the option is within the Hampshire Downs NCA. There will likely be impacts on landscape character and visual amenity during the construction phase, however given this is an existing WTW site, it will likely be minor. If expansion of the site is required, operational impacts are not anticipated given it will be located adjacent to the existing site.	Best practice will be implemented to avoid negative effects, ground will be reinstated, however likely to be some disturbance to landscape during works. Implement screening and other best practice techniques to minimise operational impacts.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are three grade II listed buildings within 500m. The construction phase may impact the setting of these assets however, this is likely to be minimal as any expansion is likely to be within the existing WTW. Excavation may impact archaeology, if present, however this is likely to be limited as any construction works would be within the existing footprint of the works.	Best practice mitigation measures to be implemented to minimise setting effects during construction. An Archaeological Watching Brief may be required during the construction phase, depending on the nature of the works.	0	0	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are play spaces, playing fields and a public park within 500m of option. There is potential for the community and users of these facilities to be impacted during the construction phase, however this is likely to be minor and temporary. The option is within IMD decile 10.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	The option is within 500m of South Downs National Park, a national cycle route and open spaces that may be used for recreation. Minor impacts on recreation therefore identified for the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	Construction is likely to require additional materials. Increasing the treatment capacity is likely to create more waste.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	-
	Avoid negative effects on built assets and infrastructure	0	-	0	0	There are railway tracks, major roads and a cycle route within 500m of option. There may be minor disruption to the local road network during the construction phase.	Best practice mitigation measures including a Traffic Management Plan to be implemented to minimise effects during construction.	0	-	0	0
SEA Metrics		Positive 9 Negative -14				Positive 9 Negative -9					

SWS_HSE_HI-ROC_WT1_CNO_ott50sw					
Otterbourne (50) - WSW - Construction					
Southern Water					

Otterbourne (50) - WSW											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	River Itchen SSSI (10.37% Favourable, 55.74% Unfavourable - Recovering, 27.99%, Unfavourable - No change, 5.51% Unfavourable - Declining) and River Itchen SAC, which are both GWDTE, are within 500m of option. The option is within a SSSI risk zone. There are also areas of woodland, ancient woodland and priority habitat in proximity to option. Shawford Down LNR is within 2000m. There is potential for disturbance impacts on habitats from noise and dust pollution during construction. However, it is not clear whether there will be any expansion works as part of the option. The River Itchen is a chalk river, however not anticipated to be directly affected. The HRA ToLS (2021) identified uncertain effects for the River Itchen SAC (within 400m of the option). It is assumed that this option takes place within the site of the existing WTW. However, the connectivity and control measures in terms of pollution control are unknown, so significant effects on the nearby river Itchen SAC are uncertain. The risk of the transfer / spread of INNS is likely to be very low given the works are within an existing WTW.	Best practice mitigation to minimise impacts. If applicable, ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. The HRA Tier 2 Enhanced Screening identified that with the use of careful construction management, most appropriately through the use of a CEMP, it should be possible to ensure that sediment and/or pollution are both controlled and not allowed to enter into any water infrastructure that may then see it transported to the SAC.	0	-	0	0
	Soil	0	-	0	0	The option is within Grade 3 agricultural land, there may be disturbance to the soil during the construction phase and there may also be a permanent loss as a result of the option if there is expansion to the current WTW. There is one historic landfill within 500m, however unlikely there will be impacts.	Reinstate land where possible, however potential for the option to lead to the permanent loss if there is expansion on the existing site.	0	-	0	0
	Water	0	0	0	0	The option is within FZ1 therefore low risk of flooding at the construction and operational phase. Option is not likely to exacerbate flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	Option lies within SPZs and intersects River Itchen Chalk WFD ground water. Therefore, there is potential for impacts on the water environment and therefore water quality during construction. The WFD Screening Assessment (2021) identified no further WFD assessment is required.	Best practice construction measures to be implemented to mitigate effects therefore residual effects are unlikely for construction phase.	0	0	0	0

	Deliver reliable and resilient water supplies	0	0	++	0	Option to provide 50ML capacity water supply. (Assumption from description)	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	There are no AQMAs within 2000m. Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	No carbon data available for the option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	This option is unlikely to have any effects on vulnerability to climate change risks and hazards.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The South Downs National Park is within 500m and the option is within the Hampshire Downs NLCA. There will likely be impacts on landscape character and visual amenity during the construction phase, however given this is an existing WTW site, it will likely be minor. If expansion of the site is required, operational impacts are not anticipated given it will be located adjacent to the existing site.	Best practice will be implemented to avoid negative effects, ground will be reinstated, however likely to be some disturbance to landscape during works. Implement screening and other best practice techniques to minimise operational impacts.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are three grade II listed buildings within 500m. The construction phase may impact the setting of these assets. Excavation may impact archaeology, if present.	Best practice mitigation measures to be implemented to minimise setting effects during construction. Given there is potential to impact buried archaeology, an Archaeology Watching Brief may be required during the construction phase. Further work may	0	-	0	0

							be required to determine the significance of the effect depending on the presence / absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are play spaces, playing fields and a public park within 500m of option. There is potential for the community and users of these facilities to be impacted during the construction phase, however this is likely to be minor and temporary. The option is within IMD decile 10.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	Option is within 500m of South Downs National park, a national cycle route and open spaces that may be used for recreation. Minor impacts on recreation therefore identified for the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste, including excavated materials.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	There is railway tracks, major roads and a cycle route within 500m of option. There may be minor disruption to the local road network during the construction phase.	Best practice mitigation measures including a Traffic Management Plan to be implemented to minimise effects during construction.	0	-	0	0
SEA Metrics		Positive 4 Negative -15				Positive 4 Negative -11					

SWS_HSE_HI-ROC_WT1_CNO_ott80sws											
Otterbourne (80) - WSW - Construction											
Southern Water											
Otterbourne (80) - WSW											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	River Itchen SSSI (10.37% Favourable, 55.74% Unfavourable - Recovering, 27.99%, Unfavourable - No change, 5.51% Unfavourable - Declining) and River Itchen SAC, which are both GWDTE, are within 500m of option. The option is within a SSSI risk zone. There are also areas of woodland, ancient woodland and priority habitat in proximity to option. Shawford Down LNR is within 2000m. There is potential for disturbance impacts on habitats from noise and dust pollution during construction. However, it is not clear whether there will be any expansion works as part of the option. The River Itchen is a chalk river, however not anticipated to be directly affected. The HRA ToLS (2021) identified uncertain effects for the River Itchen SAC (within 400m of the option). It is assumed that this option takes place within the site of the existing WTW. However, the connectivity and control measures in terms of pollution control are unknown, so significant effects on the nearby river Itchen SAC are uncertain. The risk of the transfer / spread of INNS is likely to be very low given the works are within an existing WTW.	Best practice mitigation to minimise impacts. If applicable, ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. The HRA Tier 2 Enhanced Screening identified that with the use of careful construction management, most appropriately through the use of a CEMP, it should be possible to ensure that sediment and/or pollution are both controlled and not allowed to enter into any water infrastructure that may then see it transported to the SAC.	0	-	0	0
	Soil	0	-	0	0	The option is within Grade 3 agricultural land, there may be disturbance to the soil during the construction phase and there may also be a permanent loss as a result of the option if there is expansion to the current WTW. There is one historic landfill within 500m, however unlikely there will be impacts.	Reinstate land where possible, however potential for the option to lead to the permanent loss if there is expansion on the existing site.	0	-	0	0
	Water	0	0	0	0	The option is within FZ1 therefore low risk of flooding at the construction and operational phase. Option is not likely to exacerbate flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	Option lies within SPZs and intersects River Itchen Chalk WFD ground water. Therefore, there is potential for impacts on the water environment and therefore water quality during construction. The WFD Screening Assessment (2021) identified no further WFD assessment is required.	Best practice construction measures to be implemented to mitigate effects therefore residual effects are unlikely for construction phase.	0	0	0	0

	Deliver reliable and resilient water supplies	0	0	+++	0	Option to provide 80ML capacity water supply. (Assumption from description)	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	There are no AQMAs within 2000m. Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	No carbon data available for the option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	This option is unlikely to have any effects on vulnerability to climate change risks and hazards.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The South Downs National Park is within 500m and the option is within the Hampshire Downs NLCA. There will likely be impacts on landscape character and visual amenity during the construction phase, however given this is an existing WTW site, it will likely be minor. If expansion of the site is required, operational impacts are not anticipated given it will be located adjacent to the existing site.	Best practice will be implemented to avoid negative effects, ground will be reinstated, however likely to be some disturbance to landscape during works. Implement screening and other best practice techniques to minimise operational impacts.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are three grade II listed buildings within 500m. The construction phase may impact the setting of these assets. Excavation may impact archaeology, if present.	Best practice mitigation measures to be implemented to minimise setting effects during construction. Given there is potential to impact buried archaeology, an Archaeology Watching Brief may be required during the construction phase. Further work may	0	-	0	0

							be required to determine the significance of the effect depending on the presence / absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are play spaces, playing fields and a public park within 500m of option. There is potential for the community and users of these facilities to be impacted during the construction phase, however this is likely to be minor and temporary. The option is within IMD decile 10.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	Option is within 500m of South Downs National park, a national cycle route and open spaces that may be used for recreation. Minor impacts on recreation therefore identified for the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste, including excavated materials.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	There is railway tracks, major roads and a cycle route within 500m of option. There may be minor disruption to the local road network during the construction phase.	Best practice mitigation measures including a Traffic Management Plan to be implemented to minimise effects during construction.	0	-	0	0
SEA Metrics		Positive 8 Negative -15				Positive 8 Negative -11					

SWS_HSE_HI-ROC_WT1_CNO_ott120wsw											
Otterbourne (120) WSW - Construction											
Southern Water											
Otterbourne (120) WSW											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	River Itchen SSSI (10.37% Favourable, 55.74% Unfavourable - Recovering, 27.99%, Unfavourable - No change, 5.51% Unfavourable - Declining) and River Itchen SAC, which are both GWDTE, are within 500m of option. The option is within a SSSI risk zone. There are also areas of woodland, ancient woodland and priority habitat in proximity to option. Shawford Down LNR is within 2000m. There is potential for disturbance impacts on habitats from noise and dust pollution during construction. However, it is not clear whether there will be any expansion works as part of the option. The River Itchen is a chalk river, however not anticipated to be directly affected. The HRA ToLS (2021) identified uncertain effects for the River Itchen SAC (within 400m of the option). It is assumed that this option takes place within the site of the existing WTW. However, the connectivity and control measures in terms of pollution control are unknown, so significant effects on the nearby river Itchen SAC are uncertain. The risk of the transfer / spread of INNS is likely to be very low given the works are within an existing WTW.	Best practice mitigation to minimise impacts. If applicable, ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. The HRA Tier 2 Enhanced Screening identified that with the use of careful construction management, most appropriately through the use of a CEMP, it should be possible to ensure that sediment and/or pollution are both controlled and not allowed to enter into any water infrastructure that may then see it transported to the SAC.	0	-	0	0
	Soil	0	-	0	0	The option is within Grade 3 agricultural land, there may be disturbance to the soil during the construction phase and there may also be a permanent loss as a result of the option if there is expansion to the current WTW. There is one historic landfill within 500m, however unlikely there will be impacts.	Reinstate land where possible, however potential for the option to lead to the permanent loss if there is expansion on the existing site.	0	-	0	0
	Water	0	0	0	0	The option is within FZ1 therefore low risk of flooding at the construction and operational phase. Option is not likely to exacerbate flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	Option lies within SPZs and intersects River Itchen Chalk WFD ground water. Therefore, there is potential for impacts on the water environment and therefore water quality during construction. The WFD Screening Assessment (2021) identified no further WFD assessment is required.	Best practice construction measures to be implemented to mitigate effects therefore residual effects are unlikely for construction phase.	0	0	0	0

	Deliver reliable and resilient water supplies	0	0	+++	0	Option to provide 120ML capacity water supply. (Assumption from description)	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	There are no AQMAs within 2000m. Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	No carbon data available for the option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	This option is unlikely to have any effects on vulnerability to climate change risks and hazards.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The South Downs National Park is within 500m and the option is within the Hampshire Downs NLCA. There will likely be impacts on landscape character and visual amenity during the construction phase, however given this is an existing WTW site, it will likely be minor. If expansion of the site is required, operational impacts are not anticipated given it will be located adjacent to the existing site.	Best practice will be implemented to avoid negative effects, ground will be reinstated, however likely to be some disturbance to landscape during works. Implement screening and other best practice techniques to minimise operational impacts.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are three grade II listed buildings within 500m. The construction phase may impact the setting of these assets. Excavation may impact archaeology, if present.	Best practice mitigation measures to be implemented to minimise setting effects during construction. Given there is potential to impact buried archaeology, an Archaeology Watching Brief may be required during the construction phase. Further work may	0	-	0	0

							be required to determine the significance of the effect depending on the presence / absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are play spaces, playing fields and a public park within 500m of option. There is potential for the community and users of these facilities to be impacted during the construction phase, however this is likely to be minor and temporary. The option is within IMD decile 10.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	Option is within 500m of South Downs National park, a national cycle route and open spaces that may be used for recreation. Minor impacts on recreation therefore identified for the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste, including excavated materials.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	There is railway tracks, major roads and a cycle route within 500m of option. There may be minor disruption to the local road network during the construction phase.	Best practice mitigation measures including a Traffic Management Plan to be implemented to minimise effects during construction.	0	-	0	0
SEA Metrics		Positive 8 Negative -15				Positive 8 Negative -11					

SWS_HSE_HI-TFR_HRZ_ALL_sla											
Sandy Lane Abbotswood											
Southern Water											
Sandy Lane Abbotswood											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	The option is for an existing transfer. No new infrastructure likely to be required therefore no impacts identified. HRA ToLS (2021) identified no likely significant effects given there is no new infrastructure. No additional risk for the transfer of INNS.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No new infrastructure as existing transfer therefore neutral effects identified for soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No new infrastructure therefore no additional flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No new infrastructure therefore neutral effects identified for water resources. WFD Screening Assessment (2020) identified no impact as it is an existing transfer and further WFD assessment is therefore not required.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	0	0	The option transfers water which leads to more resilient supplies, however as this is an existing transfer, additional positive effects have not been identified.	N/A	0	0	0	0
Air	Reduce and minimise air emissions	0	0	0	0	No new infrastructure therefore no additional impacts on air quality.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data however no new infrastructure therefore no carbon impacts identified.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	No new infrastructure, utilising existing transfer and water levels are not likely to be significantly affected, therefore no additional impacts on the climate resilience of the local environment.	N/A	0	0	0	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No new infrastructure therefore no additional impacts on landscape.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No new infrastructure therefore no additional impacts on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	No new infrastructure therefore no additional impacts on the local community.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	No new infrastructure therefore no additional impacts on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	No new infrastructure therefore no additional impact on resources and waste.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	No new infrastructure therefore no additional impacts on built assets and the built environment.	N/A	0	0	0	0
SEA Metrics		Positive 0 Negative 0				Positive 0 Negative 0					

SWS_HSE_HI-TFR_HSW_ALL_hse											
Current transfers from HSW to HSE											
Southern Water											
Current transfers from HSW to HSE											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	The option is for an existing transfer. No new infrastructure likely to be required therefore no impacts identified. HRA ToLS (2021) identified no likely significant effects given there is no new infrastructure. No additional risk for the transfer of INNS.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No new infrastructure as existing transfer therefore neutral effects identified for soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No new infrastructure therefore no additional flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No new infrastructure therefore neutral effects identified for water resources. WFD Screening Assessment (2020) identified no impact as it is an existing transfer and further WFD assessment is therefore not required.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	0	0	The option transfers water which leads to more resilient supplies, however as this is an existing transfer, additional positive effects have not been identified.	N/A	0	0	0	0
Air	Reduce and minimise air emissions	0	0	0	0	No new infrastructure therefore no additional impacts on air quality.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	No new infrastructure, utilising existing transfer and water levels are not likely to be significantly affected, therefore no additional impacts on the climate resilience of the local environment.	N/A	0	0	0	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No new infrastructure therefore no additional impacts on landscape.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No new infrastructure therefore no additional impacts on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	No new infrastructure therefore no additional impacts on the local community.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	No new infrastructure therefore no additional impacts on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	No new infrastructure therefore no additional impact on resources and waste.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	No new infrastructure therefore no additional impacts on built assets and the built environment.	N/A	0	0	0	0
SEA Metrics		Positive 0 Negative 0				Positive 0 Negative 0					

SWS_HSE_HI-TFR_HSW_ALL_pot_tott_90											
90MI/d potable water pipeline from Test to Lower Itchen bi-directional											
Southern Water											
This option proposes a 90MI/d potable water pipeline from Test to Lower Itchen bi-directional											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	<p>The pipeline passes through River Test SSSI (17.91% favourable, 37.53% unfavourable - recovering, 43.52% unfavourable - no change, 1.03% unfavourable - declining) / GWDTE, Lower Test Valley SSSI (65.15% favourable, 34.85% unfavourable - recovering) / GWDTE and the Solent and Southampton Water Ramsar and SPA. The pipeline is within 500m of Ratlake Meadows SSSI (100.00% unfavourable - recovering), Trodds Copse SSSI (13.76% favourable, 86.24% unfavourable - recovering) both of which are GWDTE. The River Itchen SAC and River Itchen SSSI / GWDTE, the Emer Bog SAC and SSSI, Hocombe Mead LNR, Shawford Down LNR and Tadburn Meadows LNR are all within 2000m. The option is within SSSI Impact Risk Zones. The pipeline passes through woodland including Ancient Woodland and deciduous woodland Priority Habitat, and other Priority Habitats including coastal and floodplain grazing marsh and good quality semi-improved grassland, therefore potential for direct effects. The pipeline also intersects chalk rivers.</p> <p>The HRA ToLS (2021) identified likely significant effects for the Solent and Southampton Water SPA and Ramsar (within the option boundary). There is potential for direct effect to the SPA and Ramsar habitats which support the qualifying bird species. Additionally, due to the construction works, there is the potential for sedimentation and pollution. There remains the potential for further damage to the habitat during the operational phase, should the pipeline ever need to be repaired by a method requiring its excavation.</p> <p>There is also the potential for impacts to the internationally important waterfowl, for which the SPA and Ramsar is designated thorough disturbance, dust and light pollution caused by construction works. Uncertain effects were identified for River Itchen SAC (within 400m of the option), The New Forest SAC and Ramsar (3km to the west) due to construction effects.</p>	<p>Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment or trenchless techniques to avoid designated sites and woodland habitat, in particular the Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. The HRA Enhanced Screening (Tier 2) identified that the likely significant effects for the Solent and Southampton SPA and Ramsar are not guaranteed to be mitigable. Construction works will follow best practice guidelines e.g. use of a robust CEMP detailing mitigation measures to minimise potential impacts and the use of DMPs, pollution prevention, use of sediment screens, coverage of construction stockpiles during adverse weather conditions to minimise potential effects of pollution and run-off. Construction dust could be mitigated through wet cutting/crushing and vacuum drilling. Upgrading plant to minimise</p>	0	--	0	0

						Very low risk for the transfer / movement of INNS as treated water will be free from INNS).	particulate production e.g. use of particulate filters, catalytic converters to minimise NOx production and use of low sulphur fuels is likely to minimise impacts to qualifying species. Sensitive lighting with down ward facing cowling would be used to reduce light pollution. It may be possible to divert the section of pipeline that is currently within the SPA and Ramsar, although it may be moved to areas outside which still contains functionally linked habitat, where the effects would be similar. For this reason, the effects remain uncertain for the Solent and Southampton SPA and Ramsar. The uncertain effects identified for River Itchen SAC, and The New Forest SAC and Ramsar are likely to be mitigable.				
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The option will result in soil disturbance within Grades 2, 3, 4, 5 and 'urban' land. As a result, there is likely to be disturbance to areas of soil that have previously not been disturbed, resulting in an adverse effect on the soil due to the required excavation to install the pipeline. The pipeline passes through several historic landfill sites resulting in the likely disturbance of these and potential contamination of surrounding soil. As a result, an adverse effect is anticipated in the construction phase.	The possibility to re-route the pipeline around the historic landfills should be investigated. It is assumed that the pipeline will be fully buried and ground reinstated, meaning the agricultural use of the ground can recommence in the operational phase.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The pipeline is predominately within Flood Zone 1 but does pass through Flood Zones 2 and 3, meaning that the construction phase at risk from flooding. Operational effects unlikely as pipeline will be buried.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	This option does not deal with the source of water, it conveys it instead. The option results in creation of new pipeline allowing for the conveyance (in either direction) between two areas. The pipeline intersects waterbodies, including main rivers and chalk rivers, and is within close proximity to other waterbodies. There is potential for the construction phase to contaminate these waterbodies, impacting water quality. Part of the option is within SPZs.	Best practice construction measures to be implemented to mitigate effects therefore residual effects are unlikely.	0	0	0	0

						The WFD Screening Assessment (2021) identified no further WFD assessment is required.					
	Deliver reliable and resilient water supplies	0	0	+++	0	This option conveys water along a new pipeline, with a capacity of 90Ml/d, therefore there will be a transfer of water to an area of deficit without requiring abstraction (in either direction).	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	There are no AQMAs or AQM sites within 2000m of the works. It is likely that there will be minor adverse effects during the construction phase due to the generation of emissions as a result of using plant and machinery. There are anticipated to be no operational effects.	Best practice construction to be followed to reduce emissions, but likely that these are unavoidable hence minor residual effects at construction.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	--	No carbon data available. This option is estimated to have minor construction and moderate operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	--
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Option results in the conveyance of water - no new abstraction will take place as a result of this option so there are not considered to be any changes to vulnerability or risk.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option is in the South Hampshire Lowlands and Hampshire Downs NCAs. The South Downs National Park is within 500m of the pipeline. There is likely to be a minor negative effect at construction due to the presence of the site, excavations and personnel and machinery. At the operational phase it is assumed all of the pipeline will be buried and land reinstated, resulting in no effect.	Adhere to construction best practice e.g. use visual screening. Reinstatement following completion of works.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The pipeline appears to go through listed buildings, however this may be an issue with the alignment of the GIS as it appears to follow the A27 at this point. There are listed buildings, scheduled monuments, a registered park and garden, and conservation areas within 500m. The construction phase may impact the setting of the historic assets, however this is likely to be minimal and temporary. The pipeline excavation may impact buried archaeology, if present.	Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential	0	-	0	0

							loss of archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The option passes through a noise action area and a golf course. It also appears to pass through a school, however this may be an issue with the alignment of the GIS as it appears to follow the A27 at this point. It is also within 500m of playing fields, play spaces, golf courses, schools, and churches and religious grounds. There is potential that the users of these community facilities and the wider community will be disrupted during the construction phase. IMD deciles range from 6 to 10 along the pipeline route.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction and land will be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The pipeline intersects national cycle routes and a golf course, and there are also additional recreational facilities within 500m. The South Downs National Park is within 500m of the pipeline. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance to users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction and land will be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Pipeline to be installed requires excavation and generation of excavated material. Resource use needed for construction of pipeline.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option crosses major roads, national cycle routes and railway tracks. It is assumed that the asset will be underground and so no effects in the operational phase.	Best practice mitigation measures will likely be implemented to minimise effects during construction and roads and cycle routes will be reinstated above the pipeline. However, minor and temporary effects are likely to still occur. Directional drilling under the existing assets may be required.	0	-	0	0
SEA Metrics		Positive 8 Negative -29				Positive 8 Negative -17					

SWS_HSE_HI-TFR_HSW_ALL_woo											
Woodside transfer valve (HSW to HSE)											
Southern Water											
Modelling suggests a new WBS at the Woodside Transfer with a flow-rate of 25 MI/d is viable. This is approximately 10 MI/d more than the existing transfer capacity. 10 MI/d increase in transfer capacity to 25 MI/d - not necessarily 10 MI/d DO.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	The option is within 2000m of the River Itchen SSSI (10.37% favourable, 55.74% unfavourable - recovering, 27.99% unfavourable - no change, 5.51% unfavourable - declining, 0.39% destroyed) and the River Itchen SAC, both of which are GWDTE. The option is within a SSSI Impact Risk Zone. Given the nature of the works, indirect impacts are not anticipated for these sites. No impacts on chalk rivers, Priority Habitats, woodland or Ancient Woodland anticipated. The HRA ToLS (2021) identified no likely significant effects on River Itchen SAC (1.5km to the east); Emer Bog SAC (5km to the west); and Solent and Southampton Water SPA and Ramsar (8km to the south). This is due to the distance between the works and the sites and the absence of hydrological connections. Very low risk for the transfer / movement of INNS.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The option is located within urban land therefore no impacts identified. There are no historic or authorised landfill sites within 500m.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	--	0	--	The option is within Flood Zone 2 and therefore the construction phase has the potential to be at risk of flooding, although works will be minor. Operational impacts also likely.	Implement best practice techniques to reduce risk of flooding during construction and operational phase, however risk of flooding remains.	0	-	0	-
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	The option is not within 500m of chalk rivers or main rivers. There is likely to be minimal risk of impacting the quality of these rivers during the construction phase given works are localised. The option is not located within a SPZ. The WFD Screening Assessment (2021) identified further WFD assessment is not required.	Implement best practice to minimise any impacts on nearby water receptors.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	The option will increase the transfer capacity by 10 MI/d therefore increasing the resilience of supplies.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	0	0	0	The option is within the Eastleigh AQMA No.1 (A335). However, there are likely to be very minimal impacts on air quality during construction given the nature of the works therefore neutral effects have been identified.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operational emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Water levels are not anticipated to be significantly affected therefore neutral effects have been identified for climate resilience.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option is within the South Hampshire Lowlands NCA. The option is not within any landscape designations. Works are anticipated to be minimal, however there may be some minor effects on landscape / townscape during the works.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Any land reinstated will be upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	There are listed buildings within 500m. There is potential for the setting of these historic assets to be impacted, however this will be minimal given the localised nature of the works therefore neutral effects identified. No impacts on archaeology are anticipated.	Best practice measures will likely be implemented to minimise setting effects during construction.	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are allotments, a cemetery, bowling green and sports facility within 500m. There is potential that the construction phase will lead to disturbance effects on the users of these community facilities and the wider community. The option is within IMD decile 8.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	The option intersects a national cycle route and there are sports facilities and allotments within 500m. However, given the nature of the works, it is unlikely recreation will be impacted.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary	0	0	0	0

							effects are likely to still occur.				
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste.	Likely to be limited opportunity to implement sustainable design measures to reduce the impact therefore it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	There is a major road within 500m and the option is adjacent to a national cycle route. There is potential for minor disruption to the local road network during the construction phase.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics		Positive 1 Negative -15		Positive 1 Negative -8							

SWS_HSE_HI-TFR_KVZ_ALL_readottraw											
Thames to Southern Transfer Reading to Otterbourne Raw (Real Group)											
Southern Water											
Raw water transfer from existing Reading WTW to the existing Otterbourne WTW. 120MI/d transfer capacity with the following offtakes: 10-20MI/d offtake to the existing near Basingstoke WSW, 10-20MI/d offtake to Andover, 10-20MI/d offtake to SEW at the existing Northgate WSR. Treatment within SRN/SEW supply area.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	The pipeline route intersects the River Test SSSI (a chalk river). There could be direct habitat loss and disturbance for species during construction. Land will be reinstated above the pipeline but habitats and species disturbed may take time to recover. There are a number of additional SSSIs and LNRs within 500m and the route is within 500m of the River Itchen SAC and SSSI. There are several other designated sites within 2000m. There are likely to be disturbance effects during construction. The majority of the sites are also GWDTE. The route also intersects four ancient woodlands and a variety of priority habitats including coastal and floodplain grazing marsh, deciduous woodland and good quality semi-improved grassland. There is likely to be direct loss of this habitat, although certain habitat types can be reinstated following construction of the pipeline. Operation is unlikely to have effects unless maintenance is required within designated sites. The HRA ToLS concluded that a HRA Appropriate Assessment will be required for a number of the designated sites including those mentioned above and others that are further away but potentially hydrologically linked. This is a raw water transfer and therefore, there is potential for INNS transfer.	Investigate feasibility of directional drilling under the designated river sites. Detailed ecological surveys and assessment will be required. Introduce habitat compensation, relocation schemes, and habitat creation where required. HRA Appropriate Assessment required for a number of designated sites. Undertake INNS risk assessment.	0	-	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The scheme intersects two authorised landfill sites and one historic landfill. Agricultural land classifications range from grade 1-4 but the majority would be reinstated above the pipeline. Pollution of soils may be possible during construction, with permanent land take possibly required for construction of pumping stations and other above ground structures.	Pollution prevention and control measures to reduce likelihood of contaminants leaching through soil and entering groundwater.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	Parts of the scheme lie in flood zones 2 and 3 and therefore, there is a risk of flooding during construction works. Operational effects are unlikely.	Measures to reduce the impact of flooding during the construction phase is likely to be implemented, however potential residual flood risk likely to remain.	0	-	0	0

	Protect and enhance the quality of the water environment and water resources	0	--	0	0	The scheme intersects SPZ1 and 2, as well as eight WFD groundwater bodies. The site also lies within a nitrate vulnerable zone and crosses several rivers. Potential for water quality effects during construction. The WFD phase 1 screening concluded that further WFD assessment is required for the Sulham Brook (assuming directional drilling for most rivers)	Pollution Prevention and control measures to reduce likelihood of contaminants leaching through soil and entering groundwater. Bedding material designed so as not to form preferential pathway for groundwater. Directional drilling used where possible. Further WFD assessment required.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+++	0	The scheme will improve water transfer across regions, improving water resource management and resilience of supply.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	The route does not pass through or near any AQMAs. Vehicle emissions and dust from construction activities will be generated but effects will be short-term.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	---	Carbon will be generated from materials used to construct the pipeline (embodied carbon), construction activities and from operation (e.g. pumping stations). The relative carbon scale identified that the options has minor construction and major operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	---
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The scheme will contribute to improved water resources management, providing potential security in future drought scenarios.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	-	The site intersects the North Wessex Downs AONB and NCAs. Construction will result in visual effects, however, the majority of the pipeline infrastructure will be below ground and land reinstated above it. The WSR and treatment works at the end of the route/offtake routes are existing and it is assumed that any upgrade works would be within the existing operational site boundaries (full options details have yet to be determined).	Best practice measures to reduce visual impact during construction. Construction to be conducted in phases so visual disturbance will be temporary at each location. Pipeline will be buried once constructed but pumping stations and other above ground structures may require screening. Once further option detail on WSR and treatment works upgrades are determined effects should be reviewed.	0	-	0	0

Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	---	0	-	There are numerous listed buildings within 500m of the route and several scheduled monuments. The scheme intersects two registered parks and gardens and runs along the boundary of a scheduled monument. During construction there will temporary effects on the setting of these assets and direct impacts on the two registered parks and gardens. There is also potential to uncover archaeology during excavation works for the pipeline. The majority of the pipeline infrastructure is underground and land will be reinstated above, therefore, operational effects on setting are unlikely. It is not clear where pumping stations will be located and whether these will be near historic assets.	Best practice measures during construction. Siting of pumping stations away from historic assets. Re-route pipeline around registered parks and gardens.	0	-	0	0
	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	---	0	0	The scheme intersects: Theale Golf course; Theale Green School; Tadley Rugby Club (playing fields); Tadley Community School; Drummer cricket club (playing fields); Ashe Park (public park; Picket Twenty Sports Grounds. The route is also within 500m of additional community facilities. Therefore, construction is likely to have a significant impact on the local community. Land will be reinstated following construction.	Re-route pipeline around community assets if possible. If not liaison with affected asset owners required. Best practice construction methods to reduce amenity effects for the community. Potential opportunities to enhance local areas when reinstating land.	0	--	+	0
Population and Human Health	Maintain and enhance tourism and recreation	0	-	0	0	The scheme intersects two cycle routes and a sports facility, therefore causing temporary disruption during construction. Land will be reinstated and it is likely that diversions would be put in place. However, the sports facility may need to temporarily close.	Best practice construction methods to minimise disruption and appropriate use of diversions and signage. Divert route around sports facility.	0	-	0	0
	Minimise resource use and waste production	0	--	0	0	The pipeline construction will require materials and resource use. Excavated material is likely to be reused onsite.	Opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain. Sourcing of materials locally where possible.	0	-	0	0
Material Assets	Avoid negative effects on built assets and infrastructure	0	--	0	0	The scheme intersects motorways at three locations, several A-roads and three railway lines potentially causing disruption during construction. It is likely that directional drilling would be implemented under the railways and motorways. Potential road closures on smaller roads may cause disruption. Operational effects are unlikely as the pipeline will be underground.	Use of directional drilling where possible to minimise disruption.	0	-	0	0
SEA Metrics			Positive Negative	9 -51				Positive Negative	11 -23		

SWS_HSE_HI-TFR_PRT_ALL_pwc1											
Additional import from PWC (additional 9MI/d)											
Southern Water											
Additional 9 MI/d bulk import from PWC Gaters Mill to Otterbourne distribution network using spare capacity of existing 30MI/d main, dependent on resource development (World's End WTW) by PWC. Could also be considered as a Drought Option											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	<p>Option crosses River Kennet SSSI (100% unfavourable - no change), River Lambourn SSSI (100% unfavourable - recovering), River Test SSSI (43.52% unfavourable - no change, 37.53% unfavourable - recovering, 17.91% favourable, 1.03% unfavourable - declining). River Test SSSI is GWDTE. Option is within 500m of Kennet and Lambourn Floodplain SSSI (68.39% favourable, 16.01% unfavourable - declining, 14.5% unfavourable - recovering, 1.1% unfavourable - no change), Burghclere Beacon SSSI (100% favourable), Highclere Park SSSI (58.95% unfavourable - recovering, 41.05% favourable), Kennet Valley Alderwoods SSSI (100% favourable), Old Burghclere Lime Quarry SSSI (100% favourable), River Itchen SSSI (55.74% unfavourable - recovering, 27.99% unfavourable - no change, 10.37% favourable, 5.51% unfavourable - declining) and Snelsmoe Common SSSI / GWDTE (65.59% unfavourable - recovering, 34.41% favourable). Option almost entirely located within SSSI risk zone. Option crosses Kennet and Lambourn Floodplain SAC and River Lambourn SAC, of which the HRA ToLS suggests likely significant effects due to direct river crossing giving rise to pollution from, dust, silt and alike entering the water body and effecting hydrology, ecology and physiochemical properties. Within 2km of Kennet Valley Alderwoods SAC which ToLS identifies uncertain effects for and River Itchen SAC with no likely significant effects. Option crosses Rivers Test, River Kennet and River Lambourn, all of which are chalk rivers. Local nature reserves within 500m. Option crosses woodland, including four areas of ancient woodland, deciduous woodland, coastal and floodplain grazing marsh, lowland calcareous grassland and one area of purple moor grass and rush pastures.</p> <p>High level construction phase INNS risk, as pipeline crosses vulnerable SACs, multiple SSSIs and INNS sensitive habitats. No INNS risk during operational phase as water is treated and free of INNS.</p>	<p>Option routing should be considered to avoid crossing SSSI and other designated sites, where possible. Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys.</p> <p>LSE identified for River Lambourn SAC and Kennet & Lambourn Floodplain SAC and uncertain effects identified for Kennet Valley Alderwoods SAC are considered to be mitigatable through use of best practice guidelines, wet cutting/crushing and vacuum drilling to manage construction dust, sensitive lighting and direct drilling.</p>	0	-	0	0

Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	Option crosses one historic landfill site, with 11 other historic landfill sites within 500m and one authorised landfill site within 500m. There is potential to disturb contaminated material during construction. Option is predominately located on grade 3 agricultural land, whilst crossing multiple areas of grade 2 and grade 4 agricultural land. Likely disturbance to these soils during construction.	Land reinstated upon completion. Best practice construction measures to be implemented to avoid pollution of groundwater from landfill, however residual construction effects likely.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	Option is located predominately within Flood Zone 1, whilst also crossing watercourses and Flood Zones 2 and 3 on occasions. This may have an effect on construction.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	Option crosses watercourses, including main rivers and chalk rivers, in multiple locations and as such there is potential for contamination during the construction phase. Option passes through SPZ Zones I, II and III. WFD screening (2020) concluded no waterbodies require further assessment.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option will facilitate water supply once operational, through an additional bulk import from PWC Gaters Mill to Otterbourne distribution network using spare capacity of existing 30MI/d main, dependent on resource development (World's End WTW) by PWC. Capacity of 9MI/d.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Option does not pass through any AQMAs, nor any within 500m or 2000m. However, construction is likely to have minor and temporary impact.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Water levels not predicted to be significantly affected therefore, unlikely to affect resilience of the local environment to climate change.	N/A	0	0	0	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	Approximately 1/2 of option located within North Wessex Downs Area of Outstanding Natural Beauty. Option located within Upper Thames Clay Vales, Berkshire and Marlborough Downs, Thames Basin Heaths and Hampshire Downs National Character Areas. Potential for impacts on landscape character and visual amenity during construction.	Best practice measures i.e. landscape screening will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	---	0	0	Option crosses Battle of Nerbury 1643 and grade II* listed Lainston House Registered Park and Garden therefore potential for direct effects. Within 500m of five other Registered Parks and Gardens and within 500m of multiple listed buildings and Scheduled Monuments. Option crosses Tufton Conservation Area and within 500m of five other conservation areas. Construction may affect the setting of the historic assets, however this will be temporary. Potential impact on buried archaeology, if present.	Option routing should be considered to avoid crossing Registered Battlefield and Registered Park and Garden, if possible. Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	--	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	Option crosses one school and is within 500m of multiple schools, medical care sites and Important Buildings. Option crosses one golf course and within 500m of religious grounds, golf courses, public parks and gardens, playing fields, play spaces, allotments and tennis courts. Option crosses two Noise Action Planning Important Areas. Option crosses areas of IMD decile 10, 9, 8, 7, 6 and 5. Disturbance to the local community and users of these community will be moderate yet temporary in nature during the construction phase.	Option routing should be considered to avoid crossing school, if possible. Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	Option crosses National Trail (The Ridgeway) and National Cycle Network. Option within 500m of Snelsmore Common Country Park and South Downs National Park. Option crosses one golf course and within 500m of religious grounds, golf courses, public parks and gardens, playing fields, play spaces, allotments and tennis courts. The construction phase may also result in diversions to public rights. Therefore, there may be some minor and temporary effects on recreation during construction.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste.	Opportunity to implement sustainable design measures and reuse excavated material on site,	0	-	0	0

							to reduce impact. Minor negative construction effects will likely remain.				
	Avoid negative effects on built assets and infrastructure	0	--	0	0	Option crosses rail tracks, major roads (including M4 and M3), National Trail (The Ridgeway) and National Cycle Network. Option crosses one Road User Services site. Likely to be moderate and temporary impacts during the construction.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway is likely.	0	-	0	0
SEA Metrics		Positive		1				Positive		1	
		Negative		-39				Negative		-16	

SWS_HSE_HI-TFR_PRT_ALL_pwc2											
Additional import from PWC (further 23Ml/d)											
Southern Water											
Additional 23 Ml/d using a new pipeline from Import from Portsmouth Water to Otterbourne, dependent on resource development (Havant Thickett reservoir) by PWC. Could also be considered as a Drought Option. <i>this option suggests a new large pipeline, but the description suggests it uses an existing main for this variant (1) and a new pipeline for variant 2. We've retained the worst case assessment for variant 1,</i>											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	Option crosses Kennet and Lambourn Floodplain SSSI (68.39% favourable, 16.01% unfavourable - declining, 14.5% unfavourable - recovering, 1.1% unfavourable - no change), River Kennet SSSI (100% unfavourable - no change), River Lambourn SSSI (100% unfavourable - recovering), River Test SSSI (43.52% unfavourable - no change, 37.53% unfavourable - recovering, 17.91% favourable, 1.03% unfavourable - declining). All of which are biological SSSI. River Test SSSI is water dependent. Option is within 500m of Burghclere Beacon SSSI (100% favourable), Highclere Park SSSI (58.95% unfavourable - recovering, 41.05% favourable), Kennet Valley Alderwoods SSSI (100% favourable), Old Burghclere Lime Quarry SSSI (100% favourable), River Itchen SSSI (55.74% unfavourable - recovering, 27.99% unfavourable - no change, 10.37% favourable, 5.51% unfavourable - declining) and Snelsmoe Common SSSI (65.59% unfavourable - recovering, 34.41% favourable). All of which are biological SSSI. Option almost entirely located within SSSI risk zone. Option crosses Kennet and Lambourn Floodplain SAC and River Lambourn SAC. Within 2km of Kennet Valley Alderwoods SAC and River Itchen SAC. Option crosses Rivers Test, River Kennet and River Lambourn, all of which are chalk rivers. Local nature reserves within 500m. Option crosses woodland, including four areas of ancient woodland, deciduous woodland, coastal and floodplain grazing marsh, lowland calcareous grassland and one area of purple moor grass and rush pastures. HRA screening identifies likely significant effects for River Lambourne SAC (option crosses through) during pipeline construction which may increase dust/sediment/pollution into the watercourse and smothering of vegetation. HRA identified uncertain effects for River Itchen SAC (300 metres east of the option) due to pipeline construction resulting in dust / sediment / pollution into watercourse and smothering of	Option routing should be considered to avoid crossing SSSI, where possible. Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Construction phase LSE identified for River Lambourn SAC, Kennet & Lambourn Floodplain SAC, and construction phase uncertain effects for Kennet Valley Alderwoods SAC and River Itchen SAC are considered to be mitigatable through use of best practice guidelines such as use of a robust CEMP.	0	-	0	0

						vegetation. Low risk of transfer of INNS as the source water is likely to be entirely free of INNS once treated by the plant. Construction phase risk of INNS is considered to be low.					
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	Option crosses one historic landfill site, with 11 other historic landfill sites within 500m and one authorised landfill site within 500m. There is potential to disturb contaminated material during construction. Option is predominately located on grade 3 agricultural land, whilst crossing multiple areas of grade 2 and grade 4 agricultural land. Likely disturbance to these soils during construction.	Land reinstated upon completion. Best practice construction measures to be implemented to avoid pollution of groundwater from landfill, however residual construction effects likely.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	Option is located predominately within Flood Zone 1, whilst also crossing watercourses and Flood Zones 2 and 3 on occasions. This may have an effect on construction.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	Option crosses watercourses, including main rivers and chalk rivers, in multiple locations. Option passes through SPZ Zones I, II and III. WFD screening (2020) concluded no water bodies requiring further WFD assessment.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option will facilitate water supply once operational, through an additional bulk import from PWC Gaters Mill to Otterbourne distribution network using spare capacity of existing 30MI/d main, dependent on resource development (World's End WTW) by PWC. Capacity of 9MI/d.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Option does not pass through any AQMAs, nor any within 500m or 2000m. However, construction is likely to have minor and temporary impact.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the	0	-	0	-

							electricity grid is decarbonised, greener energy will be available.				
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Water levels not predicted to be significantly affected therefore, unlikely to affect resilience of the local environment to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	Approximately 1/2 of option located within North Wessex Downs Area of Outstanding Natural Beauty. Option located within Upper Thames Clay Vales, Berkshire and Marlborough Downs, Thames Basin Heaths and Hampshire Downs National Character Areas. Potential for impacts on landscape character and visual amenity during construction.	Best practice measures i.e. landscape screening will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	---	0	0	Option within 500m of multiple listed buildings and Scheduled Monuments. Option crosses Battle of Nerbury 1643 and grade II* listed Lainston House Registered Battlefields. Within 500m of 5 other Registered Battlefields. Option crosses Tufton Conservation Area and within 500m of 5 other conservation areas. Construction may affect the setting of the historic assets, however this will be temporary. Potential impact on buried archaeology, if present.	Option routing should be considered to avoid crossing Registered Battlefields, if possible. Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	--	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	Option crosses one school and within 500m of multiple schools, medical care sites and Important Buildings. Option crosses one golf course and within 500m of religious grounds, golf courses, public parks and gardens, playing fields, play spaces, allotments and tennis courts. Option crosses two Noise Action Planning Important Areas. Option crosses areas of IMD decile 10, 9, 8, 7, 6 and 5. Disturbance to the local community will be moderate yet temporary in nature.	Option routing should be considered to avoid crossing school, if possible. Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	--	0	0	Option crosses National Trail (The Ridgeway) and National Cycle Network. Option within 500m of Snelsmore Common Country Park and South Downs National Park. Option crosses one golf course and within 500m of religious grounds, golf courses, public parks and gardens, playing fields, play spaces, allotments and tennis courts. Therefore, there may be some moderate and	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0

						temporary effects on recreation during construction.					
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste.	Opportunity to implement sustainable design measures and reuse excavated material on site, to reduce impact. Minor negative construction effects will likely remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	Option crosses rail tracks, major roads (including M4 and M3), National Trail (The Ridgeway) and National Cycle Network. Option crosses one Road User Services site. Likely to be moderate and temporary impacts during the construction.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway is likely.	0	-	0	0
SEA Metrics		Positive 1 Negative -45		Positive 1 Negative -16							

SWS_HSE_HI-TFR_SWX_ALL_cul/ott pot											
Culham to Otterbourne (Potable) - Real Group											
Southern Water											
Potable water transfer from Culham (WTW at SESRO scheme including treatment at Culham)) to the existing Otterbourne WTW. 120MI/d transfer capacity with the following offtakes: 10-20MI/d offtake to the existing near Basingstoke WSR, 10-20MI/d offtake to the existing Micheldever WSR, 10-20MI/d offtake to SEW at the existing Northgate WSR.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	The pipeline route intersects two SACs and four SSSIs: Kennet and Lambourn Floodplain SAC and SSSI, River Kennet SSSI, River Lambourn SAC and SSSI and River Test SSSI (the rivers are all classed as chalk streams). There could be direct habitat loss and disturbance for species during construction. Land will be reinstated above the pipeline but habitats and species disturbed may take time to recover. There are an additional two SACs and seven SSSIs within 500m, and a further six SSSIs and three LNRs within 2000m. There are likely to be disturbance effects during construction. The majority of the sites are also GWDTE. The route also intersects seven ancient woodlands and a variety of priority habitats including deciduous woodland, coastal and floodplain grazing marsh and lowland calcareous grasslands. There is likely to be direct loss of this habitat, although certain habitat types can be reinstated following construction of the pipeline. Operation is unlikely to have effects unless maintenance is required within designated sites. The HRA ToLS concluded that a HRA Appropriate Assessment will be required for a number of SACs including those mentioned above and others that are further away but potentially hydrologically linked.	Investigate feasibility of directional drilling under the designated river sites. Detailed ecological surveys and assessment will be required. Introduce habitat compensation, relocation schemes, and habitat creation where required. HRA Appropriate Assessment required for a number of SACs.	0	--	+	0
	Soil	0	-	0	0	There are three historic landfill sites which intersect the pipeline route. Agricultural land is classed as grades 1-4 but the majority would be reinstated above the pipeline. Pollution of soils may be possible during construction, with permanent land take possibly required for construction of pumping stations and other above ground structures.	Pollution prevention and control measures to reduce likelihood of contaminants leaching through soil and entering groundwater.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	Parts of the scheme lie in flood zones 2 and 3 and therefore, there is a risk of flooding during construction works. Operational effects are unlikely.	Measures to reduce the impact of flooding during the construction phase is likely to be implemented, however potential residual flood risk likely to remain.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	The site lies within SPZ1 and 2, with seven WFD groundwater bodies intersected by the scheme. The site also lies within a nitrate vulnerable zone and crosses several rivers. Potential for water quality effects during construction. The WFD phase 1 screening concluded that further WFD assessment is required for the Cow	Pollution Prevention and control measures to reduce likelihood of contaminants leaching through soil and entering groundwater. Bedding material designed so as not to form	0	-	0	0

						Common Brook and Portobello Ditch (assuming directional drilling for most rivers)	preferential pathway for groundwater. Directional drilling used where possible. Further WFD assessment required.				
	Deliver reliable and resilient water supplies	0	0	+++	0	The scheme will improve water transfer across regions, improving water resource management and resilience of supply.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	The route does not pass through or near any AQMAs. Vehicle emissions and dust from construction activities will be generated but effects will be short-term.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	---	Carbon will be generated from materials used to construct the pipeline (embodied carbon), construction activities and from operation (e.g. pumping stations). The relative carbon scale identified that the options has minor construction and major operation carbon emissions (relative to other WRSE Regional Plan options)	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	---
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	This scheme contributes to efficient use of water resources, providing protection against future drought scenarios (and potentially avoids abstractions in more vulnerable areas).	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	-	The site intersects the North Wessex Downs AONB and Thames Basin Heaths, Hampshire Downs, Upper Thames Clay Vales and Berkshire and Marlborough Downs NCAs. Construction will result in visual effects, however, the majority of the pipeline infrastructure will be below ground and land reinstated above it. The WSR and treatment works at the end of the route/offtake routes are existing and it is assumed that any upgrade works would be within the existing operational site boundaries (full options details have yet to be determined).	Best practice measures to reduce visual impact during construction. Construction to be conducted in phases so visual disturbance will be temporary at each location. Pipeline will be buried once constructed but pumping stations and other above ground structures may require screening. Once further option detail on WSR and treatment works upgrades are determined effects should be reviewed.	0	-	0	0

Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	-	There are numerous listed buildings within 500m of the route and several scheduled monuments. There is also a registered battlefield (Battle of Newbury 1643) and four registered parks and gardens within 500m of the scheme. There are unlikely to be direct affects, although the route is adjacent to several of the identified assets. During construction there will temporary effects on the setting of these assets. There is also potential to uncover archaeology during excavation works for the pipeline. The majority of the pipeline infrastructure is underground and land will be reinstated above, therefore, operational effects on setting are unlikely. It is not clear where pumping stations will be located and whether these will be near historic assets.	Best practice measures during construction. Siting of pumping stations away from historic assets.	0	-	0	0
	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The scheme intersects a golf course and the boundary of a primary school. Construction may require the closure of the golf course and school playing fields. The route is also within 500m of allotments, churches, schools, a playing field and a cemetery. Construction is likely to cause noise and visual disruption for users of these assets. Land will be reinstated following construction.	Liaison with golf and primary school if route cannot be re-routed around these assets. Best practice construction methods to reduce amenity effects for the community. Potential opportunities to enhance local areas when reinstating land.	0	-	+	0
Population and Human Health	Maintain and enhance tourism and recreation	0	-	0	0	The scheme intersects the Ridgeway National Trail, sports facility and three cycle routes, therefore causing temporary disruption during construction. Land will be reinstated and it is likely that diversions would be put in place. However, the sports facility may need to temporarily close.	Best practice construction methods to minimise disruption and appropriate use of diversions and signage. Divert route around sports facility.	0	-	0	0
	Minimise resource use and waste production	0	--	0	0	The pipeline construction will require materials and resource use. Excavated material is likely to be reused onsite.	Opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain. Sourcing of materials locally where possible.	0	-	0	0
Material Assets	Avoid negative effects on built assets and infrastructure	0	--	0	0	The scheme intersects motorways at three locations, a number of A-roads and one railway line potentially causing disruption during construction. It is likely that directional drilling would be implemented under the railway and motorways. Potential road closures on smaller roads may cause disruption. Operational effects are unlikely as the pipeline will be underground.	Use of directional drilling where possible to minimise disruption.	0	-	0	0
SEA Metrics			Positive	9				Positive	11		
			Negative	-44				Negative	-23		

SWS_HSE_RE-DRO_ALL_ALL_di-hse											
TUBS and NEU Ban - HSE WRZ											
Southern water											
Temporary use bans and Non-essential use bans											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Temporary use bans and non-essential use bans in Hampshire Southampton East may help protect GWDTE and priority habitat by conserving water in the environment. The HRA Tols (2021) indicated the following Natura sites that may be affected: Salisbury Plain SAC (Distance N/A); Mottisfont Bats SAC (Distance N/A); Emer Bog SAC (Distance N/A); River Itchen SAC (Distance N/A); Solent & Southampton Water RAMSAR (Distance N/A); Solent & Southampton Water SPA (Distance N/A); Solent Maritime SAC (Distance N/A); The New Forest SAC (Distance N/A). The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to sites which ecosystems are dependent upon ground and surface water. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	A temporary use ban and non-essential use ban may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	By reducing demand through temporary use band and non-essential use ban, option maintains resilience of water for essential services.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available.	N/A	0	0	0	0
Climatic Factors	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The option is for a temporary use ban and non-essential use ban. By reducing demand and potentially reducing abstraction the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented in drought conditions, it will not result in the long term resilience of the local environment.	N/A	0	0	+	0
	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of private gardens, and use of ornamental fountains etc will be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to have a significant effect on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Temporary use ban and non-essential use ban is likely to have minor negative effects on the community and social well-being as there will be restrictions on irrigation of gardens and allotments and use of water for recreational purposes. There may also be a small increased risk of fires in allotments as vegetation dries out.	Allowing allotments limited supplies of water. Ensuring high levels of communication before, during and following the implementation of these measures.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Assuming commercial properties including gardens are exempt from bans and restrictions there is likely to be only a minor effect on tourism and recreation. Non-commercial tourism sites may be affected.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effect on waste production or resource use.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effects on built assets and infrastructure.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -3				Positive 4 Negative -3					

SWS_HSE_RE-DRO_ALL_ALL_do_di_eme_regi											
Emergency restrictions: Hampshire Southampton East											
Southern water											
<p>Drought Option: Emergency Drought Orders allow water companies to restrict supplies to customers through the imposition of rota cuts and/or the introduction of standpipes. These measures exist to deal with the very remote possibility of a drought much worse than any seen in the last century or more in the UK. Emergency Drought Orders have not been put in place in the UK since 1976. Ministers have made it clear that such measures should be avoided at all costs and introduced only as a last resort. The Company will make full use of all other measures before considering whether the severity of drought conditions mean that Emergency Drought Orders might be required. The full range of measures available under Emergency Drought Order include powers: To limit the use of water for such purposes as it considers necessary (i.e. further measures not specified in the Drought Direction 2011); To introduce rota cuts; and To set up, and supply water by means of, stand-pipes or water tanks. Level of intervention for this option: Unprecedented drought conditions. We intend the need for these to only arise in conditions of civil emergency and as such our emergency plan covers this in more detail.</p>											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) identified no likely significant effects for the N2K sites within the Hampshire Southampton East WRZ: Emer Bog SAC, River Itchen SAC, Solent Maritime SAC and Solent and Southampton Water SPA. The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to all of the sites within the WRZ as the contain GWDTE or are dependent on surface water flows. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Emergency restrictions may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is only to be used in severe drought circumstances so is therefore not likely to affect flood risk or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0

	Deliver reliable and resilient water supplies	0	0	++	0	Option maintains resilience of water for essential services.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have temporary effects on visual amenity as restricted water use may impact parks and gardens reliant on public water supply.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	---	Emergency restrictions such as rota cuts and imposition of standpipes may have major negative effects on social well-being, with the potential for breakdown of social cohesion and impacts on public health. Imposition of standpipes will particularly effect people with limited mobility or other disabilities. Businesses that use water and do not have access to private water supply will be largely affected with the potential for substantial economic losses. There may also be an increased risk of fires as public access to water is restricted.	Ensure high level of communication with customers before, during and after the restrictions have been imposed.	0	0	0	---
	Maintain and enhance tourism and recreation	0	0	0	--	Tourism and recreation is likely to be affected as water restrictions may force some tourist attractions and recreational activities to temporarily close.	N/A	0	0	0	--
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 7 Negative -13				Positive 7 Negative -13					

SWS_HSE_RE-DRO_ALL_ALL_do_si_lis_westi											
Lower Itchen Sources											
Southern Water											
Drought Order to reduce the proposed abstraction licence 'hands off' flow condition from 198MI/d to 160MI/d, as measured at Allbrook and Higbridge gauging station and Drought Order to reduce the 'hands off' flow condition from 194MI/d to 150MI/d, as measured at Riverside Park gauging station											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	The River Test SSSI (17.91% favourable, 37.53% unfavourable - recovering, 43.52% unfavourable - no change, 1.03% unfavourable - declining), the Lower Test Valley SSSI (65.15% favourable, 34.85% unfavourable - recovering) and the Solent and Southampton SPA and Ramsar are within 500m and are all GWDTEs. The Solent Maritime SAC is within 2000m. The option is within a SSSI Impact Risk Zone. The River Test is a chalk river and there are woodland and priority habitats within 500m. There is not anticipated to be any construction effects as the option is a drought order. Operational effects may occur as the hand off flow condition is lowered, meaning that abstractions can continue with lower flows than those currently permitted. The HRA ToLS (2021) identified no likely significant effects. This option is designed to minimise effects of drought conditions, so is likely to help to mitigate for the adverse effects of drought conditions on downstream adjacent N2K sites. There is no additional risk for the movement / transfer of INNS associated within this option.	N/A	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The option is located within Grade 5 agricultural land. Given the option does not involve construction, neutral effects are identified.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is within Flood Zones 2 and 3, however given the option is a drought order, flood risk is not likely to be an issue therefore neutral effects are identified.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	--	The option is adjacent to the River Test, a main river and chalk stream. No construction associated with this option therefore neutral construction effects. There is potential for negative effects on the water environment as the option aims to permit the continuation of abstraction during lower flows by reducing the hands off flow condition. The WFD Screening Assessment (2021) identified that further WFD assessment is required due to operational effects.	Continue to monitor river levels. Undertake further WFD assessment.	0	0	0	--

	Deliver reliable and resilient water supplies	0	0	++	0	The resilience of the water environment is likely to increase as abstractions will continue in lower flows. It is anticipated to result in benefit of 38MI/d.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	0	0	0	No air quality effects are anticipated as a result of the option.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available for the option. Given this is a drought order option, carbon emissions are estimated to be zero and therefore neutral effects are identified.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	-	Given the option aims to continue abstractions during low flow periods, by reducing the hands off flow conditions, there is likely to be a negative effect on the climate resilience of the local environment.	Continue to monitor river levels.	0	0	0	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	The New Forest National Park is within 2000m. No effects on the landscape are anticipated as a result of the option.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	There are no historic assets within 500m, however there are listed buildings within 2000m. No effects on the historic environment are anticipated as a result of the option.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	There are no community facilities within 500m. No effects on the local community are anticipated as a result of this option. The option is located within IMD decile 8.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	No effects on recreation are anticipated as a result of this option.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	The option does not require any new infrastructure and will not generate any additional waste therefore neutral effects have been identified.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	There are major roads, railways and national cycle routes within 500m. No effects on built assets and infrastructure are anticipated as a result of this option.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -6		Positive 4 Negative -6							

SWS_HSE_RE-DRO_ALL_ALL_si_capex											
Candover Drought Permit/Order (capital works required before order can be regularly implemented)											
Southern Water											
To enable operation of Preston Candover river augmentation scheme boreholes. Abstraction would be increased over a period of several days up to the full required discharge rate so as to prevent a sudden increase in flow in the River Itchen. Abstraction and discharges will only be permitted when flows in the River Itchen at Allbrook and Highbridge are at or below a trigger flow of 220 ML/d.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	--	The pipeline passes through River Itchen GWDTE / SAC therefore potential for direct effects. The River Itchen is also a SSSI (10.37% favourable, 55.74% unfavourable - recovering, 27.99% unfavourable - no change and 5.51% unfavourable - declining). There are no other designated sites within 2000m. The option is within SSSI Impact Risk Zones. The option may have direct effects on Priority Habitats including coastal and floodplain grazing marsh, deciduous woodland and lowland fens. The River Itchen is a chalk river therefore potential for changes in abstraction to affect the sensitive habitats. The HRA ToLS (2021) identified uncertain effects for River Itchen SAC (0km of proposed option). Although this option is designed to at least partly to maintain flow levels in the Itchen SAC, there is potential for sediment discharge or pollution caused during the construction works, entering the SAC site via surface runoff or drainage channels, which could negatively affect listed species. The alternation of any abstraction at Preston Candover River upstream of the SAC and discharge regimes into the SAC at the River Itchen may have significant effects to the qualifying features. Risk of INNS transfer as the source water from a river and could potentially contain INNS. Construction phase risk of INNS is considered to be low.	Re-route pipeline to avoid designated sites. Best practice mitigation to prevent impact on designated sites, however potential for residual effects to remain. Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Uncertain effects identified for River Itchen SAC are considered to be partially mitigatable. Construction phase impacts will be mitigated through use of a robust CEMP. Further surveys will be required to determine the potential impacts of changes in water levels within the River Itchen on the qualifying features.	0	-	0	--
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The pipeline is within Grade 3 and Grade 4 agricultural land although it is aligned along existing roads for much of its length. The pipeline passes through a historic landfill site, although is aligned along an existing road in this location, therefore potential to disturb contamination during construction.	Reinstate land following construction. Implement best practice techniques for working in and within close proximity to landfills.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	Option predominately located within Flood Zone 1, however crosses into Flood Zones 2 and 3. This may have an impact on construction.	Measures to reduce the impact on flooding during the construction phase. Flood risk during	0	-	0	0

							construction may still occur.				
	Protect and enhance the quality of the water environment and water resources	0	--	0	--	The pipeline crosses water bodies, including main rivers and chalk rivers, which could be impacted during construction. The option is not within SPZs. Given the option aims to increase abstraction, there is a potential for impacts on flows, quality and levels within the River Itchen, however this will be supported by the transfer of treated water. River Itchen is a chalk river therefore abstraction may have an effect on sensitive features. The WFD assessment identifies that further WFD assessment is required.	Best practice mitigation measures likely to be implemented during construction.	0	--	0	--
	Deliver reliable and resilient water supplies	0	0	+	-	The option will support the resilience of the water supply as it transfers treated water to support abstraction. However, as it involves abstraction from a chalk river, it is not considered to be resilient in the long-term given water company commitments to ceasing chalk river abstraction.	N/A	0	0	+	-
Air	Reduce and minimise air emissions	0	-	0	0	There are no AQMAs within 2000m. There is likely to be impacts on air quality during construction.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No embodied or operational carbon has been provided therefore neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	-	The option aims to abstract water and therefore is likely to have negative effects on the local environment by removing additional water. Minor negative effect identified.	Monitor water levels.	0	0	0	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option is in the Hampshire Down NCA. The option is within partly within the South Downs National Park. There is potential for impacts on landscape and visual during the construction phase. However, this is likely to be minor and temporary.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	The pipeline passes through The Grange, Northington Grade II* Registered Park and Garden, and is in close proximity to two listed buildings (although aligned along an existing road in this location), and within 500m of other listed buildings, Avington Park Grade II* Registered Park and Garden and Avington Conservation Area. There is potential that construction will have a direct effect on the Registered Park and	The pipeline should be rerouted to avoid direct effects or trenchless techniques should be implemented. Best practice measures will likely be implemented to minimise setting effects during construction.	0	-	0	0

						Garden, and will temporarily affect the setting of the other historic assets. The pipeline excavation has the potential to impact buried archaeology if present.	Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.					
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are churches and religious grounds, cemeteries, public parks or gardens, and a school within 500m of the pipeline route. There is potential for disruption to the community and users of these community facilities during construction, however this is likely to be minor and temporary. Option is within IMD decile 6.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction and land will be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0	
	Maintain and enhance tourism and recreation	0	-	0	0	There may be some disruption to recreational areas such as public parks or gardens within 500m. The option is partly within the South Downs National Park. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction and land will be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0	
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0	
	Avoid negative effects on built assets and infrastructure	0	-	0	0	The pipeline is not anticipated to impact major roads, railways, national cycle routes or national trails. There may be some minor disruption to local roads during construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0	
SEA Metrics			Positive Negative	1 -30					Positive Negative	1 -23		

SWS_HSE_RE-DRO_ALL_ALL_si_can2											
Candover Drought Permit/Order (from 2027 to 2029 only)											
Southern Water											
To allow up to 27MI/d and 3750MI/year (average of 20.8MI/d over 6 months) to be abstracted from the Preston Candover boreholes. Abstraction would be increased over a period of several days up to the full required discharge rate so as to prevent a sudden increase in flow in the River Itchen. Abstraction and discharges will only be permitted when flows in the River Itchen at Allbrook and Highbridge are at or below a trigger flow of 220 MI/d. 2MI/d environmental support (within the limits above) at the existing discharge to the Candover Stream. Operated during, and potentially after, discharges to the River Itchen.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	---	The River Itchen SSSI (10.37% favourable, 55.74% unfavourable - recovering, 27.99% unfavourable - no change, 5.51% unfavourable - declining) and River Itchen SAC are within 500m and are both GWDTE. The River Itchen is also a chalk river. There is potential for construction on these sites as well as operational effects due to abstraction and discharges into the River Itchen. The option is within SSSI Impact Risk Zones. There are priority habitats and woodland within 500m and Ancient Woodland within 2000m, however they are not likely to be affected by the option. The pipeline associated with the option passes through woodland including deciduous woodland Priority Habitat and other Priority Habitats including coastal and floodplain grazing marsh and lowland fens, therefore potential for direct effects during construction. The HRA ToLs (2021) identified likely significant effects on River Itchen SAC (0km from option). There is a possibility of sediment discharge or pollution caused during the construction works, entering the SAC site via surface runoff or drainage channels, which could negatively affect listed species. The abstraction from the boreholes may have significant effects to the qualifying species associated with the SAC including the aquatic Ranunculus spp. and white-clawed crayfish and southern damselfly due to changes to the existing flow into or out of the SAC. Likely significant effects were also identified for Solent and Southampton Water SPA and Ramsar (21km to the south) as there may be a mobilisation of sediment or the creation of pollution that could flow down the Itchen to the Ramsar site, where it may have effects on the qualifying feature habitats and species, either directly or indirectly. There is very low risk for the spread / movement of INNS given the groundwater	Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid direct impacts on designated sites and loss of woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. However, likely residual effects on designated sites. The HRA Tier 2 Enhanced Screening identified that the likely significant effects on the River Itchen SAC are not guaranteed to be mitigable. Construction works will follow best practice guidelines, construction dust could be mitigated through wet cutting/crushing and vacuum drilling, upgrading plant to minimise particulate production could be implemented. During operation of the drought permit, the reduced flows into the Candover Stream and River Itchen may impact upon white claw crayfish habitat, southern dam, the abstraction from Candover	0	--	0	--

						sources where water will be abstracted from is likely to be entirely free of INNS.	boreholes EA ensures drought permits are adhered to. The permits ensure that the quality of the receiving water (i.e. river, stream, or sea) is protected and that discharges do not cause an unacceptable impact on the environment. River recovery flows after a drought order event will be delayed post event whilst ground and surface water levels increase. The specific effects on qualifying species due to the proposed water level regimes during drought conditions remains uncertain, and will need further investigation. The likely significant effects on the Solent and Southampton Water SPA and Ramsar are likely to be mitigable.				
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The option is predominately within Grade 3 agricultural land and minor area of Grade 4 although the pipeline is aligned along existing roads for much of its length. There is potential for disturbance to these soils during the construction phase of the pipeline associated with the option. The pipeline also passes through a historic landfill site (although it is aligned along an existing road in this section) and as such, there is potential for the construction phase to disturb contaminants.	Land reinstated upon completion. Best practice construction measures to be implemented for working within or within close proximity to landfill sites.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The option is predominately within Flood Zone 1, however there are areas of Flood Zones 2 and 3. The construction phase may therefore be at risk but operational effects are unlikely given the pipeline is buried.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	The option will require works within or adjacent to the River Itchen, a main river and chalk river, as well as other waterbodies. There is potential for contamination effects from the construction phase. Operational impacts are also likely due to discharges. The option is not within a SPZ, however there are SPZs within 2000m. The option is within the River Itchen Chalk WFD groundwater body. The WFD Screening Assessment (2021) identified further WFD assessment is required due to operational effects.	Best practice mitigation measures likely to be implemented during construction.	0	0	0	--

	Deliver reliable and resilient water supplies	0	0	+	0	The option will likely increase the resilience of supplies by providing 20.8Ml/d.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	There are no AQMAs within 2000m. There are likely to be minor and temporary impacts on air quality during the construction phase.	Best practice mitigation measures implemented during construction, however minor on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	No embodied or operational carbon data available. Based on an estimate, it is anticipated that there will be minor construction and minor operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	+	-	The option will abstract water from a groundwater source which may relieve stresses on the freshwater environment. As such, the resilience of the freshwater and local environment to climate change may benefit, however there may be negative effects for groundwater.	Monitor groundwater levels	0	0	+	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option is partly within the South Downs National Park. Minor negative effects during construction likely as excavation will be required for the pipeline.	Best practice will be implemented to avoid negative effects, ground will be reinstated where possible, however likely to be some disturbance to landscape during works.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	The option is within The Grange, Northington Grade II* Registered Park and Garden and is within close proximity to listed buildings. The Avington Park Registered Park and Garden is also within 500m as well as conservation areas, and scheduled monuments are present within 2000m. Construction may have direct impacts on the registered park and garden therefore moderate negative effects have been identified. The construction phase may also affect the setting of the other historic assets, however this is likely to be temporary and minimal. There is potential for the pipeline excavation to impact buried archaeology if present.	Re-route the pipeline to avoid direct effects on the registered park and garden. Best practice mitigation measures to be implemented to minimise setting effects during construction. Screening could be implemented to minimise any setting impact of plant. Given there is potential for the pipeline to impact buried archaeology, an Archaeology Watching Brief may be required during the construction phase. Further work may be required to determine the	0	-	0	0

							significance of the effect depending on the presence / absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are churches and religious grounds, cemetery, public parks or gardens, and a school within 500m. There is potential that the community and users of these community facilities will be disrupted during the construction phase. The option is within IMD deciles 6.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The option is partly within the South Downs National Park. There are public parks or gardens within 500m. There may be temporary disturbance to users of footpaths and other public rights of way during the construction phase. Minor effects have been identified for recreation.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	The option does not intersect major roads, railways, national trails or national cycle routes. There is likely to be minor disruption to the local road network during the construction phase.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics			Positive Negative	2 -36				Positive Negative	2 -23		

SWS_HSE_RE-DRO_ALL_ALL_si_ottnit					
Mitigation and monitoring activities on the Itchen (enabling option, no DO benefit)					
Southern Water					
No option description or GIS provided. Assessed based on the option name at this stage.					

SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	No new infrastructure is anticipated associated with the option therefore no direct impacts are anticipated. The mitigation and monitoring activities are not specified at this stage and the exact location is unknown, however there is potential that these could benefit biodiversity and ecology. The River Itchen is a SSSI (10.37% favourable, 55.74% unfavourable - recovering, 27.99% unfavourable - no change, 5.51% unfavourable - declining, 0.39% destroyed) therefore there is potential that monitoring and mitigation will have beneficial effects on the SSSI, and there is potential that other designated sites may also benefit depending on the locations and the activities involved. HRA ToLS (2021) identified no likely significant effects for the River Itchen SAC. Mitigation, which could potentially include restoration work, and monitoring activities could help to improve river habitats during low flows which in turn may benefit the N2K site. Low risk of INNS transfer assumes good working practice during mitigation and monitoring activities. For example, the use of vircon before entering a water course, cleaning/maintaining equipment and the correct handling and disposal of any water or biological samples.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	As there is no new infrastructure likely to be associated with this option, no effects on soils are anticipated.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No effects on flood risk are anticipated as a result of this option. It is not anticipated that the option will be affected by flood risk as there is not likely to be any infrastructure.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	There is not anticipated to be any new infrastructure and it is not clear what the mitigation and monitoring activities entail or the exact location of where these will be implemented. However, there is potential for positive effects on the water environment of the River Itchen. The WFD (2021) screening assessment identified no further WFD assessment is required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	It is not clear what the monitoring and mitigation activities will entail, however there is potential that these activities will help to secure resilient supplies.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	It is not anticipated that the option will have any effects on air quality as there is not likely to be any infrastructure associated with the option.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No embodied or operational carbon available for this option. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	There is potential that the climate resilience of the local environment will be improved as a result of the mitigation and monitoring activities. It is not clear what these measures will entail, however if water levels are being monitored and mitigation put in place to prevent further abstraction then there is potential for benefits.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	It is not anticipated that the option will have any effects on landscape as there is not likely to be any infrastructure associated with the option.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	It is not anticipated that the option will have any effects on historic environment as there is not likely to be any infrastructure associated with the option.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	It is not anticipated that the option will have any effects on local communities as there is not likely to be any infrastructure associated with the option.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	+	0	It is unknown what the mitigation and monitoring activities are at this stage. However, there is potential that water based recreational activities along the River Itchen, such as angling or boating, could be improved if water levels are monitored and mitigation is put in place.	N/A	0	0	+	0
Material Assets	Minimise resource use and waste production	0	0	0	0	It is not anticipated that the option will have any effects on resource use or waste as there is not likely to be any infrastructure associated with the option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	It is not anticipated that the option will have any effects on built assets and infrastructure as there is not likely to be any infrastructure associated with the option.	N/A	0	0	0	0
SEA Metrics		Positive 5 Negative 0		Positive 5 Negative 0							

SWS_HSE_RE-OTH_REP_ALL_bs_kmt_resil						
Reduce transfer to other commercial customers: Hampshire Southampton East						
Southern Water						
Drought Option: In the event of a drought the Company would hold discussions with a commercial customer with regards to the resources position and their supply.						
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment
		+	-	+	-	
		Residual Construction Effects		Residual Operational Effects		
		+	-	+	-	

Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option may reduce the amount of water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during drought conditions and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) indicated no likely significant effect on Natura 2000 sites.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	There is not anticipated to be any effects on soil quality as a result of this option.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is not likely to be affected by flooding or lead to the exacerbation of flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and is only to be implemented in drought conditions. Option aims to reduce the water required for supply to other commercial customers, therefore potentially resulting in a reduction in abstraction. WFD assessment (2020) states no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to commercial companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the resilience of supply for these commercial customers.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	No effect on air emissions is anticipated from this option.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data has been provided for this option. Neutral effects have been estimated for construction and operation at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to commercial companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water within the natural environment. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0

Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	-	The reduction in the amount of water supplied to commercial customers may have an impact on the local economy if they are not able to carry out their business activity or have to operate at a reduced capacity. However, there is potential that the wider population will benefit from this option.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	+	-
	Maintain and enhance tourism and recreation	0	0	0	-	Given the option is to reduce the transfer of water for commercial customers, tourism and recreation could be affected if these customers rely on water to support these activities.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 5 Negative -3				Positive 5 Negative -3					

SWS_HSE_RE-OTH_REP_ALL_bs_vws_resil											
Reduce transfer to other water companies: Hampshire Southampton East											
Southern Water											
Drought Option: In the event of a drought the Company would hold discussions with neighbouring Companies with regards to their resources position and their supply. There are three main bulk transfers to the South East: its entitlement to 25% of the yield of the River Medway Scheme, the Sheldwich Scheme, and the Bewl-Darwell transfer. This option considers reduction of the transfer from Veolia Water Southeast to SWS Kent Thanet. The trigger for this would be when rainfall and groundwater level trigger is exceeded and/or if veolia Water Southeast is not affected as much as Kent Thanet WRZ.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-

Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Given the option reduces the transfer of water to other companies in the event of a drought, there is potential that water will be retained within the natural environment. Ecosystems may already be under severe stress therefore additional water retained in the natural environment will be beneficial. The HRA ToLS (2021) identified that the option unlikely to impact Hampshire Southampton East WRZ N2K sites (Emer Bog SAC, Solent Maritime SAC, Solent & Southampton Water SPA / Ramsar), as scheme is geographically separated from WRZ. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The option may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	It is not likely the option will affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply to other water companies, therefore may result in a reduction in abstraction. WFD assessment (2020) identified no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to other water companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the other water companies.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available for this option.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to other companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	The reduction in the amount transferred to other water companies may have some effects on the wider population outside of Southern Water's boundary. However, this will only occur where groundwater levels are exceeded and if the Veolia Water Southeast is not affected as much as SWS Kent Thanet WRZ.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation has the potential to be affected if the reduction in water to other companies results in restrictions for water based activities.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -3				Positive 4 Negative -3					

SWS_HSE_RE-TFR_IJT_ALL_do_si_tan_resil											
Tankering: Hampshire Southampton East											
Southern											
Tankering water from adjacent WRZs or other water companies would be considered in severe droughts. Can be applied on a WRZ basis.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-

Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	Depending on the number of vehicles required for the operation, an increase in emissions may have negative impacts on nearby habitat.	Can be mitigated by using electric vehicles and strategic timing of transport of tankers e.g. avoiding driving tankers during rush hour.	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option will supply water to Southampton in an emergency circumstance of severe drought.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	--	Option will cause an increase in emissions during transportation of water. This option is only to be implemented in severe circumstances therefore an increase in emissions will only be temporary.	Emission levels can be mitigated by using low emission vehicles (including electric vehicles) and strategic timing of transport e.g. avoiding driving lorries during rush hour.	0	0	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	-	There is no carbon data available for this option. There may be some negative effects from an increase in carbon emissions associated with tankering, however these are anticipated to be minor due to the temporary nature of the option.	Option only to be implemented in severe drought, emissions can be mitigated for by using low emission vehicles.	0	0	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	This option is to be used only in severe drought and not a long term option. It will not affect resilience to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Visual amenity may be affected by an increase in lorries on the roads. This option is only to be implemented in severe circumstances therefore effects on visual amenity will be temporary.	Can be mitigated by strategic timing of transport of tankers.	0	0	0	-

Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	-	Increased traffic may impact on built heritage e.g. conservation areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	Can be mitigated by using electric vehicles and strategic timing of transport of tankers e.g. avoiding driving tankers during rush hour.	0	0	0	-
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Noise from vehicles and increase in air pollution can cause disturbance in populated areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	Can be mitigated by using electric vehicles and strategic timing of transport of tankers.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Increase in congestion on roads from tankers and effects on visual amenity may have an effect on recreation and tourism in Southampton. This option is only to be implemented in severe circumstances therefore effects on recreation and tourism will be temporary.	Best practice mitigation techniques to reduce impacts.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	--	Use of fuel resources.	Fuel utilisation may be reduced by strategic timing of transport vehicles e.g. avoid driving tankers in rush hour.	0	0	0	-
	Avoid negative effects on built assets and infrastructure	0	0	0	-	Depending on the number of tankers required for the operation, there may be an increase in congestion on roads. This option is only to be implemented in severe circumstances therefore negative effects will only be temporary.	Can be mitigated by strategic timing of transport of tankers e.g. avoiding driving tankers in rush hour.	0	0	0	-
SEA Metrics		Positive 1 Negative -14				Positive 1 Negative -8					

SWS_HSW_EF-CRE_ALL_ALL_do_di_res_regi										
Restriction to non-essential use; Hampshire Southampton West										
Southern Water										
Drought Option: The Company has recourse to a range of restrictions to Non-Essential Use. However, it can take a significant time to apply for and then implement a Drought Order. The Company might decide not to exercise all its powers until severe drought conditions are reached. Can be applied on a WRZ basis. Level of intervention for this option: Severe drought conditions.										
SEA Topic	SEA Objective	Construction Effects	Operational Effects	Comment	Mitigation	Residual Construction Effects		Residual Operational Effects		

		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) identified no likely significant effects for The New Forest SAC. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Non-essential use restrictions may marginally impact soil quality, however the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Non-essential use restrictions are not anticipated to effect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicates short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	By reducing the amount of water required for supply through restrictions to non-essential use, the option maintains resilience of water for essential services.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of gardens, and use of ornamental fountains for example, may be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	--	Restrictions on non-essential use is likely to have moderate negative effects on the community and social well-being as there may be imposed restrictions on irrigation of gardens and allotments and outdoor plants, restrictions of use of water for swimming pools, restriction of washing vehicles and non-domestic property exteriors. Restrictions may apply to all customers, domestic and commercial so potential for economic impacts.	Ensuring high level of communication with customers before, during and following the implementation of the measure.	0	0	0	--
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation sites dependant on public water supply may be affected due to non-essential restrictions.		0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -6				Positive 4 Negative -6					

SWS_HAZ_EF-LKR_ALL_ALL_dmp hsw high							
Demand Management Strategy							
Southern Water							
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)							
SEA Topic	SEA Objective	Construction Effects	Operational Effects	Comment	Mitigation	Residual Construction Effects	Residual Operational Effects

		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
	Deliver reliable and resilient water supplies	0	0	+++	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Minor positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0

Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive 28 Negative -3				Positive 28 Negative -2					

SWS_HSW_HI-DES_ALL_ALL_ds_faw40					
West Southampton Coast Desalination					
Southern Water					
A 40 MI/d Desalinated water direct to Test Surface Water water supply works (WSWs). This option involves construction of desalination plant on a site within the New Forest NP adjacent to a disused power station. The power station has two large diameter outfall tunnels (nominally 5,500 MI/d) which subject to agreement of the landowner could be used by a desalination plant. With distribution enhancements treated water could be supplied to the following customers/area: - Test Surface Water WSW: the current daily licence limit of 136MI/d is reduced to 80MI/d following Hampshire Licence Inquiry. Risk of no abstraction under low flows conditions.					

SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	--	<p>The option is within the Solent and Southampton Water SPA and Ramsar, Solent Maritime SAC, North Solent SSSI (67.49% favourable, 19.32% unfavourable - recovering, 2.04% unfavourable - no change, 11.14% unfavourable - declining) and The New Forest SAC and SSSI (54.68% favourable, 41.65% unfavourable - recovering, 2.11% unfavourable - no change, 1.55% unfavourable - declining), all of which are GWDTE. Hythe to Calshot Marshes SSSI (89.35% unfavourable - recovering, 10.65% unfavourable - no change), Lower Test Valley SSSI (65.15% favourable, 34.85% unfavourable - recovering) / GWDTE and River Test SSSI (17.91% favourable, 37.53% unfavourable - recovering, 43.52% unfavourable - no change, 1.03% unfavourable - declining) / GWDTE are within 500m. The Solent Maritime SAC, The North Solent NNR and Calshot Marshes LNR are also within 500m. Eling and Bury Marshes SSSI and Fletchwood Meadows SSSI, both of which are GWDTE, are within 2000m. The option is within SSSI Impact Risk Zones. There is Ancient Woodland within close proximity to the option, however no direct impacts anticipated as the pipeline is aligned along an existing road in these sections. The pipeline passes through woodland including deciduous woodland Priority Habitat and other Priority Habitats including good quality semi-improved grassland therefore potential for direct effects during construction phase. Potential for operational effects due to brine discharge.</p> <p>The HRA ToLS (2021) identified likely significant effects on designated sites during construction and operation.</p> <p>There is a low risk for the transfer or movement of INNS.</p>	<p>Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid designated sites and woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. However, likely residual effects on designated sites. HRA Level 2 screening identified likely significant effects remain, despite mitigation, and an AA would be required.</p>	0	---	0	--
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	<p>The option passes through Grade 2, Grade 4, Grade 5, non-agricultural and urban land. The desalination plant is located on Grade 4 agricultural land therefore not best and most versatile. There is potential for disturbance to these soils during the construction phase and potential permanent loss from the desalination plant. The desalination plant appears to be located in Grade 5 agricultural land. The option passes through several historic landfill sites and there are authorised and historic landfill sites within 500m, therefore potential to disturb contaminants during the construction phase.</p>	<p>Land reinstated upon completion, however there will likely be permanent loss for the desalination plant. Consider realignment if possible, to avoid impacts. Best practice construction measures to be implemented for working within or within close proximity to landfill sites,</p>	0	-	0	0

							however residual construction effects likely.				
Water	Increase resilience and reduce flood risk	0	--	0	-	The option is predominately within Flood Zone 1, however there are areas of Flood Zones 2 and 3 along the route of the pipeline and at Test Surface Water WTW. The site for the desalination plant appears to be within Flood Zone 1. There may be some risk of flooding during the construction phase. Operational impacts are unlikely as pipeline will be buried and plant located in Flood Zone 1, however potential for some effects at Test Surface Water WTW as site partly within Flood Zones 2 and 3.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	-
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	The pipeline intersects and is adjacent to waterbodies, including main rivers and chalk rivers. There is potential that the construction phase could lead to the contamination of these water bodies, affecting water quality. The option is not within SPZs. Operational impacts are likely due to abstraction and brine discharge. The WFD Screening Assessment (2021) identified that further WFD assessment is required due to operational effects.	Best practice mitigation measures likely to be implemented during construction. Undertake further WFD assessment.	0	0	0	--
	Deliver reliable and resilient water supplies	0	0	++	0	The option will utilise sea water to improve resilience and aims to provide 40MI/d of desalinated water to Test Surface Water WTW for distribution.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	-	There are no AQMAs within 2000m. There are likely to be impacts on air quality during the construction phase and from the operation of the desalination plant.	Best practice mitigation measures implemented during construction and ensuring implementation of efficient plant with minimal emissions, however minor on air quality may remain.	0	-	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	---	0	--	No carbon data available. The option is estimated to have major construction and moderate operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	---	0	--

	Reduce vulnerability to climate change risks and hazards	0	0	++	0	Desalinisation has potential to improve resilience to climate change as the use of desalinated water may reduce pressures on stressed freshwater environments. Freshwater will therefore be kept within the natural environment.	N/A	0	0	++	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option is within the New Forest and South Hampshire Lowlands NCAs. The option passes through the New Forest National Park. There is likely to be impacts on the landscape during the construction works. Operational impacts are likely given the option involves the construction of a new desalination plant. This is to be located within the New Forest National, however it is adjacent to a disused power station.	Best practice will be implemented to avoid negative effects, ground will be reinstated where possible, however likely to be some disturbance to landscape during works. Screening could be implemented to minimise visual impact of plant, however moderate impacts likely to remain given area is within the New Forest National Park.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	There are listed buildings and scheduled monuments within close proximity to the option. There are also conservation areas within 500m, including the Ashlett Creek Conservation Area which is to the north of the desalination plant, and registered parks and gardens within 2000m. Construction may affect the setting of the historic assets, however this is likely to be temporary and minimal. Potential for the desalination plant to affect the setting of Ashlett Creek Conservation Area and listed buildings within proximity. There is potential for the pipeline excavation and desalination plant construction to impact buried archaeology if present.	Best practice mitigation measures to be implemented to minimise setting effects during construction. Screening could be implemented to minimise any setting impact of plant. Given there is potential for the pipeline / desalination plant to impact buried archaeology, an Archaeology Watching Brief may be required during the construction phase. Further work may be required to determine the significance of the effect depending on the presence / absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	--	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The option passes through a public park or garden, a school and noise action important areas. The option is within 500m of play spaces, churches and religious grounds, public parks or gardens, schools, playing fields, sports facilities, bowling greens, emergency services, golf courses and other community facilities. There is potential for the community and users of these community facilities to be affected during the construction	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of community sites to be avoided where possible and land to be reinstated. However, minor and	0	-	0	0

						phase. IMD deciles range from 1 to 10 along the route of the option.	temporary effects are likely to still occur.				
	Maintain and enhance tourism and recreation	0	-	0	0	The option intersects national cycle routes and also passes through the New Forest National Park and a public park or garden. There are other recreational facilities within 500m. There may be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials. Brine waste will be produced during desalination.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	-
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option intersects major roads, railways and national cycle routes. There is likely to be moderate and temporary impacts during construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive		8				Positive		8	
		Negative		-59				Negative		-43	

SWS_HSW_HI-DES_ALL_ALL_ds_faw61					
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West Southampton Coast Desalination											
Southern Water											
A 61 MI/d Desalinated water direct to Test Surface Water water supply works (WSWs). This option involves construction of desalination plant on a site within the New Forest NP adjacent to a disused power station. The power station has two large diameter outfall tunnels (nominally 5,500 MI/d) which subject to agreement of the landowner could be used by a desalination plant. With distribution enhancements treated water could be supplied to the following customers/area: - Test Surface Water WSW: the current daily licence limit of 136MI/d is reduced to 80MI/d following Hampshire Licence Inquiry. Risk of no abstraction under low flows conditions.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	--	<p>The option is within the Solent and Southampton Water SPA and Ramsar, Solent Maritime SAC, North Solent SSSI (67.49% favourable, 19.32% unfavourable - recovering, 2.04% unfavourable - no change, 11.14% unfavourable - declining) and The New Forest SAC and SSSI (54.68% favourable, 41.65% unfavourable - recovering, 2.11% unfavourable - no change, 1.55% unfavourable - declining), all of which are GWDTE. Hythe to Calshot Marshes SSSI (89.35% unfavourable - recovering, 10.65% unfavourable - no change), Lower Test Valley SSSI (65.15% favourable, 34.85% unfavourable - recovering) / GWDTE and River Test SSSI (17.91% favourable, 37.53% unfavourable - recovering, 43.52% unfavourable - no change, 1.03% unfavourable - declining) / GWDTE are within 500m. The Solent Maritime SAC, The North Solent NNR and Calshot Marshes LNR are also within 500m. Eling and Bury Marshes SSSI and Fletchwood Meadows SSSI, both of which are GWDTE, are within 2000m. The option is within SSSI Impact Risk Zones. There is Ancient Woodland within close proximity to the option, however no direct impacts anticipated as the pipeline is aligned along an existing road in these sections. The pipeline passes through woodland including deciduous woodland Priority Habitat and other Priority Habitats including good quality semi-improved grassland therefore potential for direct effects during construction phase. Potential for operational effects due to brine discharge.</p> <p>The HRA ToLS (2021) identified likely significant effects on designated sites during construction.</p> <p>There is a low risk for the transfer or movement of INNS.</p>	<p>Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid designated sites and woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. However, likely residual effects on designated sites.</p> <p>HRA Level 2 screening identified likely significant effects remain and an AA would be required.</p>	0	---	0	--
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	<p>The option passes through Grade 2, Grade 4, Grade 5, non-agricultural and urban land. The desalination plant is located on Grade 4 agricultural land therefore not best and most versatile. There is potential for disturbance to</p>	<p>Land reinstated upon completion, however there will likely be permanent loss for the desalination plant.</p>	0	-	0	0

						these soils during the construction phase and potential permanent loss from the desalination plant. The desalination plant appears to be located in Grade 5 agricultural land. The option passes through several historic landfill sites and there are authorised and historic landfill sites within 500m, therefore potential to disturb contaminants during the construction phase.	Consider realignment if possible, to avoid impacts. Best practice construction measures to be implemented for working within or within close proximity to landfill sites, however residual construction effects likely.				
Water	Increase resilience and reduce flood risk	0	--	0	-	The option is predominately within Flood Zone 1, however there are areas of Flood Zones 2 and 3 along the route of the pipeline and at Test Surface Water WTW. The site for the desalination plant appears to be within Flood Zone 1. There may be some risk of flooding during the construction phase. Operational impacts are unlikely as pipeline will be buried and plant located in Flood Zone 1, however potential for some effects at Test Surface Water WTW as site partly within Flood Zones 2 and 3.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	-
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	The pipeline intersects and is adjacent to waterbodies, including main rivers and chalk rivers. There is potential that the construction phase could lead to the contamination of these water bodies, affecting water quality. The option is not within SPZs. Operational impacts are likely due to abstraction and brine discharge. The WFD Screening Assessment (2021) identified that further WFD assessment is required due to operational effects.	Best practice mitigation measures likely to be implemented during construction. Undertake further WFD assessment.	0	0	0	--
	Deliver reliable and resilient water supplies	0	0	+++	0	The option will utilise sea water to improve resilience and aims to provide 61ML/d of desalinated water to Test Surface Water WTW for distribution.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	-	There are no AQMAs within 2000m. There are likely to be impacts on air quality during the construction phase and from the operation of the desalination plant.	Best practice mitigation measures implemented during construction and ensuring implementation of efficient plant with minimal emissions, however minor on air quality may remain.	0	-	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	---	0	--	No carbon data available. The option is estimated to have major construction and moderate operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the	0	---	0	--

							electricity grid is decarbonised, greener energy will be available.				
	Reduce vulnerability to climate change risks and hazards	0	0	+++	0	Desalinisation has potential to improve resilience to climate change as the use of desalinated water may reduce pressures on stressed freshwater environments. Freshwater will therefore be kept within the natural environment.	N/A	0	0	+++	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option is within the New Forest and South Hampshire Lowlands NCAs. The option passes through the New Forest National Park. There is likely to be impacts on the landscape during the construction works. Operational impacts are likely given the option involves the construction of a new desalination plant. This is to be located within the New Forest National, however it is adjacent to a disused power station.	Best practice will be implemented to avoid negative effects, ground will be reinstated where possible, however likely to be some disturbance to landscape during works. Screening could be implemented to minimise visual impact of plant, however moderate impacts likely to remain given area is within the New Forest National Park.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	There are listed buildings and scheduled monuments within close proximity to the option. There are also conservation areas within 500m, including the Ashlett Creek Conservation Area which is to the north of the desalination plant, and registered parks and gardens within 2000m. Construction may affect the setting of the historic assets, however this is likely to be temporary and minimal. Potential for the desalination plant to affect the setting of Ashlett Creek Conservation Area and listed buildings within proximity. There is potential for the pipeline excavation and desalination plant construction to impact buried archaeology if present.	Best practice mitigation measures to be implemented to minimise setting effects during construction. Screening could be implemented to minimise any setting impact of plant. Given there is potential for the pipeline / desalination plant to impact buried archaeology, an Archaeology Watching Brief may be required during the construction phase. Further work may be required to determine the significance of the effect depending on the presence / absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	--	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The option passes through a public park or garden, a school and noise action important areas. The option is within 500m of play spaces, churches and religious grounds, public parks or gardens, schools, playing fields, sports facilities, bowling greens, emergency services, golf courses and other community facilities. There is potential for the community and users of these community facilities to be affected during the construction phase. IMD deciles range from 1 to 10 along the route of the option.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of community sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The option intersects national cycle routes and also passes through the New Forest National Park and a public park or garden. There are other recreational facilities within 500m. There may be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials. Brine waste will be produced during desalination.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	-
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option intersects major roads, railways and national cycle routes. There is likely to be moderate and temporary impacts during construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive 16 Negative -59						Positive 16 Negative -43			

SWS_HSW_HI-DES_ALL_ALL_ds_faw75											
West Southampton Coast Desalination											
Southern Water											
A 75 Ml/d Desalinated water direct to Test Surface Water water supply works (WSWs). An adjacent disused industrial site has two large diameter outfall tunnels (nominally 5,500 Ml/d) which subject to agreement of the landowner could be used by a desalination plant. With distribution enhancements treated water could be supplied to the following customers/area: - Test Surface Water WSW: the current daily licence limit of 136Ml/d is reduced to 80Ml/d following Hampshire Licence Inquiry. Risk of no abstraction under low flows conditions.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	--	The option is within the Solent and Southampton Water SPA and Ramsar, Solent Maritime SAC, North Solent SSSI (67.49% favourable, 19.32% unfavourable - recovering, 2.04% unfavourable - no change, 11.14% unfavourable - declining) and The New Forest SAC and SSSI (54.68% favourable, 41.65% unfavourable - recovering, 2.11% unfavourable - no change, 1.55% unfavourable - declining), all of which are GWDTE. Hythe to Calshot Marshes SSSI (89.35% unfavourable - recovering, 10.65% unfavourable - no change), Lower Test Valley SSSI (65.15% favourable, 34.85% unfavourable - recovering) / GWDTE and River Test SSSI (17.91% favourable, 37.53% unfavourable - recovering, 43.52% unfavourable - no change, 1.03% unfavourable - declining) / GWDTE are within 500m. The Solent Maritime SAC, The North Solent NNR and Calshot Marshes LNR are also within 500m. Eling and Bury Marshes SSSI and Fletchwood Meadows SSSI, both of which are GWDTE, are within 2000m. The option is within SSSI Impact Risk Zones. There is Ancient Woodland within close proximity to the option, however no direct impacts anticipated as the pipeline is aligned along an existing road in these sections. The pipeline passes through woodland including deciduous woodland Priority Habitat and other Priority Habitats including good quality semi-improved grassland therefore potential for direct effects during construction phase. Potential for operational effects due to brine discharge. The HRA ToLS (2021) identified likely significant effects on designated sites during construction. There is a low risk for the transfer or movement of INNS.	Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid designated sites and woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. However, likely residual effects on designated sites. HRA Level 2 screening identified likely significant effects remain and an AA would be required.	0	---	0	--
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The option passes through Grade 2, Grade 4, Grade 5, non-agricultural and urban land. The desalination plant is located on Grade 4 agricultural land therefore not best and most versatile. There is potential for disturbance to these soils during the construction phase and	Land reinstated upon completion, however there will likely be permanent loss for the desalination plant. Consider realignment if	0	-	0	0

						potential permanent loss from the desalination plant. The desalination plant appears to be located in Grade 5 agricultural land. The option passes through several historic landfill sites and there are authorised and historic landfill sites within 500m, therefore potential to disturb contaminants during the construction phase.	possible, to avoid impacts. Best practice construction measures to be implemented for working within or within close proximity to landfill sites, however residual construction effects likely.				
Water	Increase resilience and reduce flood risk	0	--	0	-	The option is predominately within Flood Zone 1, however there are areas of Flood Zones 2 and 3 along the route of the pipeline and at Test Surface Water WTW. The site for the desalination plant appears to be within Flood Zone 1. There may be some risk of flooding during the construction phase. Operational impacts are unlikely as pipeline will be buried and plant located in Flood Zone 1, however potential for some effects at Test Surface Water WTW as site partly within Flood Zones 2 and 3.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	-
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	The pipeline intersects and is adjacent to waterbodies, including main rivers and chalk rivers. There is potential that the construction phase could lead to the contamination of these water bodies, affecting water quality. The option is not within SPZs. Operational impacts are likely due to abstraction and brine discharge. The WFD Screening Assessment (2021) identified that further WFD assessment is required due to operational effects.	Best practice mitigation measures likely to be implemented during construction. Undertake further WFD assessment.	0	0	0	--
	Deliver reliable and resilient water supplies	0	0	+++	0	The option will utilise sea water to improve resilience and aims to provide 75MI/d of desalinated water to Test Surface Water WTW for distribution.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	-	There are no AQMAs within 2000m. There are likely to be impacts on air quality during the construction phase and from the operation of the desalination plant.	Best practice mitigation measures implemented during construction and ensuring implementation of efficient plant with minimal emissions, however minor on air quality may remain.	0	-	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	---	0	--	No carbon data available. The option is estimated to have major construction and moderate operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is	0	---	0	--

							decarbonised, greener energy will be available.				
	Reduce vulnerability to climate change risks and hazards	0	0	+++	0	Desalinisation has potential to improve resilience to climate change as the use of desalinated water may reduce pressures on stressed freshwater environments. Freshwater will therefore be kept within the natural environment.	N/A	0	0	+++	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option is within the New Forest and South Hampshire Lowlands NCAs. The option passes through the New Forest National Park. There is likely to be impacts on the landscape during the construction works. Operational impacts are likely given the option involves the construction of a new desalination plant. This is to be located within the New Forest National, however it is adjacent to a disused power station.	Best practice will be implemented to avoid negative effects, ground will be reinstated where possible, however likely to be some disturbance to landscape during works. Screening could be implemented to minimise visual impact of plant, however moderate impacts likely to remain given area is within the New Forest National Park.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	There are listed buildings and scheduled monuments within close proximity to the option. There are also conservation areas within 500m, including the Ashlett Creek Conservation Area which is to the north of the desalination plant, and registered parks and gardens within 2000m. Construction may affect the setting of the historic assets, however this is likely to be temporary and minimal. Potential for the desalination plant to affect the setting of Ashlett Creek Conservation Area and listed buildings within proximity. There is potential for the pipeline excavation and desalination plant construction to impact buried archaeology if present.	Best practice mitigation measures to be implemented to minimise setting effects during construction. Screening could be implemented to minimise any setting impact of plant. Given there is potential for the pipeline / desalination plant to impact buried archaeology, an Archaeology Watching Brief may be required during the construction phase. Further work may be required to determine the significance of the effect depending on the presence / absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	--	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The option passes through a public park or garden, a school and noise action important areas. The option is within 500m of play spaces, churches and religious grounds, public parks or gardens, schools, playing fields, sports facilities, bowling greens, emergency services, golf courses and other community facilities. There is potential for the community and users of these community facilities to be affected during the construction phase. IMD deciles range from 1 to 10 along the route of the option.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of community sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The option intersects national cycle routes and also passes through the New Forest National Park and a public park or garden. There are other recreational facilities within 500m. There may be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials. Brine waste will be produced during desalination.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	-
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option intersects major roads, railways and national cycle routes. There is likely to be moderate and temporary impacts during construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive 16 Negative -59						Positive 16 Negative -43			

SWS_HSW_HI-DES_ALL_ALL_sw desal 100											
West Southampton Coast Desalination 100 MI/d - additional transfer pipeline to Test Surface Water WSW											
Southern Water											
This option involves construction of desalination plant on a disused industrial site. The site currently has a large intake structure (nominally 5,500 MI/d) and corresponding outfall which could be used by a desalination plant. With distribution enhancements treated water could be supplied to the following customers/area: - Test Surface Water WSW currently supplies approx. 105 MI/d (proposed increase to 160 MI/d) but is at risk of low flow reductions to 0 MI/d.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	--	<p>The option is within the Solent and Southampton Water SPA and Ramsar, Solent Maritime SAC, North Solent SSSI (67.49% favourable, 19.32% unfavourable - recovering, 2.04% unfavourable - no change, 11.14% unfavourable - declining) and The New Forest SAC and SSSI (54.68% favourable, 41.65% unfavourable - recovering, 2.11% unfavourable - no change, 1.55% unfavourable - declining), all of which are GWDTE. Hythe to Calshot Marshes SSSI (89.35% unfavourable - recovering, 10.65% unfavourable - no change), Lower Test Valley SSSI (65.15% favourable, 34.85% unfavourable - recovering) / GWDTE and River Test SSSI (17.91% favourable, 37.53% unfavourable - recovering, 43.52% unfavourable - no change, 1.03% unfavourable - declining) / GWDTE are within 500m. The Solent Maritime SAC, The North Solent NNR and Calshot Marshes LNR are also within 500m. Eling and Bury Marshes SSSI and Fletchwood Meadows SSSI, both of which are GWDTE, are within 2000m. The option is within SSSI Impact Risk Zones. There is Ancient Woodland within close proximity to the option, however no direct impacts anticipated as the pipeline is aligned along an existing road in these sections. The pipeline passes through woodland including deciduous woodland Priority Habitat and other Priority Habitats including good quality semi-improved grassland therefore potential for direct effects during construction phase. Potential for operational effects due to brine discharge.</p> <p>The HRA ToLS (2021) identified likely significant effects on designated sites during construction. There is a low risk for the transfer or movement of INNS.</p>	<p>Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid designated sites and woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. However, likely residual effects on designated sites. HRA Level 2 screening identified likely significant effects remain and an AA would be required.</p>	0	---	0	--

Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The option passes through Grade 2, Grade 4, Grade 5, non-agricultural and urban land. The desalination plant is located on Grade 4 agricultural land therefore not best and most versatile. There is potential for disturbance to these soils during the construction phase and potential permanent loss from the desalination plant. The desalination plant appears to be located in Grade 5 agricultural land. The option passes through several historic landfill sites and there are authorised and historic landfill sites within 500m, therefore potential to disturb contaminants during the construction phase.	Land reinstated upon completion, however there will likely be permanent loss for the desalination plant. Consider realignment if possible, to avoid impacts. Best practice construction measures to be implemented for working within or within close proximity to landfill sites, however residual construction effects likely.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	-	The option is predominately within Flood Zone 1, however there are areas of Flood Zones 2 and 3 along the route of the pipeline and at Test Surface Water WTW. The site for the desalination plant appears to be within Flood Zone 1. There may be some risk of flooding during the construction phase. Operational impacts are unlikely as pipeline will be buried and plant located in Flood Zone 1, however potential for some effects at Test Surface Water WTW as site partly within Flood Zones 2 and 3.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	-
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	The pipeline intersects and is adjacent to waterbodies, including main rivers and chalk rivers. There is potential that the construction phase could lead to the contamination of these water bodies, affecting water quality. The option is not within SPZs. Operational impacts are likely due to abstraction and brine discharge. The WFD Screening Assessment (2021) identified that further WFD assessment is required due to operational effects.	Best practice mitigation measures likely to be implemented during construction. Undertake further WFD assessment.	0	0	0	--
	Deliver reliable and resilient water supplies	0	0	+++	0	The option will utilise sea water to improve resilience and aims to provide 100ML/d of desalinated water to Test Surface Water WTW for distribution.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	-	There are no AQMAs within 2000m. There are likely to be impacts on air quality during the construction phase and from the operation of the desalination plant.	Best practice mitigation measures implemented during construction and ensuring implementation of efficient plant with minimal emissions, however minor on air quality may remain.	0	-	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	---	0	--	No carbon data available for this option. This option is estimated to have major construction and moderate operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon	0	---	0	--

							footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available				
	Reduce vulnerability to climate change risks and hazards	0	0	+++	0	Desalinisation has potential to improve resilience to climate change as the use of desalinated water may reduce pressures on stressed freshwater environments. Freshwater will therefore be kept within the natural environment.	N/A	0	0	+++	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option is within the New Forest and South Hampshire Lowlands NCAs. The option passes through the New Forest National Park. There is likely to be impacts on the landscape during the construction works. Operational impacts are likely given the option involves the construction of a new desalination plant. This is to be located within the New Forest National, however it is adjacent to a disused power station.	Best practice will be implemented to avoid negative effects, ground will be reinstated where possible, however likely to be some disturbance to landscape during works. Screening could be implemented to minimise visual impact of plant, however moderate impacts likely to remain given area is within the New Forest National Park.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	There are listed buildings and scheduled monuments within close proximity to the option. There are also conservation areas within 500m, including the Ashlett Creek Conservation Area which is to the north of the desalination plant, and registered parks and gardens within 2000m. Construction may affect the setting of the historic assets, however this is likely to be temporary and minimal. Potential for the desalination plant to affect the setting of Ashlett Creek Conservation Area and listed buildings within proximity. There is potential for the pipeline excavation and desalination plant construction to impact buried archaeology if present.	Best practice mitigation measures to be implemented to minimise setting effects during construction. Screening could be implemented to minimise any setting impact of plant. Given there is potential for the pipeline / desalination plant to impact buried archaeology, an Archaeology Watching Brief may be required during the construction phase. Further work may be required to determine the significance of the effect depending on the presence / absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	--	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The option passes through a public park or garden, a school and noise action important areas. The option is within 500m of play spaces, churches and religious grounds, public parks or gardens, schools, playing fields, sports facilities, bowling greens, emergency services, golf courses and other community facilities. There is potential for the community and users of these community facilities to be affected during the construction phase. IMD deciles range from 1 to 10 along the route of the option.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of community sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The option intersects national cycle routes and also passes through the New Forest National Park and a public park or garden. There are other recreational facilities within 500m. There may be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials. Brine waste will be produced during desalination.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	-
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option intersects major roads, railways and national cycle routes. There is likely to be moderate and temporary impacts during construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive 16 Negative -59						Positive 16 Negative -43			

SWS_HSW_HI-DES_ALL_ALL_sw desal 150											
West Southampton Coast Desalination 150 MI/d - transfer to Test Surface Water and Otterbourne WSWs											
Southern Water											
This option involves construction of desalination plant on the site of a disused industrial site. The site currently has a large intake structure (nominally 5,500 MI/d) and corresponding outfall which could be used by a desalination plant. With distribution enhancements treated water could be supplied to the following customers/area: - Test Surface Water WSW currently supplies approx. 105 MI/d (proposed increase to 160 MI/d) but is at risk of low flow reductions to 0 MI/d.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	--	<p>The option is within the Solent and Southampton Water SPA and Ramsar, Solent Maritime SAC, North Solent SSSI (67.49% favourable, 19.32% unfavourable - recovering, 2.04% unfavourable - no change, 11.14% unfavourable - declining) and The New Forest SAC and SSSI (54.68% favourable, 41.65% unfavourable - recovering, 2.11% unfavourable - no change, 1.55% unfavourable - declining), all of which are GWDTE. Hythe to Calshot Marshes SSSI (89.35% unfavourable - recovering, 10.65% unfavourable - no change), Lower Test Valley SSSI (65.15% favourable, 34.85% unfavourable - recovering) / GWDTE and River Test SSSI (17.91% favourable, 37.53% unfavourable - recovering, 43.52% unfavourable - no change, 1.03% unfavourable - declining) / GWDTE are within 500m. The Solent Maritime SAC, The North Solent NNR and Calshot Marshes LNR are also within 500m. Eling and Bury Marshes SSSI and Fletchwood Meadows SSSI, both of which are GWDTE, are within 2000m. The option is within SSSI Impact Risk Zones. There is Ancient Woodland within close proximity to the option, however no direct impacts anticipated as the pipeline is aligned along an existing road in these sections. The pipeline passes through woodland including deciduous woodland Priority Habitat and other Priority Habitats including good quality semi-improved grassland therefore potential for direct effects during construction phase. Potential for operational effects due to brine discharge.</p> <p>The HRA ToLS (2021) identified likely significant effects on designated sites during construction and operation.</p> <p>There is a low risk for the transfer or movement of INNS.</p>	<p>Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid designated sites and woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. However, likely residual effects on designated sites. HRA Level 2 screening identified likely significant effects remain despite mitigation and an AA would be required.</p>	0	---	0	--

Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The option passes through Grade 2, Grade 4, Grade 5, non-agricultural and urban land. The desalination plant is located on Grade 4 agricultural land therefore not best and most versatile. There is potential for disturbance to these soils during the construction phase and potential permanent loss from the desalination plant. The desalination plant appears to be located in Grade 5 agricultural land. The option passes through several historic landfill sites and there are authorised and historic landfill sites within 500m, therefore potential to disturb contaminants during the construction phase.	Land reinstated upon completion, however there will likely be permanent loss for the desalination plant. Consider realignment if possible, to avoid impacts. Best practice construction measures to be implemented for working within or within close proximity to landfill sites, however residual construction effects likely.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	-	The option is predominately within Flood Zone 1, however there are areas of Flood Zones 2 and 3 along the route of the pipeline and at Test Surface Water WTW. The site for the desalination plant appears to be within Flood Zone 1. There may be some risk of flooding during the construction phase. Operational impacts are unlikely as pipeline will be buried and plant located in Flood Zone 1, however potential for some effects at Test Surface Water WTW as site partly within Flood Zones 2 and 3.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	-
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	The pipeline intersects and is adjacent to waterbodies, including main rivers and chalk rivers. There is potential that the construction phase could lead to the contamination of these water bodies, affecting water quality. The option is not within SPZs. Operational impacts are likely due to abstraction and brine discharge. The WFD Screening Assessment (2021) identified that further WFD assessment is required due to operational effects.	Best practice mitigation measures likely to be implemented during construction. Undertake further WFD assessment.	0	0	0	--
	Deliver reliable and resilient water supplies	0	0	+++	0	The option will utilise sea water to improve resilience and aims to provide 150ML/d of desalinated water to Test Surface Water WTW for distribution.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	-	There are no AQMAs within 2000m. There are likely to be impacts on air quality during the construction phase and from the operation of the desalination plant.	Best practice mitigation measures implemented during construction and ensuring implementation of efficient plant with minimal emissions, however minor on air quality may remain.	0	-	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	---	0	--	No carbon data available for this option. This option is estimated to have major construction and moderate operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon	0	---	0	--

							footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available				
	Reduce vulnerability to climate change risks and hazards	0	0	+++	0	Desalinisation has potential to improve resilience to climate change as the use of desalinated water may reduce pressures on stressed freshwater environments. Freshwater will therefore be kept within the natural environment.	N/A	0	0	+++	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option is within the New Forest and South Hampshire Lowlands NCAs. The option passes through the New Forest National Park. There is likely to be impacts on the landscape during the construction works. Operational impacts are likely given the option involves the construction of a new desalination plant. This is to be located within the New Forest National, however it is adjacent to a disused power station.	Best practice will be implemented to avoid negative effects, ground will be reinstated where possible, however likely to be some disturbance to landscape during works. Screening could be implemented to minimise visual impact of plant, however moderate impacts likely to remain given area is within the New Forest National Park.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	There are listed buildings and scheduled monuments within close proximity to the option. There are also conservation areas within 500m, including the Ashlett Creek Conservation Area which is to the north of the desalination plant, and registered parks and gardens within 2000m. Construction may affect the setting of the historic assets, however this is likely to be temporary and minimal. Potential for the desalination plant to affect the setting of Ashlett Creek Conservation Area and listed buildings within proximity. There is potential for the pipeline excavation and desalination plant construction to impact buried archaeology if present.	Best practice mitigation measures to be implemented to minimise setting effects during construction. Screening could be implemented to minimise any setting impact of plant. Given there is potential for the pipeline / desalination plant to impact buried archaeology, an Archaeology Watching Brief may be required during the construction phase. Further work may be required to determine the significance of the effect depending on the presence / absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	--	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The option passes through a public park or garden, a school and noise action important areas. The option is within 500m of play spaces, churches and religious grounds, public parks or gardens, schools, playing fields, sports facilities, bowling greens, emergency services, golf courses and other community facilities. There is potential for the community and users of these community facilities to be affected during the construction phase. IMD deciles range from 1 to 10 along the route of the option.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of community sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The option intersects national cycle routes and also passes through the New Forest National Park and a public park or garden. There are other recreational facilities within 500m. There may be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials. Brine waste will be produced during desalination.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	-
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option intersects major roads, railways and national cycle routes. There is likely to be moderate and temporary impacts during construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive 16 Negative -59						Positive 16 Negative -43			

SWS_HSW_HI-DES_ALL_ALL_sw desal 200											
West Southampton Coast Desalination 200 MI/d - transfer to Test Surface Water and Otterbourne WSWs and IOW											
Southern Water											
This option involves construction of desalination plant on the site of a disused industrial site. The site currently has a large intake structure (nominally 5,500 MI/d) and corresponding outfall which could be used by a desalination plant. With distribution enhancements treated water could be supplied to the following customers/area: - Test Surface Water WSW currently supplies approx. 105 MI/d (proposed increase to 160 MI/d) but is at risk of low flow reductions to 0 MI/d.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	--	<p>The option is within the Solent and Southampton Water SPA and Ramsar, Solent Maritime SAC, North Solent SSSI (67.49% favourable, 19.32% unfavourable - recovering, 2.04% unfavourable - no change, 11.14% unfavourable - declining) and The New Forest SAC and SSSI (54.68% favourable, 41.65% unfavourable - recovering, 2.11% unfavourable - no change, 1.55% unfavourable - declining), all of which are GWDTE. Hythe to Calshot Marshes SSSI (89.35% unfavourable - recovering, 10.65% unfavourable - no change), Lower Test Valley SSSI (65.15% favourable, 34.85% unfavourable - recovering) / GWDTE and River Test SSSI (17.91% favourable, 37.53% unfavourable - recovering, 43.52% unfavourable - no change, 1.03% unfavourable - declining) / GWDTE are within 500m. The Solent Maritime SAC, The North Solent NNR and Calshot Marshes LNR are also within 500m. Eling and Bury Marshes SSSI and Fletchwood Meadows SSSI, both of which are GWDTE, are within 2000m. The option is within SSSI Impact Risk Zones. There is Ancient Woodland within close proximity to the option, however no direct impacts anticipated as the pipeline is aligned along an existing road in these sections. The pipeline passes through woodland including deciduous woodland Priority Habitat and other Priority Habitats including good quality semi-improved grassland therefore potential for direct effects during construction phase. Potential for operational effects due to brine discharge.</p> <p>The HRA ToLS (2021) identified likely significant effects on designated sites during construction. There is a low risk for the transfer or movement of INNS.</p>	<p>Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid designated sites and woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. However, likely residual effects on designated sites. HRA Level 2 screening identified likely significant effects remain, despite mitigation and an AA would be required.</p>	0	---	0	--

Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The option passes through Grade 2, Grade 4, Grade 5, non-agricultural and urban land. The desalination plant is located on Grade 4 agricultural land therefore not best and most versatile. There is potential for disturbance to these soils during the construction phase and potential permanent loss from the desalination plant. The desalination plant appears to be located in Grade 5 agricultural land. The option passes through several historic landfill sites and there are authorised and historic landfill sites within 500m, therefore potential to disturb contaminants during the construction phase.	Land reinstated upon completion, however there will likely be permanent loss for the desalination plant. Consider realignment if possible, to avoid impacts. Best practice construction measures to be implemented for working within or within close proximity to landfill sites, however residual construction effects likely.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	-	The option is predominately within Flood Zone 1, however there are areas of Flood Zones 2 and 3 along the route of the pipeline and at Test Surface Water WTW. The site for the desalination plant appears to be within Flood Zone 1. There may be some risk of flooding during the construction phase. Operational impacts are unlikely as pipeline will be buried and plant located in Flood Zone 1, however potential for some effects at Test Surface Water WTW as site partly within Flood Zones 2 and 3.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	-
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	The pipeline intersects and is adjacent to waterbodies, including main rivers and chalk rivers. There is potential that the construction phase could lead to the contamination of these water bodies, affecting water quality. The option is not within SPZs. Operational impacts are likely due to abstraction and brine discharge. The WFD Screening Assessment (2021) identified that further WFD assessment is required due to operational effects.	Best practice mitigation measures likely to be implemented during construction. Undertake further WFD assessment.	0	0	0	--
	Deliver reliable and resilient water supplies	0	0	+++	0	The option will utilise sea water to improve resilience and aims to provide 200ML/d of desalinated water to Test Surface Water WTW for distribution.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	-	There are no AQMAs within 2000m. There are likely to be impacts on air quality during the construction phase and from the operation of the desalination plant.	Best practice mitigation measures implemented during construction and ensuring implementation of efficient plant with minimal emissions, however minor on air quality may remain.	0	-	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	---	0	--	No carbon data available for this option. This option is estimated to have major construction and moderate operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon	0	---	0	--

							footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available				
	Reduce vulnerability to climate change risks and hazards	0	0	+++	0	Desalinisation has potential to improve resilience to climate change as the use of desalinated water may reduce pressures on stressed freshwater environments. Freshwater will therefore be kept within the natural environment.	N/A	0	0	+++	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option is within the New Forest and South Hampshire Lowlands NCAs. The option passes through the New Forest National Park. There is likely to be impacts on the landscape during the construction works. Operational impacts are likely given the option involves the construction of a new desalination plant. This is to be located within the New Forest National, however it is adjacent to a disused power station.	Best practice will be implemented to avoid negative effects, ground will be reinstated where possible, however likely to be some disturbance to landscape during works. Screening could be implemented to minimise visual impact of plant, however moderate impacts likely to remain given area is within the New Forest National Park.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	There are listed buildings and scheduled monuments within close proximity to the option. There are also conservation areas within 500m, including the Ashlett Creek Conservation Area which is to the north of the desalination plant, and registered parks and gardens within 2000m. Construction may affect the setting of the historic assets, however this is likely to be temporary and minimal. Potential for the desalination plant to affect the setting of Ashlett Creek Conservation Area and listed buildings within proximity. There is potential for the pipeline excavation and desalination plant construction to impact buried archaeology if present.	Best practice mitigation measures to be implemented to minimise setting effects during construction. Screening could be implemented to minimise any setting impact of plant. Given there is potential for the pipeline / desalination plant to impact buried archaeology, an Archaeology Watching Brief may be required during the construction phase. Further work may be required to determine the significance of the effect depending on the presence / absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	--	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The option passes through a public park or garden, a school and noise action important areas. The option is within 500m of play spaces, churches and religious grounds, public parks or gardens, schools, playing fields, sports facilities, bowling greens, emergency services, golf courses and other community facilities. There is potential for the community and users of these community facilities to be affected during the construction phase. IMD deciles range from 1 to 10 along the route of the option.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of community sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The option intersects national cycle routes and also passes through the New Forest National Park and a public park or garden. There are other recreational facilities within 500m. There may be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials. Brine waste will be produced during desalination.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	-
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option intersects major roads, railways and national cycle routes. There is likely to be moderate and temporary impacts during construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive 16 Negative -59						Positive 16 Negative -43			

SWS_HSW_HI-DES_ALL_ALL_sw desal m75 p2											
West Southampton Coast Desalination - transfer to Test Surface Water WSW (modular 75-150 MI/d)											
Southern Water											
This option involves construction of desalination plant on a disused industrial site. The site currently has a large intake structure (nominally 5,500 MI/d) and corresponding outfall which could be used by a desalination plant. With distribution enhancements treated water could be supplied to the following customers/area: - Test Surface Water WSW currently supplies approx. 105 MI/d (proposed increase to 160 MI/d) but is at risk of low flow reductions to 0 MI/d.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	The option passes through Grade 2, Grade 4, Grade 5, non-agricultural and urban land. The desalination plant is located on Grade 4 agricultural land therefore not best and most versatile. There is potential for disturbance to these soils during the construction phase and potential permanent loss from the desalination plant. The desalination plant appears to be located in Grade 5 agricultural land. The option passes through several historic landfill sites and there are authorised and historic landfill sites within 500m, therefore potential to disturb contaminants during the construction phase.	Land reinstated upon completion, however there will likely be permanent loss for the desalination plant. Consider realignment if possible, to avoid impacts. Best practice construction measures to be implemented for working within or within close proximity to landfill sites, however residual construction effects likely.	0	-	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	-	The option is predominately within Flood Zone 1, however there are areas of Flood Zones 2 and 3 along the route of the pipeline and at Test Surface Water WTW. The site for the desalination plant appears to be within Flood Zone 1. There may be some risk of flooding during the construction phase. Operational impacts are unlikely as pipeline will be buried and plant located in Flood Zone 1, however potential for some effects at Test Surface Water WTW as site partly within Flood Zones 2 and 3.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	-
Water	Increase resilience and reduce flood risk	0	-	0	--	The pipeline intersects and is adjacent to waterbodies, including main rivers and chalk rivers. There is potential that the construction phase could lead to the contamination of these water bodies, affecting water quality. The option is not within SPZs. Operational impacts are likely due to abstraction and brine discharge. The WFD Screening Assessment (2021) identified that further WFD assessment is required due to operational effects.	Best practice mitigation measures likely to be implemented during construction. Undertake further WFD assessment.	0	0	0	--

	Protect and enhance the quality of the water environment and water resources	0	0	+++	0	The option will utilise sea water to improve resilience and aims to provide 75MI/d of desalinated water to Test Surface Water WTW for distribution.	N/A	0	0	+++	0
	Deliver reliable and resilient water supplies	0	-	0	-	There are no AQMAs within 2000m. There are likely to be impacts on air quality during the construction phase and from the operation of the desalination plant.	Best practice mitigation measures implemented during construction and ensuring implementation of efficient plant with minimal emissions, however minor on air quality may remain.	0	-	0	-
Air	Reduce and minimise air emissions	0	---	0	--	No carbon data available for this option. This option is estimated to have major construction and moderate operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available	0	---	0	--
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	+++	0	Desalination has potential to improve resilience to climate change as the use of desalinated water may reduce pressures on stressed freshwater environments. Freshwater will therefore be kept within the natural environment.	N/A	0	0	+++	0
	Reduce vulnerability to climate change risks and hazards	0	--	0	0	The option is within the New Forest and South Hampshire Lowlands NCAs. The option passes through the New Forest National Park. There is likely to be impacts on the landscape during the construction works. Operational impacts are likely given the option involves the construction of a new desalination plant. This is to be located within the New Forest National, however it is adjacent to a disused power station.	Best practice will be implemented to avoid negative effects, ground will be reinstated where possible, however likely to be some disturbance to landscape during works. Screening could be implemented to minimise visual impact of plant, however moderate impacts likely to remain given area is within the New Forest National Park.	0	-	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	There are listed buildings and scheduled monuments within close proximity to the option. There are also conservation areas within 500m, including the Ashlett Creek Conservation Area which is to the north of the desalination plant, and registered parks and gardens within 2000m. Construction may affect the setting of the historic assets, however this is likely to be temporary and minimal. Potential for the desalination plant to affect the setting of Ashlett Creek Conservation Area and listed buildings within proximity. There is potential for the	Best practice mitigation measures to be implemented to minimise setting effects during construction. Screening could be implemented to minimise any setting impact of plant. Given there is potential for the pipeline / desalination plant to impact buried archaeology, an Archaeology Watching Brief may be required during the construction phase. Further work may be required to	0	--	0	0

						pipeline excavation and desalination plant construction to impact buried archaeology if present.	determine the significance of the effect depending on the presence / absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.							
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	The option passes through a public park or garden, a school and noise action important areas. The option is within 500m of play spaces, churches and religious grounds, public parks or gardens, schools, playing fields, sports facilities, bowling greens, emergency services, golf courses and other community facilities. There is potential for the community and users of these community facilities to be affected during the construction phase. IMD deciles range from 1 to 10 along the route of the option.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of community sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0			
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The option intersects national cycle routes and also passes through the New Forest National Park and a public park or garden. There are other recreational facilities within 500m. There may be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0			
	Maintain and enhance tourism and recreation	0	-	0	-	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials. Brine waste will be produced during desalination.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	-			
Material Assets	Minimise resource use and waste production	0	--	0	0	The option intersects major roads, railways and national cycle routes. There is likely to be moderate and temporary impacts during construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0			
	Avoid negative effects on built assets and infrastructure													
SEA Metrics		Positive	16	Negative	-59	Positive						16	Negative	-43

SWS_HSW_HI-DES_ALL_ALL_sw desal m75											
West Southampton Coast Desalination - transfer to Test Surface Water (modular 75-150 MI/d)											
Southern Water											
This option involves construction of desalination plant on a disused industrial site. The site currently has a large intake structure (nominally 5,500 MI/d) and corresponding outfall which could be used by a desalination plant. With distribution enhancements treated water could be supplied to the following customers/area: - Test Surface Water WSW currently supplies approx. 105 MI/d (proposed increase to 160 MI/d) but is at risk of low flow reductions to 0 MI/d.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	--	The option is within the Solent and Southampton Water SPA and Ramsar, Solent Maritime SAC, North Solent SSSI (67.49% favourable, 19.32% unfavourable - recovering, 2.04% unfavourable - no change, 11.14% unfavourable - declining) and The New Forest SAC and SSSI (54.68% favourable, 41.65% unfavourable - recovering, 2.11% unfavourable - no change, 1.55% unfavourable - declining), all of which are GWDTE. Hythe to Calshot Marshes SSSI (89.35% unfavourable - recovering, 10.65% unfavourable - no change), Lower Test Valley SSSI (65.15% favourable, 34.85% unfavourable - recovering) / GWDTE and River Test SSSI (17.91% favourable, 37.53% unfavourable - recovering, 43.52% unfavourable - no change, 1.03% unfavourable - declining) / GWDTE are within 500m. The Solent Maritime SAC, The North Solent NNR and Calshot Marshes LNR are also within 500m. Eling and Bury Marshes SSSI and Fletchwood Meadows SSSI, both of which are GWDTE, are within 2000m. The option is within SSSI Impact Risk Zones. There is Ancient Woodland within close proximity to the option, however no direct impacts anticipated as the pipeline is aligned along an existing road in these sections. The pipeline passes through woodland including deciduous woodland Priority Habitat and other Priority Habitats including good quality semi-improved grassland therefore potential for direct effects during construction phase. Potential for operational effects due to brine discharge. The HRA ToLS (2021) identified likely significant effects on designated sites during construction and operation. There is a low risk for the transfer or movement of INNS.	Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid designated sites and woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. However, likely residual effects on designated sites. HRA Level 2 screening identified likely significant effects remain, despite mitigation, and an AA would be required.	0	---	0	--
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The option passes through Grade 2, Grade 4, Grade 5, non-agricultural and urban land. The desalination plant is located on Grade 4 agricultural land therefore not best and most versatile. There is potential for disturbance to these soils during the construction phase and	Land reinstated upon completion, however there will likely be permanent loss for the desalination plant. Consider realignment if	0	-	0	0

						potential permanent loss from the desalination plant. The desalination plant appears to be located in Grade 5 agricultural land. The option passes through several historic landfill sites and there are authorised and historic landfill sites within 500m, therefore potential to disturb contaminants during the construction phase.	possible, to avoid impacts. Best practice construction measures to be implemented for working within or within close proximity to landfill sites, however residual construction effects likely.				
Water	Increase resilience and reduce flood risk	0	--	0	-	The option is predominately within Flood Zone 1, however there are areas of Flood Zones 2 and 3 along the route of the pipeline and at Test Surface Water WTW. The site for the desalination plant appears to be within Flood Zone 1. There may be some risk of flooding during the construction phase. Operational impacts are unlikely as pipeline will be buried and plant located in Flood Zone 1, however potential for some effects at Test Surface Water WTW as site partly within Flood Zones 2 and 3.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	-
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	The pipeline intersects and is adjacent to waterbodies, including main rivers and chalk rivers. There is potential that the construction phase could lead to the contamination of these water bodies, affecting water quality. The option is not within SPZs. Operational impacts are likely due to abstraction and brine discharge. The WFD Screening Assessment (2021) identified that further WFD assessment is required due to operational effects.	Best practice mitigation measures likely to be implemented during construction. Undertake further WFD assessment.	0	0	0	--
	Deliver reliable and resilient water supplies	0	0	+++	0	The option will utilise sea water to improve resilience and aims to provide 75MI/d of desalinated water to Test Surface Water WTW for distribution.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	-	There are no AQMAs within 2000m. There are likely to be impacts on air quality during the construction phase and from the operation of the desalination plant.	Best practice mitigation measures implemented during construction and ensuring implementation of efficient plant with minimal emissions, however minor on air quality may remain.	0	-	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	---	0	--	No carbon data available for this option. This option is estimated to have major construction and moderate operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is	0	---	0	--

							decarbonised, greener energy will be available				
	Reduce vulnerability to climate change risks and hazards	0	0	+++	0	Desalinisation has potential to improve resilience to climate change as the use of desalinated water may reduce pressures on stressed freshwater environments. Freshwater will therefore be kept within the natural environment.	N/A	0	0	+++	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option is within the New Forest and South Hampshire Lowlands NCAs. The option passes through the New Forest National Park. There is likely to be impacts on the landscape during the construction works. Operational impacts are likely given the option involves the construction of a new desalination plant. This is to be located within the New Forest National, however it is adjacent to a disused power station.	Best practice will be implemented to avoid negative effects, ground will be reinstated where possible, however likely to be some disturbance to landscape during works. Screening could be implemented to minimise visual impact of plant, however moderate impacts likely to remain given area is within the New Forest National Park.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	There are listed buildings and scheduled monuments within close proximity to the option. There are also conservation areas within 500m, including the Ashlett Creek Conservation Area which is to the north of the desalination plant, and registered parks and gardens within 2000m. Construction may affect the setting of the historic assets, however this is likely to be temporary and minimal. Potential for the desalination plant to affect the setting of Ashlett Creek Conservation Area and listed buildings within proximity. There is potential for the pipeline excavation and desalination plant construction to impact buried archaeology if present.	Best practice mitigation measures to be implemented to minimise setting effects during construction. Screening could be implemented to minimise any setting impact of plant. Given there is potential for the pipeline / desalination plant to impact buried archaeology, an Archaeology Watching Brief may be required during the construction phase. Further work may be required to determine the significance of the effect depending on the presence / absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	--	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The option passes through a public park or garden, a school and noise action important areas. The option is within 500m of play spaces, churches and religious grounds, public parks or gardens, schools, playing fields, sports facilities, bowling greens, emergency services, golf courses and other community facilities. There is potential for the community and users of these community facilities to be affected during the construction phase. IMD deciles range from 1 to 10 along the route of the option.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of community sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The option intersects national cycle routes and also passes through the New Forest National Park and a public park or garden. There are other recreational facilities within 500m. There may be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials. Brine waste will be produced during desalination.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	-
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option intersects major roads, railways and national cycle routes. There is likely to be moderate and temporary impacts during construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive 16 Negative -59				Positive 16 Negative -43					

SWS_HSW_HI-DES_ALL_ALL_sw desal m100 p2											
West Southampton Coast Desalination - transfer to Test Surface Water (modular 100-200MI/d)											
Southern Water											
This option involves construction of desalination plant on a disused industrial site. The site currently has a large intake structure (nominally 5,500 MI/d) and corresponding outfall which could be used by a desalination plant. With distribution enhancements treated water could be supplied to the following customers/area: - Test Surface Water WSW currently supplies approx. 105 MI/d (proposed increase to 160 MI/d) but is at risk of low flow reductions to 0 MI/d.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	--	<p>The option is within the Solent and Southampton Water SPA and Ramsar, Solent Maritime SAC, North Solent SSSI (67.49% favourable, 19.32% unfavourable - recovering, 2.04% unfavourable - no change, 11.14% unfavourable - declining) and The New Forest SAC and SSSI (54.68% favourable, 41.65% unfavourable - recovering, 2.11% unfavourable - no change, 1.55% unfavourable - declining), all of which are GWDTE. Hythe to Calshot Marshes SSSI (89.35% unfavourable - recovering, 10.65% unfavourable - no change), Lower Test Valley SSSI (65.15% favourable, 34.85% unfavourable - recovering) / GWDTE and River Test SSSI (17.91% favourable, 37.53% unfavourable - recovering, 43.52% unfavourable - no change, 1.03% unfavourable - declining) / GWDTE are within 500m. The Solent Maritime SAC, The North Solent NNR and Calshot Marshes LNR are also within 500m. Eling and Bury Marshes SSSI and Fletchwood Meadows SSSI, both of which are GWDTE, are within 2000m. The option is within SSSI Impact Risk Zones. There is Ancient Woodland within close proximity to the option, however no direct impacts anticipated as the pipeline is aligned along an existing road in these sections. The pipeline passes through woodland including deciduous woodland Priority Habitat and other Priority Habitats including good quality semi-improved grassland therefore potential for direct effects during construction phase. Potential for operational effects due to brine discharge.</p> <p>The HRA ToLS (2021) identified likely significant effects on designated sites during construction and operation.</p> <p>There is a low risk for the transfer or movement of INNS.</p>	<p>Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid designated sites and woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. However, likely residual effects on designated sites. HRA Level 2 screening identified likely significant effects remain, despite mitigation, and an AA would be required.</p>	0	---	0	--

Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The option passes through Grade 2, Grade 4, Grade 5, non-agricultural and urban land. The desalination plant is located on Grade 4 agricultural land therefore not best and most versatile. There is potential for disturbance to these soils during the construction phase and potential permanent loss from the desalination plant. The desalination plant appears to be located in Grade 5 agricultural land. The option passes through several historic landfill sites and there are authorised and historic landfill sites within 500m, therefore potential to disturb contaminants during the construction phase.	Land reinstated upon completion, however there will likely be permanent loss for the desalination plant. Consider realignment if possible, to avoid impacts. Best practice construction measures to be implemented for working within or within close proximity to landfill sites, however residual construction effects likely.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	-	The option is predominately within Flood Zone 1, however there are areas of Flood Zones 2 and 3 along the route of the pipeline and at Test Surface Water WTW. The site for the desalination plant appears to be within Flood Zone 1. There may be some risk of flooding during the construction phase. Operational impacts are unlikely as pipeline will be buried and plant located in Flood Zone 1, however potential for some effects at Test Surface Water WTW as site partly within Flood Zones 2 and 3.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	-
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	The pipeline intersects and is adjacent to waterbodies, including main rivers and chalk rivers. There is potential that the construction phase could lead to the contamination of these water bodies, affecting water quality. The option is not within SPZs. Operational impacts are likely due to abstraction and brine discharge. The WFD Screening Assessment (2021) identified that further WFD assessment is required due to operational effects.	Best practice mitigation measures likely to be implemented during construction. Undertake further WFD assessment.	0	0	0	--
	Deliver reliable and resilient water supplies	0	0	+++	0	The option will utilise sea water to improve resilience and aims to provide 100ML/d of desalinated water to Test Surface Water WTW for distribution.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	-	There are no AQMAs within 2000m. There are likely to be impacts on air quality during the construction phase and from the operation of the desalination plant.	Best practice mitigation measures implemented during construction and ensuring implementation of efficient plant with minimal emissions, however minor on air quality may remain.	0	-	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	---	0	--	No carbon data available for this option. This option is estimated to have major construction and moderate operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon	0	---	0	--

							footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available				
	Reduce vulnerability to climate change risks and hazards	0	0	+++	0	Desalinisation has potential to improve resilience to climate change as the use of desalinated water may reduce pressures on stressed freshwater environments. Freshwater will therefore be kept within the natural environment.	N/A	0	0	+++	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option is within the New Forest and South Hampshire Lowlands NCAs. The option passes through the New Forest National Park. There is likely to be impacts on the landscape during the construction works. Operational impacts are likely given the option involves the construction of a new desalination plant. This is to be located within the New Forest National, however it is adjacent to a disused power station.	Best practice will be implemented to avoid negative effects, ground will be reinstated where possible, however likely to be some disturbance to landscape during works. Screening could be implemented to minimise visual impact of plant, however moderate impacts likely to remain given area is within the New Forest National Park.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	There are listed buildings and scheduled monuments within close proximity to the option. There are also conservation areas within 500m, including the Ashlett Creek Conservation Area which is to the north of the desalination plant, and registered parks and gardens within 2000m. Construction may affect the setting of the historic assets, however this is likely to be temporary and minimal. Potential for the desalination plant to affect the setting of Ashlett Creek Conservation Area and listed buildings within proximity. There is potential for the pipeline excavation and desalination plant construction to impact buried archaeology if present.	Best practice mitigation measures to be implemented to minimise setting effects during construction. Screening could be implemented to minimise any setting impact of plant. Given there is potential for the pipeline / desalination plant to impact buried archaeology, an Archaeology Watching Brief may be required during the construction phase. Further work may be required to determine the significance of the effect depending on the presence / absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	--	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The option passes through a public park or garden, a school and noise action important areas. The option is within 500m of play spaces, churches and religious grounds, public parks or gardens, schools, playing fields, sports facilities, bowling greens, emergency services, golf courses and other community facilities. There is potential for the community and users of these community facilities to be affected during the construction phase. IMD deciles range from 1 to 10 along the route of the option.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of community sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The option intersects national cycle routes and also passes through the New Forest National Park and a public park or garden. There are other recreational facilities within 500m. There may be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials. Brine waste will be produced during desalination.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	-
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option intersects major roads, railways and national cycle routes. There is likely to be moderate and temporary impacts during construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive 16 Negative -59						Positive 16 Negative -43			

SWS_HSW_HI-DES_ALL_ALL_sw desal m100											
West Southampton Coast Desalination - transfer to Test Surface Water (modular 100-200 MI/d)											
Southern Water											
This option involves construction of desalination plant on a disused industrial site. The site currently has a large intake structure (nominally 5,500 MI/d) and corresponding outfall which could be used by a desalination plant. With distribution enhancements treated water could be supplied to the following customers/area: - Test Surface Water WSW currently supplies approx. 105 MI/d (proposed increase to 160 MI/d) but is at risk of low flow reductions to 0 MI/d.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	--	<p>The option is within the Solent and Southampton Water SPA and Ramsar, Solent Maritime SAC, North Solent SSSI (67.49% favourable, 19.32% unfavourable - recovering, 2.04% unfavourable - no change, 11.14% unfavourable - declining) and The New Forest SAC and SSSI (54.68% favourable, 41.65% unfavourable - recovering, 2.11% unfavourable - no change, 1.55% unfavourable - declining), all of which are GWDTE. Hythe to Calshot Marshes SSSI (89.35% unfavourable - recovering, 10.65% unfavourable - no change), Lower Test Valley SSSI (65.15% favourable, 34.85% unfavourable - recovering) / GWDTE and River Test SSSI (17.91% favourable, 37.53% unfavourable - recovering, 43.52% unfavourable - no change, 1.03% unfavourable - declining) / GWDTE are within 500m. The Solent Maritime SAC, The North Solent NNR and Calshot Marshes LNR are also within 500m. Eling and Bury Marshes SSSI and Fletchwood Meadows SSSI, both of which are GWDTE, are within 2000m. The option is within SSSI Impact Risk Zones. There is Ancient Woodland within close proximity to the option, however no direct impacts anticipated as the pipeline is aligned along an existing road in these sections. The pipeline passes through woodland including deciduous woodland Priority Habitat and other Priority Habitats including good quality semi-improved grassland therefore potential for direct effects during construction phase. Potential for operational effects due to brine discharge.</p> <p>The HRA ToLS (2021) identified likely significant effects on designated sites during construction. There is a low risk for the transfer or movement of INNS.</p>	<p>Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid designated sites and woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. However, likely residual effects on designated sites. HRA Level 2 screening identified likely significant effects remain, despite mitigation, and an AA would be required.</p>	0	---	0	--

Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The option passes through Grade 2, Grade 4, Grade 5, non-agricultural and urban land. The desalination plant is located on Grade 4 agricultural land therefore not best and most versatile. There is potential for disturbance to these soils during the construction phase and potential permanent loss from the desalination plant. The desalination plant appears to be located in Grade 5 agricultural land. The option passes through several historic landfill sites and there are authorised and historic landfill sites within 500m, therefore potential to disturb contaminants during the construction phase.	Land reinstated upon completion, however there will likely be permanent loss for the desalination plant. Consider realignment if possible, to avoid impacts. Best practice construction measures to be implemented for working within or within close proximity to landfill sites, however residual construction effects likely.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	-	The option is predominately within Flood Zone 1, however there are areas of Flood Zones 2 and 3 along the route of the pipeline and at Test Surface Water WTW. The site for the desalination plant appears to be within Flood Zone 1. There may be some risk of flooding during the construction phase. Operational impacts are unlikely as pipeline will be buried and plant located in Flood Zone 1, however potential for some effects at Test Surface Water WTW as site partly within Flood Zones 2 and 3.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	-
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	The pipeline intersects and is adjacent to waterbodies, including main rivers and chalk rivers. There is potential that the construction phase could lead to the contamination of these water bodies, affecting water quality. The option is not within SPZs. Operational impacts are likely due to abstraction and brine discharge. The WFD Screening Assessment (2021) identified that further WFD assessment is required due to operational effects.	Best practice mitigation measures likely to be implemented during construction. Undertake further WFD assessment.	0	0	0	--
	Deliver reliable and resilient water supplies	0	0	+++	0	The option will utilise sea water to improve resilience and aims to provide 100Ml/d of desalinated water to Test Surface Water WTW for distribution.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	-	There are no AQMAs within 2000m. There are likely to be impacts on air quality during the construction phase and from the operation of the desalination plant.	Best practice mitigation measures implemented during construction and ensuring implementation of efficient plant with minimal emissions, however minor on air quality may remain.	0	-	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	---	0	--	No carbon data available. The option is estimated to have major construction and moderate operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon	0	---	0	--

							footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.				
	Reduce vulnerability to climate change risks and hazards	0	0	+++	0	Desalinisation has potential to improve resilience to climate change as the use of desalinated water may reduce pressures on stressed freshwater environments. Freshwater will therefore be kept within the natural environment.	N/A	0	0	+++	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option is within the New Forest and South Hampshire Lowlands NCAs. The option passes through the New Forest National Park. There is likely to be impacts on the landscape during the construction works. Operational impacts are likely given the option involves the construction of a new desalination plant. This is to be located within the New Forest National, however it is adjacent to a disused power station.	Best practice will be implemented to avoid negative effects, ground will be reinstated where possible, however likely to be some disturbance to landscape during works. Screening could be implemented to minimise visual impact of plant, however moderate impacts likely to remain given area is within the New Forest National Park.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	There are listed buildings and scheduled monuments within close proximity to the option. There are also conservation areas within 500m, including the Ashlett Creek Conservation Area which is to the north of the desalination plant, and registered parks and gardens within 2000m. Construction may affect the setting of the historic assets, however this is likely to be temporary and minimal. Potential for the desalination plant to affect the setting of Ashlett Creek Conservation Area and listed buildings within proximity. There is potential for the pipeline excavation and desalination plant construction to impact buried archaeology if present.	Best practice mitigation measures to be implemented to minimise setting effects during construction. Screening could be implemented to minimise any setting impact of plant. Given there is potential for the pipeline / desalination plant to impact buried archaeology, an Archaeology Watching Brief may be required during the construction phase. Further work may be required to determine the significance of the effect depending on the presence / absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	--	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The option passes through a public park or garden, a school and noise action important areas. The option is within 500m of play spaces, churches and religious grounds, public parks or gardens, schools, playing fields, sports facilities, bowling greens, emergency services, golf courses and other community facilities. There is potential for the community and users of these community facilities to be affected during the construction phase. IMD deciles range from 1 to 10 along the route of the option.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of community sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The option intersects national cycle routes and also passes through the New Forest National Park and a public park or garden. There are other recreational facilities within 500m. There may be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials. Brine waste will be produced during desalination.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	-
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option intersects major roads, railways and national cycle routes. There is likely to be moderate and temporary impacts during construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive 16 Negative -59						Positive 16 Negative -43			

SWS_HSW_HI-GRW_RE1_ALL_str_asr_tes_westi											
Test Surface Water MARS ASR recharge of chalk near Test Surface Water											
Southern Water											
Groundwater abstraction from the locally confined chalk aquifer below Test Surface Water WSW during critical lower river flow periods. Recharge of treated water to the aquifer when excess capacity exists in winter. Managed aquifer recharge (MAR) to manage and maintain chalk groundwater levels would be a foreseeable regulatory requirement linked to any abstraction from the confined chalk at Test Surface Water WSW. Costs per mega litre would be relatively low compared to effluent re-use and desalination. A trial and feasibility scheme would initially be needed to investigate the aquifer potential for abstraction and MAR, and to confirm that 3x chalk test wells and 2x monitoring wells can reliably supply 5-6ML/d additional water during late summer and autumn periods.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	--	The Lower Test Valley SSSI (65.15% favourable, 34.85% unfavourable - recovering), River Test SSSI (17.91% favourable, 37.53% unfavourable - recovering, 43.52% unfavourable - no change, 1.03% unfavourable - declining), Solent and Southampton Water SPA and Ramsar are all within 500m and are all GWDTE. Solent Maritime SAC is within 2000m. There is potential for effects on these sites during the construction phase. Operational impacts may also occur from groundwater abstraction given the sites are GWDTE. No abstraction anticipated from the River Test, which is a chalk river, however potential for effects from the groundwater abstraction. There are priority habitats and woodland within 500m which may directly affected during construction. The HRA ToLS (2021) identified likely significant effects during construction. No operational effects are anticipated. The transfer / spread of INNS will be very low given groundwater sources are likely to be completely free of INNS. Water used to recharge the aquifer will be treated water.	Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. However, likely residual effects on designated sites. Future design will need to undertake ecology surveys. Monitor groundwater levels. HRA Level 2 identified uncertain effects following incorporation of mitigation, therefore an AA would be required.	0	--	0	--
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The option is within Grade 4 and 5 agricultural land. There is potential for disturbance to these soils during the construction phase. There is a historic landfill site within close proximity to two of the boreholes therefore potential to disturb contaminants.	Land reinstated upon completion. Best practice construction measures to be implemented for working within or within close proximity to landfill sites.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	--	0	--	Two of the boreholes are located in Flood Zones 2 and 3, the remaining three are located in Flood Zone 1. There is potential for flood risk to have impacts on construction and operation of these boreholes. The pipeline is partially located in	Best practice mitigation measures likely to be implemented during construction and operation.	0	-	0	-

						Flood Zones 2 and 3 which may have an impact on construction.					
	Protect and enhance the quality of the water environment and water resources	0	-	+	--	The option aims to abstract groundwater and therefore may have negative effects on groundwater sources. However, the option also include proposals to recharge the aquifer during winter months where excess water is available at Test Surface Water WTW which is therefore likely to result in positive effects. The option is within the Central Hants Bracklesham Group WFD groundwater body and is not within SPZs. The WFD Screening Assessment (2021) identified further WFD assessment is required due to operational effects.	Best practice mitigation measures likely to be implemented during construction. Undertake further WFD assessment.	0	0	+	--
	Deliver reliable and resilient water supplies	0	0	+	0	The option is likely to increase the resilience of supplies by delivering 15MI/d.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	AQMA No.5 (Redbridge Road & Millbrook Road) is within 2000m. There is likely to minor and temporary impacts on air quality during the construction phase.	Best practice mitigation measures implemented during construction, however minor on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	No carbon data available. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	+	-	The option has the potential to increase the resilience of surface water and the local environment by utilising groundwater sources. There may be negative effects on the resilience of groundwater as a result, particularly during summer months, however the option does aim to recharge the aquifer during winter.	Monitor groundwater levels.	0	-	+	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The New Forest National Park is within 2000m. The construction phase has the potential to have a negative effect on the landscape. There is likely to be minimal operational impacts from the boreholes.	Best practice will be implemented to avoid negative effects, ground will be reinstated where possible, however likely to be some disturbance to landscape during works.	0	-	0	0

Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are no historic assets within 500m, however there are listed buildings within 2000m. It is not anticipated that the construction or operational phases will impact these assets due to the localised nature of the works. There is potential that excavation for the boreholes and pipeline will impact archaeology, if present.	Given there is potential to impact buried archaeology, an Archaeology Watching Brief may be required during the construction phase. Further work may be required to determine the significance of the effect depending on the presence / absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There is a school and church within 500m of the option. There is potential for the local community and users of the school to be impacted during the construction phase. IMD deciles range from 8 to 9.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Population and Human Health	Maintain and enhance tourism and recreation	0	-	0	0	The construction phase may lead to the diversion of public rights of way. This may have impacts on recreation therefore minor negative effects identified.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
Material Assets	Avoid negative effects on built assets and infrastructure	0	-	0	0	There are major roads, railways and national cycle routes within 2000m. There is likely to be minor impacts on the local road network during the works.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0

SEA Metrics	Positive	3		Positive	3
	Negative	-36		Negative	-25

WCS SRO Roadford Potable Transfer											
WCS SRO Roadford Potable Transfer											
SWS											
30MI/d potable transfer from Roadford Reservoir to Test Surface Water water supply works (WSW)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	-	The pipelines intersect the Grand Western Canal Country Park LNR, River Avon SAC, Cockey Down SSSI (58% Favourable, 42% Unfavourable - Recovering), Ebsbury Down SSSI (86% Favourable, 14% Unfavourable - Recovering), River Avon System SSSI (4% Favourable, 9% Unfavourable - Recovering, 85% Unfavourable - No change, 2% Unfavourable - Declining) and Whitesheet Hill SSSI (100% Favourable). There is potential for direct impacts on these sites based on the current alignment of the pipelines. The pipelines are within 500m of a further three LNRs as well as Solent and Southampton Water Ramsar/SPA, Dartmoor SAC, New Forest Ramsar/SAC/SPA/SSSI (55% Favourable, 42% Unfavourable - Recovering, 2% Unfavourable - No change, 1% Unfavourable - Declining), Hestercombe House SAC/SSSI (64.86% Favourable, 35.14% Unfavourable - Recovering), Brickworth Down and Dean Hill SSSI (20% Favourable, 79% Unfavourable - Recovering, 1% Unfavourable - No change), Fivehead Woods and Meadow SSSI (6% Favourable, 71% Unfavourable - Recovering, 23% Unfavourable - No change), Camp Down SSSI (100% Unfavourable - Recovering), Black Down and Sampford Commons SSSI (20% Favourable, 80% Unfavourable - Recovering), Whiteparish Common SSSI (93% Favourable, 7% Unfavourable - Recovering), North Dartmoor SSSI (46% Unfavourable - Recovering, 54% Unfavourable - No change), River Test SSSI (18% Favourable, 37% Unfavourable - Recovering, 44% Unfavourable - No change, 1% Unfavourable - Declining), Stoke Woods SSSI (15% Favourable, 85% Unfavourable - Recovering), Tytherington Down SSSI (100% Favourable), Cockey Down SSSI (58% Favourable, 42% Unfavourable - Recovering), Fivehead Arable Fields SSSI (100% Favourable), Lower Test Valley SSSI (65% Favourable, 35% Unfavourable -	Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid designated sites and sensitive habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys.	0	--	0	0
							Further information on the habitats affected by the option, and the geographical ranges of those qualifying species, would be needed before likely significant effects could be ruled out. Effects on bats remain uncertain; whilst mitigation could be employed to reduce effects, more detail is needed on their use of the landscape around their roost sites, to understand the magnitude of impacts etc. Measures to eliminate the creation of sediment and/or other pollutants will be implemented. These measures should be				

				<p>Recovering) and Lang's Farm SSSI (100% Unfavourable - Declining). The pipeline is also within 2km of the Solent Maritime SAC, Solent and Dorset Coast SPA and the Somerset Levels and Moors Ramsar/SPA. No direct impacts but there could be indirect impacts as a result of construction. The option is entirely within SSSI Impact Risk Zones.</p> <p>The pipelines intersect seven areas of Ancient Woodland and a variety of priority habitats including coastal floodplain and grazing marsh, deciduous woodland, good quality semi-improved grassland, grass moorland, lowland calcareous grassland, lowland meadows, purple moor grass and rush pastures, and traditional orchard. Potential for habitat loss and disturbance during construction.</p> <p>The HRA ToLS identifies seventeen Natura 2000 sites: Culm Grasslands SAC (4.9km), Dartmoor SAC (0.5km), Quants SAC (3.5km), Holme Moor and Clean Moor SAC (7.2km), Somerset Levels & Moors SPA (1.4km), Somerset Levels & Moors Ramsar (1.4km), River Avon SAC (0.5km), Salisbury Plain SAC (2.9km), Salisbury Plain SPA (2.9km), Chilmark Quarries SAC (6.1km), Porton Downs SPA (2.0km), The New Forest SAC (50m), New Forest SPA (1.9km), New Forest Ramsar (1.9km), Solent Maritime SAC (0.5km), Solent and Southampton Water SPA (0.5km) and Solent and Southampton Water Ramsar (0.5km). The Culm Grasslands SAC, Quants SAC, Holme Moor and Clean Moor SAC and Salisbury Plain SAC sites are sufficiently distanced that no likely significant effects are predicted; there are no pathways by which effects would manifest themselves. The New Forest SAC site is in close proximity to the option. Construction is likely to create dust and other airborne pollutants that could affect some or all of the qualifying habitats, thereby creating likely significant effects. Construction phase impacts due to the presence of lighting during night-time periods could have likely significant effects on some of the qualifying insect species. The River Avon SAC, Solent Maritime SAC, Solent and Southampton Water SPA and Solent and Southampton Water Ramsar sites the option crosses a large number of watercourses, streams, drainage ditches etc. Construction is likely to mobilise sediment and other pollutants that could easily flow into these sites, with likely significant effects on qualifying feature habitats, bird species and snail species predicted. Somerset Levels & Moors SPA, Somerset Levels & Moors Ramsar, Salisbury Plain SAC, Salisbury Plain SPA, Chilmark Quarries SAC, Porton Down</p>	<p>detailed in a robust, comprehensive CEMP, and could include, but need not be limited to, silt curtains, directional drilling underneath watercourses, and effective pollution control measures throughout the construction areas.</p>				
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						SPA, New Forest SPA and New Forest Ramsar sites likely significant effects are uncertain. There is the scope that the option may bisect habitat that is functionally linked to these sites, providing shelter etc. to one or more of the qualifying bird species. INNS...					
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	Part of the River Exe is designated as the Brampford Speke SSSI (100% Favourable). No direct impacts on this designated site are anticipated. The pipelines intersect Grades 1-5 agricultural land. Temporary disturbance to agricultural land associated with the new pipelines. There will potentially be permanent loss of agricultural land as a result of the expansion of Northcombe WTW. The pipelines also intersect two authorised landfills and six historic landfills, with a further seven authorised and 28 historic landfills within 500m. Potential with potential to disturb contaminated material during construction.	Ground will be reinstated for along pipeline route however residual effects due to loss of agricultural land. Best practice techniques to prevent potential disturbance of contaminated material during construction.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	The pipelines are within areas of Flood Zones 2 and 3 which may have an impact on construction. Northcombe WTW is within Flood Zone 1 therefore is unlikely to significantly impact flood risk.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	-	The option intersects areas of SPZs 1 and 2, nitrate vulnerable zones and 17 WFD groundwater bodies, all of which are potential sensitive receptors. Several surface waterbodies are also intersected by the option, including several stretches of Main River. There is potential for degradation of water quality during construction. The option requires abstraction from and discharge to Main Rivers with potential to impact water quality/flow during operation. WFD assessment completed in 2021 indicates a further assessment is required to assess impacts on the following water bodies: GB108047007910 (Tamar: River Lyd to River Inny), GB30847000 (Roadford Lake), GB108045009060 (Exe: Culm to Creedy), GB108045015050 (Exe: Barle to Culm), GB108045015060 (Exe: Haddeo to Barle), GB108045015090 (Lower River Haddeo), GB108045020900 (Upper River Haddeo), GB30844471 (Wimbleball Lake) and GB107042016791 (Blackwater: Test and Itchen).	Best practice mitigation measures to be implemented during construction including use of trenchless crossings. However minor and temporary impacts may remain.	0	-	0	-

	Deliver reliable and resilient water supplies	0	0	++	0	The option will increase the transfer of water, improving water supplies.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	--	0	-	The option is not within an AQMA. The pipelines will pass adjacent to the Crediton AQMA and is within 2km of the Salisbury City Centre AQMA. Construction likely to have a temporary impact on air quality. The Northcombe WTW is not located within an AQMA. Expansion of the Northcombe WTW may increase air emissions although it is anticipated that these will be managed through the implementation of air quality limits.	Best practice mitigation measures to be implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	---	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has major construction and minor operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	---	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	--	This option may put increased pressure on water ecosystems further downstream during periods of extreme dry weather.	Manage flows so as not to increase vulnerability of waterbodies downstream.	0	0	0	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The pipelines are located within the Blackdown Hills, Cranborne Chase and West Wiltshire Downs and Quantock Hills AONBs, New Forest and Dartmoor National Parks, and lie within the Blackdowns, Blackmoor Vale and Vale of Wardour, Devon Redlands, Mid Somerset Hills, New Forest, Salisbury Plain and West Wiltshire Downs, Somerset Levels and Moors, South Hampshire Lowlands, The Culm, Vale of Taunton and Quantock Fringes, and Yeovil Scarplands NCAs. Negative effects during construction likely as excavation will be required for the transfer pipeline. Permanent change to landscape due to expansion of the Northcombe WTW however this may be limited as it is an existing works. Pipeline will be buried once operational.	Best practicable means to minimise potential visual impact during construction, however impacts are anticipated to remain. Expansion of Northcombe WTW to be designed to minimise potential impacts, including planting.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	---	0	0	The pipelines intersect conservation areas, a Grade II listed building, three scheduled monuments, and Hestercombe Grade I Registered Park and Garden and Knightshayes	Pipeline route alignment to avoid direct impacts on historic assets in particular scheduled monuments	0	-	0	0

						Court Grade II Registered Park and Garden. There is potential for effects on the setting of bowl barrow scheduled monuments within the vicinity of the Northcombe WTW expansion however this may be limited as it is an existing works. There are two Grade II listed bridges along the River Exe although these are not anticipated to be impacted. The pipelines are within 500m of conservation areas, scheduled monuments and listed buildings. Construction may affect the setting of above ground historic assets, however this is likely to be temporary as the pipeline will be buried. There is potential for the excavation of the pipeline to impact buried archaeology if present.	and the grade II listed building. Best practice measures to be implemented to minimise setting effects during construction. Design of the expansion of the WTW to minimise potential impacts, including planting. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The pipelines are within close proximity to schools, residential areas e.g. in Salisbury and greenspaces, and directly impacts allotments and a playing field. The pipelines are within 500m of other important community facilities and greenspaces, including playing fields and allotments. There is likely to be disturbance for local communities from dust, noise and vibration during construction. IMD deciles 4-9 along extent of the option.	Consider re-routing pipelines to avoid community infrastructure. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	--	0	0	The pipelines are located within the New Forest and Dartmoor National Parks, Grand Western Canal Country Park and Knightshayes Park. Potential for disruption during construction. Potential impacts on recreational use of the Roadford Lake during construction. The pipelines cross watercourses and habitat areas/woodland that could be used for recreation, therefore there may be some temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance to users of several National Cycle Network routes, footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	--	0	0	New infrastructure required for option which will use materials and generate waste.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that	0	-	0	0



SWS_HSW_HI-IMP_HSW_ALL_tfr_wcn_sro_c1_16											
Potable water transfer from Cheddar Reservoir to Test Surface Water WSW at 16 MI/d											
Thames Water											
16MI/d potable transfer including new Cheddar 2 reservoir to Test Surface Water WTW											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	-	<p>The option intersects the River Avon SAC and the following SSSIs: Cheddar Reservoir (100% Favourable), Cockey Down (58% Favourable, 42% Unfavourable - Recovering), Ebsbury Down (86% Favourable, 14% Unfavourable - Recovering) and River Avon System (3% Favourable, 9% Unfavourable - Recovering, 85% Unfavourable - No change, 3% Unfavourable - Declining). Potential for direct impacts on these designated sites. The New Forest (SAC, SPA, Ramsar and SSSI (55% Favourable, 42% Unfavourable - Recovering, 2% Unfavourable - No change, 2% Unfavourable - Declining), Solent and Southampton Water SPA / Ramsar, Solent Maritime SAC, Solent and Dorset Coast SPA, North Somerset and Mendip Bats SAC, Mendip Limestone Grasslands SAC and Mendip Woodlands SAC are within 2km. Brickworth Down and Dean Hill SSSI (20% Favourable, 79% Unfavourable - Recovering, 1% Unfavourable - No change), Whiteparish Common SSSI (93% Favourable, 7% Unfavourable - Recovering), Camp Down SSSI (100% Unfavourable - Recovering), Cheddar Wood SSSI (96% Unfavourable - Recovering, 4% Unfavourable - Declining), Brimsdown Hill SSSI (65% Unfavourable - Recovering, 35% Unfavourable - Recovering), River Test SSSI (18% Favourable, 38% Unfavourable - Recovering, 42% Unfavourable - No change, 1% Unfavourable - Declining), North Brewham Meadows SSSI (100% Favourable), Twinhills Woods and Meadows SSSI (69% Unfavourable - Recovering, 31% Unfavourable - Declining), Lower Test Valley SSSI (65% Favourable, 35% Unfavourable - Recovering), and Long Knoll (36% Favourable, 64% Unfavourable - Recovering) SSSI are found within 500m of the option.</p> <p>The option also lies within SSSI Impact Risk Zones.</p> <p>The option intersects three Ancient</p>	<p>Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid designated sites and sensitive habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys.</p> <p>Reservoir design to ensure potential to create valuable new habitat is included. Potential to add to habitat/species value of adjacent Cheddar Reservoir SSSI.</p> <p>Effects on habitat could be mitigated by sensible construction phase mitigation like dust control etc, detailed in a robust, comprehensive CEMP. Effects on bats remain uncertain; whilst mitigation could be employed to reduce effects, more detail is needed on their use of the landscape around their roost sites, to understand the magnitude of impacts etc. Judicious use of sensible mitigation measure in a CEMP should act to eliminate likely significant effects on the habitats 500 metres away. Dust control, and the use of plant and machinery with minimal emissions should be employed to achieve this. Measures to eliminate the creation of sediment and/or other pollutants would be employed</p>	0	--	++	0

				<p>Woodlands and a variety of priority habitats including coastal and floodplain grazing marsh, deciduous woodland, good quality semi-improved grassland, lowland calcareous grassland, lowland meadows, purple moor grass and rush pastures and traditional orchard. Potential for habitat loss and disruption from dust, noise, light and vibration during construction.</p> <p>The HRA ToLS identifies sixteen Natura 2000 sites: Mendip Limestone Grassland SAC (1.4km), Mendip Woodlands SAC (0.5km), North Somerset and Mendip Bats SAC (0.5km), Somerset Levels and Moors SPA (4.2km), River Avon SAC (0.5km), Salisbury Plain SAC (2.9km), Salisbury Plain SPA (2.9km), Chilmark Quarries SAC (6.1km), Porton Down SPA (2.0km), The New Forest SAC (50m), New Forest SPA (1.9km), New Forest Ramsar (1.9km), Solent Maritime SAC (0.5km), Solent and Southampton Water SPA (0.5km), and Solent and Southampton Water Ramsar (0.5km). For the Mendip Limestone Grassland SAC, Mendip Woodlands SAC, North Somerset and Mendip Bats SAC, The New Forest SAC site, during construction, there are predicted to be likely significant effects on the qualifying habitats due to the creation of dust and/or deposition of nitrogen, from elevated nitrogen emissions. Either of these would be to the detriment of the habitat's health. Construction of the pipeline may also temporarily impact on habitats used by the greater horseshoe bat. There is therefore the potential for likely significant effects on this exceptionally rare species. For the River Avon SAC, Solent Maritime SAC, Solent and Southampton Water SPA, and Solent and Southampton Water Ramsar sites the option crosses a large number of tributaries, streams, drainage ditches etc, the construction at which is likely to mobilise sediment and other pollutants that could easily flow into these sites, with likely significant effects on qualifying feature habitats and species predicted. For Salisbury Plain SPA, Chilmark Quarries, Porton Down SPA, New Forest SPA and New Forest Ramsar sites likely significant effects are uncertain. There is scope that the option may bisect habitats that are functionally linked to these sites, providing shelter etc to one or more of the qualifying bird and bat species. For Somerset Levels and Moors</p>	<p>to ensure that they did not reach the site, and hence did not have any likely significant effects. These measures should be detailed in a robust, comprehensive CEMP, and could include, but need not be limited to, silt curtains, directional drilling underneath watercourses, and effective pollution control measures throughout the construction areas.</p>				
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						SPA, Somerset Levels and Moors Ramsar and Salisbury Plain SAC sites are sufficiently distanced that no likely significant effects are predicted; there are no pathways by which effects would manifest themselves. INNS...					
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The pipeline intersects Grades 1-5 agricultural land and the reservoir is within grade 3 and 4 agricultural land. Temporary disturbance to agricultural land associated with the new pipeline and permanent loss from reservoir construction. The option also intersects five historic landfills, with a further 17 historic landfills within 500m. Potential with potential to disturb contaminated material during construction.	Ground will be reinstated for along pipeline route however residual effects due to loss of agricultural land. Best practice techniques to prevent potential disturbance of contaminated material during construction.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	--	The pipeline is within areas of Flood Zones 2 and 3 which may have an impact on construction. The proposed reservoir is within Flood Zones 2 and 3.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur. FRA to be prepared and flood compensation is likely to be required for the reservoir.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	-	The option intersects nitrate vulnerable zones, SPZs 1 and 2, and overlies eight WFD groundwater bodies: Central Hants Bracklesham Group, Central Hanta Lambeth Group, Forest Marble, Mendips, River Test Chalk, Upper Hampshire Avon, Wells and Yeovil Bridport Sands/Inferior Oolite, all of which are potential sensitive receptors. Several surface waterbodies are also intersected. There is potential for degradation of water quality during construction. WFD assessment completed in 2021 indicates a further assessment is required to assess impacts on the following water body: GB109052021540 (Cheddar Yeo - source to conf Stubbington Rhyne).	Best practice mitigation measures to be implemented during construction including use of trenchless crossings. However minor and temporary impacts may remain.	0	--	0	-
	Deliver reliable and resilient water supplies	0	0	+	0	The option will improve transfer of potable water, improving water supplies.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	-	0	0	The option is not within an AQMA nor are there any within 2km. Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures to be implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	---	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has major construction and minor operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	---	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	--	The option includes the creation of a new reservoir which will increase water storage. This may put increased pressure on water ecosystems further downstream during periods of extreme dry weather.	Operate reservoir and manage flows so as not to increase vulnerability of waterbodies downstream.	0	0	0	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The pipeline is located within the Cranborne Chase and West Wiltshire Downs AONB and New Forest National Park, and lies within the South Hampshire Lowlands, New Forest, Salisbury Plain and West Wiltshire Downs, Blackmoor Vale and Vale of Wardour, Somerset Levels and Moors, Yeovil Scarplands, Mendip Hills and Mid Somerset Hills NCAs. Negative effects during construction likely as excavation will be required for the transfer pipeline. The reservoir is located within 2km of the Mendip Hills AONB. Permanent change to landscape due to introduction of reservoir. However, it is adjacent to the existing reservoir. Pipeline will be buried once operational.	Best practicable means to minimise potential visual impact during construction, however impacts are anticipated to remain. Reservoir design to minimise potential impacts, including planting.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	---	0	0	The pipeline intersects the Boyton and Stratford Sub Castle Conservation Areas, a Grade II listed building and two scheduled monuments. The Duck decoy 175m south west of Parson's Farm is within the landscaping area of the reservoir. Potential for direct impacts and permanent impacts on setting. The pipeline is within 500m of conservation areas, scheduled monuments and listed buildings. Construction may affect the setting of above ground historic assets, however this is likely to be temporary as the pipeline will be buried. There is potential for the excavation of the pipeline to impact buried archaeology if present.	Reservoir design and pipeline route alignment to avoid direct impacts on historic assets in particular scheduled monuments and the grade II listed building. Best practice measures to be implemented to minimise setting effects during construction. Reservoir design to minimise potential impacts, including planting. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential	0	--	0	0

							loss of archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The pipeline is within close proximity to schools, residential areas e.g. in Salisbury and greenspaces and within 500m of other important community facilities and greenspaces. The reservoir is within proximity to Cheddar and directly adjacent to the Cheddar Valley Rugby Football Club. There is likely to be disturbance for local communities from dust, noise and vibration during construction. IMD deciles 5-9 along extent of the option.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur. Opportunity for community amenity within the design.	0	-	+	0
	Maintain and enhance tourism and recreation	0	--	0	0	The option intersects the New Forest National Park, a play space, playing field, registered common land, and six cycle routes. Potential for disruption during construction. Once constructed, the reservoir may provide a recreational facility for the local community. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be some temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance to users of footpaths and other public rights of way during the construction phase. Potential impacts on existing recreational use of the adjacent reservoir.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur. Additional informal recreational access to be provided to new waterbody, such as footpaths around the reservoir. Opportunities for further recreational benefits could be explored, linking with existing recreational use of adjacent Cheddar reservoir site.	0	-	++	0
Material Assets	Minimise resource use and waste production	0	--	0	0	New infrastructure required for option which will use materials and generate waste. Excavated material generated for the new reservoir which should be reused on site.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option intersects six major roads and a railway. There is the potential for disruption during construction but no assets should be impacted once operational.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive 1 Negative -68						Positive 10 Negative -31			

SWS_HSW_HI-IMP_IOW_ALL_tcs-hsw											
Triplicate Cross Solent Main: bi-directional transfer											
Southern Water											
A third cross-Solent main would be installed to permit further bulk transfer of water resources from the mainland to the Isle of Wight. Although it is possible that the transfer may be from the Isle of Wight to the mainland (should a large scale desalination plant be selected on the IoW for example) it is most likely that the transfer will be from the mainland to the IoW. As Test Surface Water is the key resource for this transfer, the option includes a new 450 mm diameter main between Test Surface Water and Blackfield on the mainland. A new dual main (300dia each) that would be laid under the Solent sea bed is included between Blackfield and near Cowes. A new 450dia main is included between near Cowes and a new 20 MI WSR at High Alvington in order to distribute flows to the IoW. A new booster pumping station would also be required at Newport. Engineering requirements:- New main between Test Surface Water WSW and Blackfield Booster Station;- New pumping station at Test Surface Water WSW;- New pumps, pump housing and M&E for the Blackfield booster station and for the near Cowes booster pumping station;- New dual main high pressure pipelines between Blackfield pumping station (PS) and near Cowes PS;- New near Cowes to Alvington High Level WSR pipeline, (route and diameter assumed equal to existing infrastructure);- 20 MI additional service reservoir adjacent and connected to the existing Alvington High Level WSR (based on a 24hr retention time); and- Connection to mains electricity supply (should be minimal cost).											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	---	The pipeline passes through The New Forest SSSI (54.72% favourable, 41.61% unfavourable - recovering, 2.11% unfavourable - no change, 1.55% unfavourable - declining), North Solent SSSI (67.49% favourable, 19.32% unfavourable - recovering, 2.04% unfavourable - no change, 11.14% unfavourable - declining) / GWDTE, and New Forest SPA, SAC and Ramsar which are all GWDTE. It also passes through the Solent Maritime SAC and Solent & Southampton Water SPA and Ramsar. Lower Test Valley SSSI (65.15% favourable, 34.85% unfavourable - recovering) / GWDTE, Thorness Bay SSSI (30.18% favourable, 69.82% unfavourable - declining) / GWDTE, and Parkhurst Forest SSSI (61.72% favourable, 38.28% unfavourable - recovering) / GWDTE, Lepe Point LNR and North Solent NNR are all within 500m of the pipeline therefore potential for indirect effects during construction. The option is within SSSI Impact Risk Zones. The pipeline also passes through the Yarmouth to Cowes MCZ. Direct effects on woodland, ancient woodland and priority habitats anticipated. The HRA ToLS (2020) identified likely significant effects for New Forest Ramsar, SPA and SAC during construction and operational phases due to sediment discharge or pollution. Likely significant effects have been identified for Solent & Southampton Water SPA and Ramsar (within 0.2km in the N, within 0km in south and Solent Maritime SAC (0km from proposed option) and Solent and Dorset Coast SPA (marine) (within 0km of proposed option) during the construction	Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. LSE identified for New Forest Ramsar, SPA and SAC are not considered mitigated as the pipeline is within the Designated site, with very little scope for realignment due to the built up nature of the adjacent areas. LSE for Solent & Southampton Water RAMSAR, SPA and Solent Maritime SAC are not mitigated. CEMP should be used however there is still a possibility of noise and visual disturbance for species. LSE for Solent and Dorset Coast SPA are considered to be mitigatable through use of best practice measures. Undertake HRA	0	---	0	---

						phase. High risk to INNS transfer due to the creation of a new service reservoir, transfer of water (assumed raw) between the mainland and the IoW and new pipelines between currently unconnected reservoirs. Construction has a moderate risk of transferring INNS due to large scale works.	AA to address likely significant effects and uncertain effects identified for the various N2K sites.				
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The pipeline passes through ALC Grade 2, 3, 4, 5 land as well as non-agricultural and urban land. The construction phase will likely disturb these soils. The pipeline crosses three historic landfill sites and is within 500m of other authorised and historic landfill sites with potential to disturb contaminated material during construction.	Land reinstated upon completion. Best practice methods for working adjacent to or within landfills.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	Option predominately located within Flood Zone 1, however there are areas of Flood Zones 2 and 3 on the pipeline route. This may have an impact on construction.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	There is potential that the construction phase will lead to contamination of waterbodies, the pipeline crosses the Solent where the pipeline will be under the sea bed. The option passes through SPZs. The WFD assessment identified further WFD assessment is not required.	Best practice mitigation measures likely to be implemented during construction.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	The option will increase the resilience of supplies by increasing the transfer of water between the main land and the Isle of Wight. Transfer of treated water from an area of surplus to an area of deficit.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	The option is not within an AQMA nor are there any within 2km. There is likely to be impacts to air quality during the construction.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	There is no data available for the embodied or operational carbon emissions for this option therefore neutral effects have been identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	The option is not anticipated to have a significant effect on water levels therefore the resilience of the local environment to climate change is not likely to be impacted.	N/A	0	0	0	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	--	The option is in the Isle of Wight, South Hampshire Lowlands and New Forest NCAs. The option passes through the Isle of Wight AONB and the New Forest National Park. There is potential for minor and temporary impacts on the landscape during the construction phase. There is also above ground infrastructure associated with the option which may cause operational impacts. It is unclear at this stage whether or not they are located in the AONB, however moderate negative effects have been identified at this stage. The new service reservoir would also result in a permanent change to the landscape.	Best practice measures will likely be implemented to minimise effects during construction and operation, however minor and temporary impacts may remain. Land reinstated upon completion where possible.	0	-	0	-
	Historic Environment	0	--	0	-	The option is in very close proximity to scheduled monument (Bowl barrow 630m north of Hardley Bridge). There are listed buildings, a conservation area and other scheduled monuments within 500m and the construction phase has the potential to affect the setting of these assets. There is also potential that above ground infrastructure will impact the setting of these assets during operation. The pipeline excavation has the potential to impact archaeology.	Re-route the pipeline or utilise trenchless techniques to prevent direct impacts on the scheduled monument. Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	-
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	---	0	0	The pipeline passes through playing fields, public parks or gardens, a country park, sports facility and two schools. There are schools, allotments, playing fields, play spaces, churches and religious grounds, sports facilities, public parks or gardens, and other community facilities within 500m. There are likely to be disruption to the users of these facilities and the wider community during the construction phase. IMD deciles range from 1 to 10 along the pipeline route.	Route alignment to be amended to avoid direct impacts on property and community assets and land to be reinstated. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	--	0	0	The option passes through the New Forest National Park. The pipeline intersects playing fields, public parks or gardens, country park and sports facilities. The option crosses habitat areas/woodland that could be used for recreation. Therefore, there may be temporary effects on recreation during the construction phase. There may be temporary disturbance for	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where	0	-	0	0

						users of national cycle routes, footpaths and other public rights of way during the construction phase.	possible and land to be reinstated. However, minor and temporary effects are likely to still occur.				
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The pipeline intersects major roads, railways and national cycle routes. There are likely to be moderate and temporary impacts during construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive		1				Positive		1	
		Negative		-53				Negative		-26	

SWS_HSW_HI-REU_RE1_ALL_scm9											
Test Estuary WTW - 9 MI/d											
Southern Water											
Slowhill Copse Marchwood WwTW has a Dry Weather Flow (DWF) of ca13 MI/d in a dry year (2011). This option proposes tertiary treatment of 9MI/d wastewater to a standard suitable for industrial use. This would free up supply from Test Surface Water that would otherwise be required to be available.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	---	<p>The pipeline passes through The New Forest SSSI (54.72% favourable, 41.61% unfavourable - recovering, 2.11% unfavourable - no change, 1.55% unfavourable - declining), New Forest SPA, SAC and Ramsar which are all GWDTE. The Eling and Bury Marshes SSSI (11.45% favourable, 88.55% unfavourable - no change) / GWDTE is within 500m. Solent and Dorest Coast SPA is within 2000m and Dibden Bay SSSI is also within 2000m and the option is within SSSI Impact Risk Zones. The option is anticipated to have a direct impact on priority habitats and woodland, and there is Ancient Woodland within close proximity. No impacts anticipated for chalk rivers.</p> <p>The HRA ToLS (2020) identified likely significant effects for the New Forest SPA, SAC and Ramsar site during the construction and operational phases. Uncertain effects were identified for the Solent Maritime SAC (0.2km N of proposed option) and Solent & Southampton Water SPA and Ramsar (0.2km N of proposed option) during construction and operation.</p> <p>High INNS construction risk, as proposed pipeline route crosses eastern edge of The New Forest SAC. Likely potential for INNS transfer from works area to sensitive sites and habitats within SAC notably wet heath and bog habitats. Very low INNS risk/transfer during operational as transferred water is treated and presumed free of INNS.</p>	<p>Avoid direct impacts on the New Forest SSSI/SAC/SPA/Ramsar through pipeline route alignment or trenchless techniques. Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. The storage area will be covered to prevent bird strike given the proximity to Kent Airport. Future design will need to undertake ecology surveys.</p> <p>LSE identified for New Forest Ramsar / SPA are not considered mitigatable. The pipeline is within the designated site, however it could be realigned to the east to avoid direct effects, indirect effects may remain. Uncertain effects for other sites remain due to unknown impacts on water quality.</p> <p>Undertake HRA AA to address likely significant and uncertain effects identified for the various N2K sites.</p>	0	--	0	--
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	<p>The pipeline passes through Grade 4, urban and non-agricultural land. There is potential that these soils are disturbed during the construction phase. The option passes through an authorised landfill and a historic landfill, and there also</p>	<p>Land reinstated upon completion. Best practice methods for working adjacent to or within landfills. Consider</p>	0	0	0	0

						additional authorised and historic landfills within 500m of the route. There is potential for disturbing contaminants during the construction phase.	realignment to avoid authorised and historic landfill.				
Water	Increase resilience and reduce flood risk	0	-	0	0	The pipeline is predominately located within Flood Zone 1, however there are areas of Flood Zones 2 and 3 on the pipeline route. This may have an impact on construction. The Slowhill WwTW is located within FZ1 therefore operational impacts not anticipated.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	--	The option is not within SPZ. Construction works have the potential to affect the quality of the water environment. The WFD assessment (2020) identifies further WFD assessment is required.	Best practice mitigation measures likely to be implemented during construction.	0	--	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	The option may increase the resilience of supplies as it reuses treated water for industrial use and thereby frees up additional water resources for other uses.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	The option is not within an AQMA. AQMA No.5 (Redbridge Road & Millbrook Road) is located within 2km. There are likely to be impacts on air quality during construction.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The option frees up additional water resources by utilising treated effluent for industrial use. This may help to prevent water from being abstracted from the environment and therefore may increase resilience to climate change. Although this additional water may be utilised elsewhere, minor positive effects have still been identified.	N/A	0	0	+	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option is in the New Forest NCA and passes through the New Forest National Park. There is likely to be minor and temporary disturbance to the landscape during the construction phase.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	---	0	0	The pipeline passes through the edge of a scheduled monument adjacent to the A326 Hythe By-Pass (Roman road on eastern edge of Beaulieu Heath, 220m north east of Hardley Bridge Ford). It is also adjacent to a Grade II listed building although assumed to be aligned along an existing road at this location so direct impacts are unlikely. There are other listed buildings, scheduled monuments and conservation areas within close proximity to the pipeline route, and additional historic assets within 2km. There is potential for the construction phase to affect the setting of these. The pipeline excavation may impact buried archaeology.	Pipeline route alignment or use of trenchless techniques to avoid direct impacts on the scheduled monument. Best practice measures to be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are churches and religious grounds, bowling green, schools, play spaces, emergency services, playing fields, and a golf course within 500m. The pipeline is adjacent to these community facilities in some locations but is routed along existing roads so no direct impacts are anticipated. There is potential that the community and users of these community facilities will be disrupted during the construction phase, however this is likely to be minor and temporary. IMD deciles range from 5 to 10 along the pipeline route.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The pipeline is within the New Forest National Park and is within 500m of other recreational facilities such as bowling greens, playing fields, play spaces and a golf course. The option habitat areas/woodland that could be used for recreation. The construction phase may also result in the disruption to a National Cycle Network route, footpaths and other public rights of way. As such, there is potential for minor and temporary impacts on recreation.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials.	Seek opportunity to implement sustainable design measures (design to reduce footprint,	0	-	0	0

							selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.				
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The pipeline intersects a railway, major road and national cycle routes. There is likely to be moderate and temporary impacts during construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive		2				Positive		2	
		Negative		-48				Negative		-26	

SWS_HSW_HI-ROC_WT1_ALL_cpy_tst_30											
New SRO Portsmouth Transfer option - upgrade of treatment capacity at Test Surface Water WSW											
Southern Water											
Upgrade treatment capacity at Test Surface Water WSW by 30MI/d											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	<p>River Test SSSI (17.91% favourable, 37.53% unfavourable - recovering, 43.52% unfavourable - change, 1.03% unfavourable - declining), Lower Test Valley SSSI (65.15% favourable, 34.85% unfavourable - recovering), which are both GWDTE, are within 500m of option. The Solent & Southampton Water SPA/Ramsar is within 500m and the Solent Maritime SAC is within 2km. The option is within SSSI Impact Risk Zones. There are also areas of woodland and priority habitat in proximity to the option. There is potential for disturbance impacts on habitats from noise and dust pollution during construction. However, it is not clear whether there will be any expansion works as part of the option. The River Test is a chalk river, however not anticipated to be directly affected.</p> <p>The HRA ToLS (2021) identified likely significant effects for Solent and Southampton Water (Ramsar), 1.22km south-east; New Forest (Ramsar), 5.88km west; Portsmouth Harbour (Ramsar), 24.71km, south-east; River Itchen (SAC), 625m west; Emer Bog (SAC), 1.01km east; New Forest (SAC), 5.88km west; Mottisfont Bats (SAC), 11.10km north; Solent and Isle of Wight Lagoons (SAC), 21.91km south; Solent Maritime (SAC) 26.01km, south of the option; Solent and Southampton Water (Ramsar), 1.22km south-east; New Forest (SPA), 5.88km west; and Portsmouth Harbour (SPA) 24.71km, south-east. The construction of the pipe is likely to require several minor watercourses to be crossed. Construction here is likely to result in mobilisation of sediment and other contaminants that could very easily flow downstream to the Itchen itself, where is likely to have significant effects on the qualifying habitats and species. The risk of the transfer / spread of INNS is likely to be very low given the works are within an existing WTW.</p>	<p>Best practice mitigation to minimise impacts. If applicable, ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. The Tier 2 HRA Screening identified that uncertain effects are likely to remain. A robust CEMP for use during construction should remove the scope for excessive mobilisation of sediment etc. The employment of suitable measures as screening nets, directional drilling or methodologies that reduce or eliminate the need for works in the watercourses would ensure this were the case. The scope for directional drilling of the pipe runs underneath the watercourses should be fully explored. The creation of a separate process stream requires further study regarding the effects on nearby SPAs/SACs/Ramsars.</p>	0	--	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	<p>The option is within Grade 5 land therefore there is unlikely to be an impact on agricultural soils. There is one historic landfill within 500m of the option. Depending on the nature of the works, there is potential to disturb contaminated soils.</p>	<p>Best practice techniques to prevent potential disturbance of contaminated material during construction.</p>	0	0	0	0

Water	Increase resilience and reduce flood risk	0	-	0	-	The existing works is partially within Flood Zones 2 and 3, which may have an impact on construction. Any expansion to the existing works will need to be flood resilient.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur. Design of any expansion works to be subject to FRA and made flood resilient.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	Upgrading the treatment capacity is likely to be within the existing works and therefore unlikely to exert influence on water quality. WFD Assessment (2021) identified further WFD assessment is not required.	Best practice construction measures to be implemented to mitigate effects therefore residual effects are unlikely for construction phase.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	++	0	Upgrading the treatment capacity will increase water resilience and maintain/improve water supplies. Option proposed to increase water supply by 30MI/d.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	The option is not within an AQMA not are there any within 2km. Construction likely to have minor and temporary impact on air quality. Emissions during operation may increase but this is likely to be managed through the existing air quality limits / environmental permit therefore neutral effects identified.	Best practice mitigation measures to be implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	This option will increase water security, reducing vulnerability to future drought scenarios.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option is within the South Hampshire Lowlands NCA. There will likely be impacts on landscape character and visual amenity during the construction phase, however given this is an existing WTW site, it will likely be minor. If expansion of the site is required, operational	Best practice will be implemented to avoid negative effects, ground will be reinstated, however likely to be some disturbance to landscape during works. Implement	0	0	0	0

						impacts are not anticipated given it will be located adjacent to the existing site.	screening and other best practice techniques to minimise operational impacts.				
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	There are no known historic assets within 500m of the existing works. Excavation may impact archaeology, if present, however this is likely to be limited as any construction works would be within the existing footprint of the works.	An Archaeological Watching Brief may be required during the construction phase, depending on the nature of the works.	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are no sensitive community receptors within 500m of the option. There is potential for the local community to be impacted during the construction phase, however this is likely to be minor and temporary. The option is within IMD decile 8.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	This option is within 500m of the Test Surface Water Lakes nature reserve and the River Test, which may be used for walking or water based recreation. Minor impacts on recreation therefore identified for the construction phase. Additional operational effects are unlikely as any expansion works are likely to be within the footprint of the existing works.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	Construction is likely to require additional materials. Increasing the treatment capacity is likely to create more waste.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	-
	Avoid negative effects on built assets and infrastructure	0	-	0	0	There may be minor disruption to the local road network during the construction phase.	Best practice mitigation measures including a Traffic Management Plan to be implemented to minimise effects during construction.	0	-	0	0
SEA Metrics		Positive 5 Negative -20				Positive 5 Negative -13					

SWS_HSW_HI-ROC_WT1_ALL_cpy_tst_60											
New SRO Portsmouth Transfer option - upgrade of treatment capacity at Test Surface Water WSW											
Southern Water											
Upgrade treatment capacity at Test Surface Water WSW by 60MI/d											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	<p>River Test SSSI (17.91% favourable, 37.53% unfavourable - recovering, 43.52% unfavourable - change, 1.03% unfavourable - declining), Lower Test Valley SSSI (65.15% favourable, 34.85% unfavourable - recovering), which are both GWDTE, are within 500m of option. The Solent & Southampton Water SPA/Ramsar is within 500m and the Solent Maritime SAC is within 2km. The option is within SSSI Impact Risk Zones. There are also areas of woodland and priority habitat in proximity to the option. There is potential for disturbance impacts on habitats from noise and dust pollution during construction. However, it is not clear whether there will be any expansion works as part of the option. The River Test is a chalk river, however not anticipated to be directly affected.</p> <p>The HRA ToLS (2021) identified likely significant effects for Solent and Southampton Water (Ramsar), 1.22km south-east; New Forest (Ramsar), 5.88km west; Portsmouth Harbour (Ramsar), 24.71km, south-east; River Itchen (SAC), 625m west; Emer Bog (SAC), 1.01km east; New Forest (SAC), 5.88km west; Mottisfont Bats (SAC), 11.10km north; Solent and Isle of Wight Lagoons (SAC), 21.91km south; Solent Maritime (SAC) 26.01km, south of the option; Solent and Southampton Water (Ramsar), 1.22km south-east; New Forest (SPA), 5.88km west; and Portsmouth Harbour (SPA) 24.71km, south-east. The construction of the pipe is likely to require several minor watercourses to be crossed. Construction here is likely to result in mobilisation of sediment and other contaminants that could very easily flow downstream to the Itchen itself, where is likely to have significant effects on the qualifying habitats and species. The risk of the transfer / spread of INNS is likely to be very low given the works are within an existing WTW.</p>	<p>Best practice mitigation to minimise impacts. If applicable, ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. The Tier 2 HRA Screening identified that uncertain effects are likely to remain. A robust CEMP for use during construction should remove the scope for excessive mobilisation of sediment etc. The employment of suitable measures as screening nets, directional drilling or methodologies that reduce or eliminate the need for works in the watercourses would ensure this were the case. The scope for directional drilling of the pipe runs underneath the watercourses should be fully explored. The creation of a separate process stream requires further study regarding the effects on nearby SPAs/SACs/Ramsars.</p>	0	--	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	<p>The option is within Grade 5 land therefore there is unlikely to be an impact on agricultural soils. There is one historic landfill within 500m of the option. Depending on the nature of the works, there is potential to disturb contaminated soils.</p>	<p>Best practice techniques to prevent potential disturbance of contaminated material during construction.</p>	0	0	0	0

Water	Increase resilience and reduce flood risk	0	-	0	-	The existing works is partially within Flood Zones 2 and 3, which may have an impact on construction. Any expansion to the existing works will need to be flood resilient.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur. Design of any expansion works to be subject to FRA and made flood resilient.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	Upgrading the treatment capacity is likely to be within the existing works and therefore unlikely to exert influence on water quality. WFD Assessment (2021) identified further WFD assessment is not required.	Best practice construction measures to be implemented to mitigate effects therefore residual effects are unlikely for construction phase.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+++	0	Upgrading the treatment capacity will increase water resilience and maintain/improve water supplies. Option proposed to increase water supply by 60ML/d.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	The option is not within an AQMA nor are there any within 2km. Construction likely to have minor and temporary impact on air quality. Emissions during operation may increase but this is likely to be managed through the existing air quality limits / environmental permit therefore neutral effects identified.	Best practice mitigation measures to be implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	This option will increase water security, reducing vulnerability to future drought scenarios.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option is within the South Hampshire Lowlands NCA. There will likely be impacts on landscape character and visual amenity during the construction phase, however given this is an existing WTW site, it will likely be minor. If expansion of the site is required, operational	Best practice will be implemented to avoid negative effects, ground will be reinstated, however likely to be some disturbance to landscape during works. Implement	0	0	0	0

						impacts are not anticipated given it will be located adjacent to the existing site.	screening and other best practice techniques to minimise operational impacts.					
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	There are no known historic assets within 500m of the existing works. Excavation may impact archaeology, if present, however this is likely to be limited as any construction works would be within the existing footprint of the works.	An Archaeological Watching Brief may be required during the construction phase, depending on the nature of the works.	0	0	0	0	
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are no sensitive community receptors within 500m of the option. There is potential for the local community to be impacted during the construction phase, however this is likely to be minor and temporary. The option is within IMD decile 8.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0	
	Maintain and enhance tourism and recreation	0	-	0	0	This option is within 500m of the Test Surface Water Lakes nature reserve and the River Test, which may be used for walking or water based recreation. Minor impacts on recreation therefore identified for the construction phase. Additional operational effects are unlikely as any expansion works are likely to be within the footprint of the existing works.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0	
Material Assets	Minimise resource use and waste production	0	-	0	-	Construction is likely to require additional materials. Increasing the treatment capacity is likely to create more waste.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	-	
	Avoid negative effects on built assets and infrastructure	0	-	0	0	There may be minor disruption to the local road network during the construction phase.	Best practice mitigation measures including a Traffic Management Plan to be implemented to minimise effects during construction.	0	-	0	0	
SEA Metrics			Positive Negative	9 -20	Positive Negative							9 -13

SWS_HSW_HI-ROC_WT1_CNO_test50wsw											
Test Surface Water (50) - WSW - Construction											
Southern Water											
Test Surface Water (50) - WSW											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	River Test SSSI (17.91% Favourable, 37.53% Unfavourable - Recovering, 43.52% Unfavourable - No change, 1.03% Unfavourable - Declining) and Lower Test Valley SSSI (65.15% Favourable, 34.85% Unfavourable - recovering) is within 500m of option. The option is also within a SSSI risk zone. There are also areas of woodland in proximity to option. There is potential for disturbance impacts on habitats from noise and dust pollution during construction. However, it is not clear whether there will be any expansion works as part of the option. The River Test is also a chalk river, however no direct effects anticipated. The HRA ToLS (2021) identified uncertain effects for Solent and Southampton Water SPA and Ramsar (0.5km to the east), and Solent Maritime SAC (1.5km east). It is assumed that this option takes place within the site of the existing WTW. The connectivity and control measures in terms of pollution control are unknown, so significant effects on the habitats of the nearby N2K sites, and it's qualifying feature species are uncertain. There are also uncertain effects in terms of disturbance on birds caused by the works. There is likely to be very low risk for the spread / transfer of INNS given the works are for an existing WTW site.	Best practice mitigation to minimise impacts, including preventing loss of habitat during construction. The HRA Tier 2 Enhanced Screening identified that the uncertain effects are likely to be mitigable. With the use of careful construction management, most appropriately through the use of a CEMP, it should be possible to ensure that sediment and/or pollution are both controlled and not allowed to enter into any water infrastructure that may then see it transported to the N2K sites. The CEMP would also include measures to ensure that no disturbance to bird species took place.	0	-	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The option is within Grade 5 agricultural land, there may be disturbance to the soil during the construction phase and there may also be a permanent loss as a result of the option. There is one historic landfill within 500m of the option, however there is not likely to be any effects.	Reinstate land where possible, however potential for the option to lead to the permanent loss due to construction. Best practice construction techniques around landfill.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	--	Option in in flood zone 2 and 3 which may impact on construction and there may also be operational impacts. Option is not likely to exacerbate flood risk on operation.	Best practice methods to be implemented to reduce flood risk at the construction and operational phases.	0	-	0	-

	Protect and enhance the quality of the water environment and water resources	0	-	0	0	Option is immediately adjacent to a main river and the Central Hants Bracklesham Group WFD ground water body. There is potential for impacts on the water environment, affecting water quality, during construction. The WFD Screening Assessment (2021) identified further WFD assessment is not required.	Best practice construction measures to be implemented to mitigate effects therefore residual effects are unlikely for construction phase.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	++	0	Option to provide 50ML capacity water supply. (Assumption from description)	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	There are no AQMAs within 2000m. Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	No carbon data available for the option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	This option is unlikely to have any effects on vulnerability to climate change risks and hazards.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option is within the South Hampshire Lowlands NLCA and the option is within 2000m of the New Forest National Park. There will likely be impacts on landscape character and visual amenity during the construction phase, however given this is an existing WTW site, it will likely be minor. If expansion of the site is required, operational impacts are not anticipated given it will be located adjacent to the existing site.	Best practice will be implemented to avoid negative effects, ground will be reinstated, however likely to be some disturbance to landscape during works. Implement screening and other best practice techniques to minimise operational impacts.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic	0	-	0	0	There are no historic assets within 500m of the option location. Excavation may impact archaeology, if present.	Given there is potential to impact buried archaeology, an	0	-	0	0

	environment, including archaeology						Archaeology Watching Brief may be required during the construction phase. Further work may be required to determine the significance of the effect depending on the presence / absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are no community facilities within 500m. There is potential for the local community to be affected during the construction phase, however this is likely to be minor and temporary. The option area is not within IMD decile 9.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	The option is unlikely to affect tourism or recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste, including excavation materials.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	Potential minor impacts on road network as a result of increased congestion during construction works. There are railway tracks and major roads within 2000m.	Best practice mitigation measures including a Traffic Management Plan to be implemented to minimise effects during construction.	0	-	0	0
SEA Metrics			Positive Negative	4 -22				Positive Negative	4 -12		

SWS_HSW_HI-ROC_WT1_CNO_test80wsw											
Test Surface Water (80) - WSW - Construction											
Southern Water											
Test Surface Water (80) - WSW											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	River Test SSSI (17.91% Favourable, 37.53% Unfavourable - Recovering, 43.52% Unfavourable - No change, 1.03% Unfavourable - Declining) and Lower Test Valley SSSI (65.15% Favourable, 34.85% Unfavourable - recovering) is within 500m of option. The option is also within a SSSI risk zone. There are also areas of woodland in proximity to option. There is potential for disturbance impacts on habitats from noise and dust pollution during construction. However, it is not clear whether there will be any expansion works as part of the option. The River Test is also a chalk river, however no direct effects anticipated. The HRA ToLS (2021) identified uncertain effects for Solent and Southampton Water SPA and Ramsar (0.5km to the east), and Solent Maritime SAC (1.5km east). It is assumed that this option takes place within the site of the existing WTW. The connectivity and control measures in terms of pollution control are unknown, so significant effects on the habitats of the nearby N2K sites, and it's qualifying feature species are uncertain. There are also uncertain effects in terms of disturbance on birds caused by the works. There is likely to be very low risk for the spread / transfer of INNS given the works are for an existing WTW site.	Best practice mitigation to minimise impacts, including preventing loss of habitat during construction. The HRA Tier 2 Enhanced Screening identified that the uncertain effects are likely to be mitigable. With the use of careful construction management, most appropriately through the use of a CEMP, it should be possible to ensure that sediment and/or pollution are both controlled and not allowed to enter into any water infrastructure that may then see it transported to the N2K sites. The CEMP would also include measures to ensure that no disturbance to bird species took place.	0	-	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The option is within Grade 5 agricultural land, there may be disturbance to the soil during the construction phase and there may also be a permanent loss as a result of the option. There is one historic landfill within 500m of the option, however there is not likely to be any effects.	Reinstate land where possible, however potential for the option to lead to the permanent loss due to construction. Best practice construction techniques around landfill.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	--	Option in in flood zone 2 and 3 which may impact on construction and there may also be operational impacts. Option is not likely to exacerbate flood risk on operation.	Best practice methods to be implemented to reduce flood risk at the construction and operational phases.	0	-	0	-

	Protect and enhance the quality of the water environment and water resources	0	-	0	0	Option is immediately adjacent to a main river and the Central Hants Bracklesham Group WFD ground water body. There is potential for impacts on the water environment, affecting water quality, during construction. The WFD Screening Assessment (2021) identified further WFD assessment is not required.	Best practice construction measures to be implemented to mitigate effects therefore residual effects are unlikely for construction phase.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+++	0	Option to provide 80ML capacity water supply. (Assumption from description)	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	There are no AQMAs within 2000m. Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	No carbon data available for the option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	This option is unlikely to have any effects on vulnerability to climate change risks and hazards.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option is within the South Hampshire Lowlands NLCA and the option is within 2000m of the New Forest National Park. There will likely be impacts on landscape character and visual amenity during the construction phase, however given this is an existing WTW site, it will likely be minor. If expansion of the site is required, operational impacts are not anticipated given it will be located adjacent to the existing site.	Best practice will be implemented to avoid negative effects, ground will be reinstated, however likely to be some disturbance to landscape during works. Implement screening and other best practice techniques to minimise operational impacts.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic	0	-	0	0	There are no historic assets within 500m of the option location. Excavation may impact archaeology, if present.	Given there is potential to impact buried archaeology, an	0	-	0	0

	environment, including archaeology						Archaeology Watching Brief may be required during the construction phase. Further work may be required to determine the significance of the effect depending on the presence / absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are no community facilities within 500m. There is potential for the local community to be affected during the construction phase, however this is likely to be minor and temporary. The option area is not within IMD decile 9.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	The option is unlikely to affect tourism or recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste, including excavation materials.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	Potential minor impacts on road network as a result of increased congestion during construction works. There are railway tracks and major roads within 2000m.	Best practice mitigation measures including a Traffic Management Plan to be implemented to minimise effects during construction.	0	-	0	0
SEA Metrics			Positive Negative	8 -22				Positive Negative	8 -12		

SWS_HSW_HI-ROC_WT1_CNO_test120wsw											
Test Surface Water (120) - WSW - Construction											
Southern Water											
Test Surface Water (120) - WSW - Construction											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	River Test SSSI (17.91% Favourable, 37.53% Unfavourable - Recovering, 43.52% Unfavourable - No change, 1.03% Unfavourable - Declining) and Lower Test Valley SSSI (65.15% Favourable, 34.85% Unfavourable - recovering) is within 500m of option. The option is also within a SSSI risk zone. There are also areas of woodland in proximity to option. There is potential for disturbance impacts on habitats from noise and dust pollution during construction. However, it is not clear whether there will be any expansion works as part of the option. The River Test is also a chalk river, however no direct effects anticipated. The HRA ToLS (2021) identified uncertain effects for Solent and Southampton Water SPA and Ramsar (0.5km to the east), and Solent Maritime SAC (1.5km east). It is assumed that this option takes place within the site of the existing WTW. The connectivity and control measures in terms of pollution control are unknown, so significant effects on the habitats of the nearby N2K sites, and it's qualifying feature species are uncertain. There are also uncertain effects in terms of disturbance on birds caused by the works. There is likely to be very low risk for the spread / transfer of INNS given the works are for an existing WTW site.	Best practice mitigation to minimise impacts, including preventing loss of habitat during construction. The HRA Tier 2 Enhanced Screening identified that the uncertain effects are likely to be mitigable. With the use of careful construction management, most appropriately through the use of a CEMP, it should be possible to ensure that sediment and/or pollution are both controlled and not allowed to enter into any water infrastructure that may then see it transported to the N2K sites. The CEMP would also include measures to ensure that no disturbance to bird species took place.	0	-	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The option is within Grade 5 agricultural land, there may be disturbance to the soil during the construction phase and there may also be a permanent loss as a result of the option. There is one historic landfill within 500m of the option, however there is not likely to be any effects.	Reinstate land where possible, however potential for the option to lead to the permanent loss due to construction. Best practice construction techniques around landfill.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	--	Option in in flood zone 2 and 3 which may impact on construction and there may also be operational impacts. Option is not likely to exacerbate flood risk on operation.	Best practice methods to be implemented to reduce flood risk at the construction and operational phases.	0	-	0	-

	Protect and enhance the quality of the water environment and water resources	0	-	0	0	Option is immediately adjacent to a main river and the Central Hants Bracklesham Group WFD ground water body. There is potential for impacts on the water environment, affecting water quality, during construction. The WFD Screening Assessment (2021) identified further WFD assessment is not required.	Best practice construction measures to be implemented to mitigate effects therefore residual effects are unlikely for construction phase.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+++	0	Option to provide 120ML capacity water supply. (Assumption from description)	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	There are no AQMAs within 2000m. Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	No carbon data available for the option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	This option is unlikely to have any effects on vulnerability to climate change risks and hazards.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option is within the South Hampshire Lowlands NLCA and the option is within 2000m of the New Forest National Park. There will likely be impacts on landscape character and visual amenity during the construction phase, however given this is an existing WTW site, it will likely be minor. If expansion of the site is required, operational impacts are not anticipated given it will be located adjacent to the existing site.	Best practice will be implemented to avoid negative effects, ground will be reinstated, however likely to be some disturbance to landscape during works. Implement screening and other best practice techniques to minimise operational impacts.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic	0	-	0	0	There are no historic assets within 500m of the option location. Excavation may impact archaeology, if present.	Given there is potential to impact buried archaeology, an	0	-	0	0

	environment, including archaeology						Archaeology Watching Brief may be required during the construction phase. Further work may be required to determine the significance of the effect depending on the presence / absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are no community facilities within 500m. There is potential for the local community to be affected during the construction phase, however this is likely to be minor and temporary. The option area is not within IMD decile 9.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	The option is unlikely to affect tourism or recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste, including excavation materials.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	Potential minor impacts on road network as a result of increased congestion during construction works. There are railway tracks and major roads within 2000m.	Best practice mitigation measures including a Traffic Management Plan to be implemented to minimise effects during construction.	0	-	0	0
SEA Metrics		Positive 8 Negative -22				Positive 8 Negative -12					

SWS_HSW_HI-RSR_RE1_ALL_br11											
Convert Test Lake into a surface water storage site.											
Southern Water											
Purchase Test Lake and use for additional raw water storage capacity for Test Surface Water WSW. Sub-option 1 comprises using the Lake at it's current capacity whilst sub-option 2 includes deepening the lake and the construction of embankments so that water levels can be raised. The reservoir would be filled by the Test Surface Water SWA within the existing licence and would provide additional operational flexibility and resilience during low flow periods. <i>Option has been assessed using GIS code SWS_HSE_HI-RSR_ALL_ALL_br11_Polygon_Smaller as option description does not refer to a pipeline.</i>											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	--	The option lies within SSSI Impact Risk Zones. The Solent and Southampton Water RAMSAR and SPA is within 2000m and River Test SSSI / GWDTE (17.91% favourable, 37.53% unfavourable - recovering, 43.52% unfavourable - no change, 1.03% unfavourable - declining) within 500m therefore potential for indirect effects. The option also intersects coastal floodplain grazing marsh and good quality semi-improved grassland priority habitats. The HRA ToLS identifies uncertain effects on the Solent and Southampton Water SPA/RAMSAR (1km south-east) and Solent Maritime SAC (1.8km south-east), with hydrological pathways allowing potential pollutants and sediment to enter the designated sites. High INNS operational risk, as overflows, sludge deposits and recreational use could transfer INNS to N2K sites downstream. No INNS construction risk as no construction is required.	Ecological survey prior to construction. Habitat compensation and relocation required where necessary. HRA ToLS identified uncertain impacts for Solent and Southampton Water SPA / Ramsar which are considered partially mitigated through use of best practice measures. However, it is likely that several would remain uncertain. It would be necessary to understand how the habitats at and around the lake function alongside the sites. LSE identified for Solent Maritime SAC are considered mitigatable through best practice measures. HRA AA required to assess uncertain impacts on Solent and Southampton Water SPA/RAMSAR. Increasing lake capacity may improve aquatic habitat.	0	--	0	--
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	Agricultural land is classed as Grade 4. There is not anticipated to be permanent land take associated with this option. Historic and authorised landfills within 2000m, however no direct impact.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	-	0	-	The option lies within flood zones 2 and 3 therefore impact during construction and operation. There are flood defences present on the River test and other surrounding waterbodies.	N/A	0	-	0	-

	Protect and enhance the quality of the water environment and water resources	0	--	0	--	The option lies upon the Central Hants Bracklesham Group WFD groundwater body and a nitrate vulnerable zone. There is potential for construction and operational effects. WFD screening (2020) suggests two waterbodies require further assessment.	Implement pollution prevention and control measures and ongoing water monitoring.	0	--	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	The additional raw water storage will improve resilience during low flow periods.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	The option is not within an AQMA. There is likely to be increase in air emissions associated with construction activity.	Implement best practice methods to minimise effects, however residual effects likely to remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	---	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has major construction and minor operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	---	0	--
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	No changes to water levels anticipated so no change in climate change vulnerability anticipated.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option lies within the South Hampshire Lowlands National Landscape Character Area. There is potential for negative effects during the construction phase.	N/A	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There is one listed buildings within 500m. There is potential that the setting of this may be affected during the construction works.	N/A	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are no community facilities within 500m of the option location. There is potential for minor and temporary disruption to the wider community during the construction phase. IMD deciles 7/8 for entire option.	Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	There are no known recreational facilities within 500m. The construction phase may lead to the diversion of public rights of way and there may be some disruption to recreational opportunities at Test Lake if it is open to public.	Best practice measures will likely be implemented to minimise disturbance during construction. However, moderate yet temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	There may be additional infrastructure required as part of this option which will use materials and generate waste.	Opportunity to implement sustainable design measures and reuse excavated material on site, to reduce impact.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	No likely negative effects on built assets and infrastructure anticipated.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still remain.	0	0	0	0
SEA Metrics			Positive Negative	1 -38				Positive Negative	1 -36		

Convert and extend Test Lake into a surface water storage site.											
Southern Water											
Purchase Test Lake and use for additional raw water storage capacity for Test Surface Water WSW. Sub-option 1 comprises using the Lake at it's current capacity whilst sub-option 2 includes deepening the lake and the construction of embankments so that water levels can be raised. The reservoir would be filled by the Test Surface Water SWA within the existing licence and would provide additional operational flexibility and resilience during low flow periods. <i>Option has been assessed using GIS code SWS_HSE_HI-RSR_ALL_ALL_br12_Polygon_Larger as option description does not refer to a pipeline.</i>											
Convert and extend Test Lake into a surface water storage site.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	--	The option lies within SSSI Impact Risk Zones. The Solent and Southampton Water RAMSAR and SPA is within 2000m and River Test SSSI / GWDTE (17.91% favourable, 37.53% unfavourable - recovering, 43.52% unfavourable - no change, 1.03% unfavourable - declining) within 500m therefore potential for indirect effects. The option also intersects coastal floodplain grazing marsh and good quality semi-improved grassland priority habitats. The HRA ToLS identifies uncertain effects on the Solent and Southampton Water SPA/RAMSAR (1km south-east) and Solent Maritime SAC (1.8km south-east), with hydrological pathways allowing potential pollutants and sediment to enter the designated sites. High INNS operational risk, as overflows, sludge deposits and recreational use could transfer INNS to N2K sites downstream. No INNS construction risk as no construction is required.	Ecological survey prior to construction. Habitat compensation and relocation required where necessary. HRA ToLS identified uncertain impacts for Solent and Southampton Water SPA / Ramsar which are considered partially mitigated through use of best practice measures. However, it is likely that several would remain uncertain. It would be necessary to understand how the habitats at and around the lake function alongside the sites. Uncertain effects for Solent Maritime SAC are considered mitigatable through best practice measures. HRA AA required to assess uncertain impacts on Solent and Southampton Water SPA/RAMSAR. Increasing lake capacity may improve aquatic habitat.	0	--	0	--
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	Agricultural land is classed as Grade 4. There is not anticipated to be permanent land take associated with this option. Historic and authorised landfills within 2000m, however no direct impact.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	-	0	-	The option lies within flood zones 2 and 3 therefore impact during construction and operation. There are flood defences present on the River test and other surrounding waterbodies.	N/A	0	-	0	-

	Protect and enhance the quality of the water environment and water resources	0	--	0	--	The option lies upon the Central Hants Bracklesham Group WFD groundwater body and a nitrate vulnerable zone. There is potential for construction and operational effects. WFD screening (2020) suggests two waterbodies require further assessment.	Implement pollution prevention and control measures and ongoing water monitoring.	0	--	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	The additional raw water storage will improve resilience during low flow periods.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	The option is not within an AQMA. There is likely to be increase in air emissions associated with construction activity.	Implement best practice methods to minimise effects, however residual effects likely to remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	---	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has major construction and minor operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	---	0	--
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	The option aims to increase the capacity of the lake and as such may increase the resilience of the local environment to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option lies within the South Hampshire Lowlands National Landscape Character Area. There is potential for negative effects during the construction phase.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There is one listed buildings within 500m. There is potential that the setting of this may be affected during the construction works.	Best practice measures will likely be implemented to minimise setting effects during construction.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are no community facilities within 500m of the option location. There is potential for minor and temporary disruption to the wider community during the construction phase. IMD deciles 7/8 for entire option.	Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	There are no known recreational facilities within 500m. The construction phase may lead to the diversion of public rights of way and there may be some disruption to recreational opportunities at Test Lake if it is open to public.	Best practice measures will likely be implemented to minimise disturbance during construction. However, moderate yet temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	There may be additional infrastructure required as part of this option which will use materials and generate waste.	Opportunity to implement sustainable design measures and reuse excavated material on site, to reduce impact.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	No likely negative effects on built assets and infrastructure anticipated. The M27 is north of the option location, however no impacts anticipated.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still remain.	0	0	0	0
SEA Metrics			Positive Negative	1 -34					Positive Negative	1 -36	

SWS_HSW_HI-TFR_KVZ_ALL_readtestraw											
Thames to Southern Transfer Reading to Test Surface Water Raw - Real Group											
Southern Water											
Raw water transfer from existing Reading WTW to the existing Test Surface Water WTW. 120MI/d transfer capacity with the following offtakes: 10-20MI/d offtake to the existing near Basingstoke WSW, 10-20MI/d offtake to Andover, 10-20MI/d offtake to SEW at the existing Northgate WSR. Treatment within SRN/SEW supply area.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	The scheme intersects the Solent and Southampton Ramsar site and two SSSIs: Lower Test Valley and River Test (a chalk stream). There could be direct habitat loss and disturbance for species during construction. Land will be reinstated above the pipeline but habitats and species disturbed may take time to recover. There are a number of additional SACs, an SPA, SSSIs and LNRs within 500m and 2000m. There are likely to be disturbance effects during construction. The majority of the sites are also GWDTE. The route also intersects eight ancient woodlands and a variety of priority habitats including coastal and floodplain grazing marsh, deciduous woodland and good quality semi-improved grassland. There is likely to be direct loss of this habitat, although certain habitat types can be reinstated following construction of the pipeline. Operation is unlikely to have effects unless maintenance is required within designated sites. The HRA ToLS concluded that a HRA Appropriate Assessment will be required for a number of the designated sites including those mentioned above and others that are further away but potentially hydrologically linked. This is a raw water transfer and therefore, there is potential for INNS transfer.	Investigate feasibility of directional drilling under the designated river sites. Detailed ecological surveys and assessment will be required. Introduce habitat compensation, relocation schemes, and habitat creation where required. HRA Appropriate Assessment required for a number of designated sites. Undertake INNS risk assessment.	0	--	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The scheme intersects two authorised landfill sites and five historic landfills. Agricultural land classification ranges from grades 1-6 but the majority would be reinstated above the pipeline. Pollution of soils may be possible during construction, with permanent land take possibly required for construction of pumping stations and other above ground structures.	Pollution prevention and control measures to reduce likelihood of contaminants leaching through soil and entering groundwater.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	Parts of the scheme lie in flood zones 2 and 3 and therefore, there is a risk of flooding during construction works. Operational effects are unlikely.	Measures to reduce the impact of flooding during the construction phase is likely to be implemented, however potential residual flood risk likely to remain.	0	-	0	0

	Protect and enhance the quality of the water environment and water resources	0	--	0	0	The scheme intersects SPZ1 and 2, as well as nine WFD groundwater bodies. The site also lies within a nitrate vulnerable zone and crosses several rivers. Potential for water quality effects during construction. The WFD phase 1 screening concluded that further WFD assessment is required for the Sulham Brook (assuming directional drilling for most rivers)	Pollution Prevention and control measures to reduce likelihood of contaminants leaching through soil and entering groundwater. Bedding material designed so as not to form preferential pathway for groundwater. Directional drilling used where possible. Further WFD assessment required.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+++	0	The scheme will improve water transfer across regions, improving water resource management and resilience of supply.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	The route does not pass through or near any AQMAs. Vehicle emissions and dust from construction activities will be generated but effects will be short-term.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	---	Carbon will be generated from materials used to construct the pipeline (embodied carbon), construction activities and from operation (e.g. pumping stations). The relative carbon scale identified that the options has minor construction and major operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	---
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The scheme will contribute to improved water resources management, providing potential security in future drought scenarios.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	-	The site intersects the North Wessex Downs AONB and four NCAs. Construction will result in visual effects, however, the majority of the pipeline infrastructure will be below ground and land reinstated above it. The WSR and treatment works at the end of the route/offtake routes are existing and it is assumed that any upgrade works would be within the existing operational site boundaries (full options details have yet to be determined).	Best practice measures to reduce visual impact during construction. Construction to be conducted in phases so visual disturbance will be temporary at each location. Pipeline will be buried once constructed but pumping stations and other above ground structures may require screening. Once further option detail on WSR and treatment works upgrades are determined effects should be reviewed.	0	-	0	0

Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	---	0	-	There are numerous listed buildings within 500m of the route and several scheduled monuments. The scheme intersects three registered parks and gardens and runs along the boundary of a scheduled monument. During construction there will temporary effects on the setting of these assets and direct impacts on the three registered parks and gardens. There is also potential to uncover archaeology during excavation works for the pipeline. The majority of the pipeline infrastructure is underground and land will be reinstated above, therefore, operational effects on setting are unlikely. It is not clear where pumping stations will be located and whether these will be near historic assets.	Best practice measures during construction. Siting of pumping stations away from historic assets. Re-route pipeline around registered parks and gardens.	0	-	0	0
	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	---	0	0	The scheme intersects a golf course, two playing fields, Ashe Park, Main Road Methodist church, and the boundary of two schools, and is within 500m of additional community facilities. Therefore, construction is likely to have a significant impact on the local community. Land will be reinstated following construction.	Re-route pipeline around community assets if possible. If not liaison with affected asset owners required. Best practice construction methods to reduce amenity effects for the community. Potential opportunities to enhance local areas when reinstating land.	0	--	+	0
Population and Human Health	Maintain and enhance tourism and recreation	0	-	0	0	The scheme intersects two cycle routes and a sports facility, therefore causing temporary disruption during construction. Land will be reinstated and it is likely that diversions would be put in place. However, the sports facility may need to temporarily close.	Best practice construction methods to minimise disruption and appropriate use of diversions and signage. Divert route around sports facility.	0	-	0	0
	Minimise resource use and waste production	0	--	0	0	The pipeline construction will require materials and resource use. Excavated material is likely to be reused onsite.	Opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain. Sourcing of materials locally where possible.	0	-	0	0
Material Assets	Avoid negative effects on built assets and infrastructure	0	--	0	0	The scheme intersects motorways and several A-roads and three railway lines potentially causing disruption during construction. It is likely that directional drilling would be implemented under the railways and motorways. Potential road closures on smaller roads may cause disruption. Operational effects are unlikely as the pipeline will be underground.	Use of directional drilling where possible to minimise disruption.	0	-	0	0
SEA Metrics			Positive Negative	9 -55				Positive Negative	11 -26		

SWS_HSW_HI-TFR_SWB_ALL_bs_kna_westi											
Bournemouth Water supply from import from Bournemouth Water											
Southern water											
This option proposes a transfer from Bournemouth Water's Import from Bournemouth Water WSW on the River Avon at Christchurch around the New Forest to Test Surface Water WSW within Hampshire Southampton West WRZ. The pipeline route has been selected to avoid designated areas and the New Forest National Park as much as possible and 22h/d operation.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	<p>The proposed pipeline for the option intersects Whiteparish Common SSSI (93.11% Favourable, 6.89% Unfavourable - Recovering). There may be direct impacts on protected habitats resulting from construction as excavation will be required. The following SSSIs are also within 500m of pipeline is The New Forest SSSI (54.68% favourable, 41.65% unfavourable - recovering, 2.11% unfavourable - no change, 1.55% unfavourable - declining, 0.01% destroyed), Lower Test Valley SSSI (65.15% favourable, 34.85% unfavourable - recovering) and River Test SSSI (17.91% favourable, 37.53% unfavourable - recovering, 43.52% unfavourable - no change, 1.03% unfavourable - declining) all of which are GWDTE. The option is within a SSSI risk zone. New Forest SAC, SPA and Ramsar, Solent and Southampton Ramsar and SPA and Ramsar, River Avon SAC, and Avon Valley Ramsar and SPA are also within 500m. Langley Wood NNR is within 2000m. No direct impact to these sites but likely to be disturbance impacts from noise and dust pollution. The option crosses chalk rivers, however, no abstraction. The pipeline passes through priority habitat, woodland and ancient woodland therefore potential for direct effects at the construction phase.</p> <p>The HRA Tols (2021) identified Likely Significant Effects from construction phase on the following N2K sites: Avon Valley SPA, Avon Valley Ramsar, River Avon SAC, The New Forest SAC, SPA and Ramsar, Solent Maritime SAC, Solent and Southampton Water SPA and Ramsar. This option would require direct habitat loss, as it is located partly within the designated sites. Indirect effects due to disturbance would also be likely. The ToIs also identified Uncertain Effects on Dorset Heaths SAC due to potential disturbance caused during construction. No likely significant effects were identified for Dorset Heathland SPA and Ramsar, and Emer Bog SAC.</p> <p>The risk of the movement / transfer of INNS is very low.</p>	Best practice mitigation to minimise impacts and reinstatement /compensation of habitats however it is not possible to mitigate for the loss of habitat that the installation of this pipeline would require. Future design will need to undertake ecology surveys. HRA Tier 2 screening identified that the likely significant effects identified for Avon Valley SPA and Ramsar, and River Avon SAC, to be mitigable as it is not possible to mitigate the loss of habitat that the installation of this pipeline would require. It is uncertain whether the likely significant effects identified for New Forest SPA, SAC and Ramsar are mitigable due to the proximity of the pipeline over a significant distance. Uncertain effects for Dorset Heath SAC is identified to be mitigable with a robust CEMP. Moderate negative effects therefore remain for the construction phase.	0	--	0	0

Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	Option intersects 2,3,4 and non-agricultural land, there is likely to be direct impacts on soil during construction phase as excavation will be required for laying of pipeline. Option is within close proximity historic landfill sites, and there are also authorised landfill sites within 500m, risk of contamination during construction.	Ground will be reinstated therefore residual effects unlikely. Best practice methods for working in historic landfill sites.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	Large section of the pipeline is within FZ2 and FZ3. There may be a temporary increased risk in flooding during construction. Impacts on operation unlikely given the pipeline is buried. The pipeline is unlikely to increase the risk of flooding.	Measures to reduce the impact on flooding during the construction phase are likely to be implemented, to minimise risk of flooding. Directional drilling through flood defences.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	Pipeline crosses waterways, including main rivers and chalk rivers. There is potential for water quality impacts as a result of construction which could impact WFD status. Pipeline passes through a SPZ, zone 3. WFD Screening Assessment (2021) identified further WFD assessment is not required.	Best practice construction measures will likely be implemented.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option is for 22h/d operation. Quantity of water supplied to Test Surface Water up to 20MI/d.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	The option does not pass through any AQMAs. Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	No carbon data is available for this option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Option unlikely to affect resilience of the local environment to climate change.	N/A	0	0	0	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	Pipeline passes through New Forest National Park. Minor negative effects on visual amenity during construction is likely.	Ground will be reinstated following pipeline construction therefore residual effects unlikely. Measures to reduce the visual impact during construction e.g. screening could be implemented, however residual effects remain.	0	-	0	0
	Historic Environment	0	-	0	0	Several listed buildings and conservation areas within 500m of pipeline route, construction may affect the setting of historic assets, however this is likely to be temporary and minimal. There is potential for the excavation of the pipeline to impact buried archaeology.	Best practice mitigation measures will likely be implemented to minimise setting effects during construction. Archaeological Watching Brief may be required during the construction phase.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The pipeline intersects housing estates and parks, pipeline to be buried but there may be potential temporary impacts during construction. There are several important buildings within 500m of proposed pipeline including schools, medical facilities and religious buildings. There is likely to be minimal and temporary disturbance effects on the local community and users of these facilities during construction phase. IMD deciles along the pipeline vary between 1-10. There are two Noise Action Planning Important Area in close proximity to pipeline which may be affected during construction.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The pipeline is within 500m of golf courses, play spaces, and green spaces that may be used for recreation. There may be diversions to public rights of way during the construction phase. There is likely to be minimal and temporary disturbance effects on the local community and users of these areas during construction.	Best practice mitigation measures will likely be implemented to minimise effects during construction, however some disruption is likely to remain.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New pipeline infrastructure required for option which will use materials.	Opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The pipeline crosses major roads. There is likely to be moderate and temporary impacts during the construction phase from disruption for users (e.g. road closures, diversions).	Best practice mitigation measures will likely be implemented to minimise effects during construction and roads will be reinstated above the pipeline. However, minor and temporary effects are likely to still occur. Directional drilling under the railway is likely.	0	-	0	0
SEA Metrics		Positive 1 Negative -32				Positive 1 Negative -15					

SWS_HSW_HI-TFR_SWX_ALL_cultestraw											
Thames to Southern Transfer Culham to Test Surface Water Raw - Real Group											
Southern Water											
Raw water transfer from Culham (SESRO scheme) to the existing Test Surface Water WTW. 120MI/d transfer capacity with the following offtakes: 10-20MI/d offtake to the existing near Basingstoke WSW, 10-20MI/d offtake to Andover, 10-20MI/d offtake to SEW at the existing Northgate WSR. Treatment within SRN/SEW supply area.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	The pipeline route intersects a number of designated sites including: Solent and Southampton Water Ramsar site, two SACs and five SSSIs: Kennet and Lambourn Floodplain SAC and SSSI, River Kennet SSSI, River Lambourn SAC and SSSI, River Test SSSI, and Lower Test Valley SSSI (the rivers are all classed as chalk streams). There could be direct habitat loss and disturbance for species during construction. Land will be reinstated above the pipeline but habitats and species disturbed may take time to recover. There are a number of additional SACs, an SPA, SSSIs and LNRs within 500m and 2000m. There are likely to be disturbance effects during construction. The majority of the sites are also GWDTE. The route also intersects 11 ancient woodlands and a variety of priority habitats including coastal and floodplain grazing marsh, deciduous woodland and good quality semi-improved grassland. There is likely to be direct loss of this habitat, although certain habitat types can be reinstated following construction of the pipeline. Operation is unlikely to have effects unless maintenance is required within designated sites. The HRA ToLS concluded that a HRA Appropriate Assessment will be required for a number of the designated sites including those mentioned above and others that are further away but potentially hydrologically linked. This is a raw water transfer and therefore, there is potential for INNS transfer.	Investigate feasibility of directional drilling under the designated river sites. Detailed ecological surveys and assessment will be required. Introduce habitat compensation, relocation schemes, and habitat creation where required. HRA Appropriate Assessment required for a number of designated sites. Undertake INNS risk assessment.	0	--	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The scheme intersects seven historic landfills. Agricultural land is classed as Grades 1-4 but the majority would be reinstated above the pipeline. Pollution of soils may be possible during construction, with permanent land take possibly required for construction of pumping stations and other above ground structures.	Pollution prevention and control measures to reduce likelihood of contaminants leaching through soil and entering groundwater.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	Parts of the scheme lie in flood zones 2 and 3 and therefore, there is a risk of flooding during construction works. Operational effects are unlikely.	Measures to reduce the impact of flooding during the construction phase is likely to be implemented, however potential	0	-	0	0

							residual flood risk likely to remain.				
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	The scheme intersects SPZ1 and 2, as well as eight WFD groundwater bodies. The site also lies within a nitrate vulnerable zone and crosses several rivers. Potential for water quality effects during construction. The WFD phase 1 screening concluded that further WFD assessment is required for the Cow Common Brook and Portobello Ditch (assuming directional drilling for most rivers)	Pollution Prevention and control measures to reduce likelihood of contaminants leaching through soil and entering groundwater. Bedding material designed so as not to form preferential pathway for groundwater. Directional drilling used where possible. Further WFD assessment required.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+++	0	The scheme will improve water transfer across regions, improving water resource management and resilience of supply.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	The route does not pass through or near any AQMAs. Vehicle emissions and dust from construction activities will be generated but effects will be short-term.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	---	Carbon will be generated from materials used to construct the pipeline (embodied carbon), construction activities and from operation (e.g. pumping stations). The relative carbon scale identified that the options has minor construction and major operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	---
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The scheme will contribute to improved water resources management, providing potential security in future drought scenarios.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	-	The site intersects the North Wessex Downs AONB and five NCAs. Construction will result in visual effects, however, the majority of the pipeline infrastructure will be below ground and land reinstated above it. The WSR and treatment works at the end of the route/offtake routes are existing and it is assumed that any upgrade works would be within the existing operational site boundaries (full options details have yet to be determined).	Best practice measures to reduce visual impact during construction. Construction to be conducted in phases so visual disturbance will be temporary at each location. Pipeline will be buried once constructed but pumping stations and other above ground structures may require screening. Once further option detail on WSR and treatment works upgrades are determined effects should be reviewed.	0	-	0	0

Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	-	There are numerous listed buildings within 500m of the route and several scheduled monuments. There is also a registered battlefield (Battle of Newbury 1643) and five registered parks and gardens within 500m of the scheme. There are unlikely to be direct affects, although the route is adjacent to several of the identified assets. During construction there will temporary effects on the setting of these assets. There is also potential to uncover archaeology during excavation works for the pipeline. The majority of the pipeline infrastructure is underground and land will be reinstated above, therefore, operational effects on setting are unlikely. It is not clear where pumping stations will be located and whether these will be near historic assets.	Best practice measures during construction. Siting of pumping stations away from historic assets.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The scheme intersects a gold course and the boundary of a primary school. Construction may require the closure of the golf course and school playing fields. The route is also within 500m of allotments, churches, schools, a playing field and a cemetery. Construction is likely to cause noise and visual disruption for users of these assets. Land will be reinstated following construction.	Liaison with golf and primary school if route cannot be re-routed around these assets. Best practice construction methods to reduce amenity effects for the community. Potential opportunities to enhance local areas when reinstating land.	0	-	+	0
	Maintain and enhance tourism and recreation	0	-	0	0	The scheme intersects the Ridgeway National Trail, sports facility and three cycle routes, therefore causing temporary disruption during construction. Land will be reinstated and it is likely that diversions would be put in place. However, the sports facility may need to temporarily close.	Best practice construction methods to minimise disruption and appropriate use of diversions and signage. Divert route around sports facility.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	--	0	0	The pipeline construction will require materials and resource use. Excavated material is likely to be reused onsite.	Opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain. Sourcing of materials locally where possible.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The scheme intersects several motorways and A-roads and two railway lines potentially causing disruption during construction. It is likely that directional drilling would be implemented under the railways and motorways. Potential road closures on smaller roads may cause disruption. Operational effects are unlikely as the pipeline will be underground.	Use of directional drilling where possible to minimise disruption.	0	-	0	0
SEA Metrics			Positive	9				Positive	11		
			Negative	-44				Negative	-23		

SWS_HSW_RE-DRO_ALL_ALL_di-hsw											
TUBS and NEU Ban - HSW WRZ											
Southern water											
Temporary use bans and Non-essential use bans											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Temporary use bans and non-essential use bans in Hampshire Southampton West may help protect GWDTE and priority habitat by conserving water in the environment. The HRA Tols (2021) indicated the following Natura sites that may be affected: Salisbury Plain SAC (Distance N/A); Mottisfont Bats SAC (Distance N/A); Emer Bog SAC (Distance N/A); River Itchen SAC (Distance N/A); Solent & Southampton Water RAMSAR (Distance N/A); Solent & Southampton Water SPA (Distance N/A); Solent Maritime SAC (Distance N/A); The New Forest SAC (Distance N/A). The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to sites which ecosystems are dependent upon ground and surface water. No INNS risk/transfer associated with this option. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	A temporary use ban and non-essential use ban may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of several water bodies. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	By reducing demand through temporary use band and non-essential use ban, option maintains resilience of water for essential services.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available. Neutral effects identified.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The option is for a temporary use ban and non-essential use ban. By reducing demand and potentially reducing abstraction the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented in drought conditions, it will not result in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of private gardens, and use of ornamental fountains etc will be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to have a significant effect on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Temporary use ban and non-essential use ban is likely to have minor negative effects on the community and social well-being as there will be restrictions on irrigation of gardens and allotments and use of water for recreational purposes. There may also be a small increased risk of fires in allotments as vegetation dries out.	Allowing allotments limited supplies of water. Ensuring high levels of communication before, during and following the implementation of these measures.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Assuming commercial properties including gardens are exempt from bans and restrictions there is likely to be only a minor effect on tourism and recreation. Non-commercial tourism sites may be affected.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effect on waste production or resource use.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effects on built assets and infrastructure.	N/A	0	0	0	0
SEA Metrics											
				Positive	4					Positive	4
				Negative	-3					Negative	-3

SWS_HSW_RE-DRO_ALL_ALL_do_di_eme_regi											
Emergency restrictions: Hampshire Southampton West											
Southern water											
<p>Drought Option: Emergency Drought Orders allow water companies to restrict supplies to customers through the imposition of rota cuts and/or the introduction of standpipes. These measures exist to deal with the very remote possibility of a drought much worse than any seen in the last century or more in the UK. Emergency Drought Orders have not been put in place in the UK since 1976. Ministers have made it clear that such measures should be avoided at all costs and introduced only as a last resort. The Company will make full use of all other measures before considering whether the severity of drought conditions mean that Emergency Drought Orders might be required. The full range of measures available under Emergency Drought Order include powers: To limit the use of water for such purposes as it considers necessary (i.e. further measures not specified in the Drought Direction 2011); To introduce rota cuts; and To set up, and supply water by means of, stand-pipes or water tanks. Level of intervention for this option: Unprecedented drought conditions. We intend the need for these to only arise in conditions of civil emergency and as such our emergency plan covers this in more detail.</p>											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) identified no likely significant effects for the N2K sites within the Hampshire Southampton West WRZ: New Forest SAC, SPA and Ramsar; Solent Maritime SAC; Solent and Southampton Water SPA and Ramsar; and Emer Bog SAC. The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to sites which ecosystems are dependent upon ground and surface water. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Emergency restrictions may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is only to be used in severe drought circumstances so is therefore not likely to affect flood risk or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0

	Deliver reliable and resilient water supplies	0	0	++	0	Option maintains resilience of water for essential services.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available. Neutral effects identified.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have temporary effects on visual amenity as restricted water use may impact parks and gardens reliant on public water supply.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	---	Emergency restrictions such as rota cuts and imposition of standpipes may have major negative effects on social well-being, with the potential for breakdown of social cohesion and impacts on public health. Imposition of standpipes will particularly effect people with limited mobility or other disabilities. Businesses that use water and do not have access to private water supply will be largely affected with the potential for substantial economic losses. There may also be an increased risk of fires as public access to water is restricted.	Ensure high level of communication with customers before, during and after the restrictions have been imposed.	0	0	0	---
	Maintain and enhance tourism and recreation	0	0	0	--	Tourism and recreation is likely to be affected as water restrictions may force some tourist attractions and recreational activities to temporarily close.	N/A	0	0	0	--
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 7 Negative -13				Positive 7 Negative -13					

SWS_HSW_RE-DRO_ALL_ALL_si_canmit											
Mitigation and monitoring activities for Candover (enabling option, no DO benefit)											
Southern Water											
No option description or GIS provided. Assessed based on the option name at this stage.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	No new infrastructure is anticipated associated with the option therefore no direct impacts are anticipated. The mitigation and monitoring activities are not specified at this stage and the exact location is unknown, however there is potential that these could benefit biodiversity and ecology. HRA ToLS (2021) identified no likely significant effects for River Itchen SAC. Mitigation and monitoring measures have the potential to have positive effects on river habitats and species which in turn may benefit the N2K site. Low risk of INNS transfer assumes good working practice during mitigation and monitoring activities. For example, the use of vircon before entering a water course, cleaning/maintaining equipment and the correct handling and disposal of any water or biological samples.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	As there is no new infrastructure likely to be associated with this option, no effects on soils are anticipated.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No effects on flood risk are anticipated as a result of this option. It is not anticipated that the option will be affected by flood risk as there is not likely to be any infrastructure.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	--	There is not anticipated to be any new infrastructure and it is not clear what the mitigation and monitoring activities entail or the exact location of where these will be implemented. However, there is potential for positive effects on the water environment of the River Candover. The WFD (2021) screening assessment identified that further WFD assessment is required for the Candover Brook as a result of operational effects.	Undertake further WFD assessment.	0	0	+	--
	Deliver reliable and resilient water supplies	0	0	+	0	It is not clear what the monitoring and mitigation activities will entail, however there is potential that these activities will help to secure resilient supplies.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	0	0	0	It is not anticipated that the option will have any effects on air quality as there is not likely to be any infrastructure associated with the option.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No embodied or operational carbon available for this option. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	There is potential that the climate resilience of the local environment will be improved as a result of the mitigation and monitoring activities. It is not clear what these measures will entail, however if water levels are being monitored and mitigation put in place to prevent further abstraction then there is potential for benefits.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	It is not anticipated that the option will have any effects on landscape as there is not likely to be any infrastructure associated with the option.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	It is not anticipated that the option will have any effects on historic environment as there is not likely to be any infrastructure associated with the option.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	It is not anticipated that the option will have any effects on local communities as there is not likely to be any infrastructure associated with the option.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	+	0	It is unknown what the mitigation and monitoring activities are at this stage. However, there is potential that water based recreational activities along the River Candover, such as angling or boating, could be improved if water levels are monitored and mitigation is put in place.	N/A	0	0	+	0
Material Assets	Minimise resource use and waste production	0	0	0	0	It is not anticipated that the option will have any effects on resource use or waste as there is not likely to be any infrastructure associated with the option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	It is not anticipated that the option will have any effects on built assets and infrastructure as there is not likely to be any infrastructure associated with the option.	N/A	0	0	0	0
SEA Metrics			Positive Negative	5 -4				Positive Negative	5 -4		

SWS_HSW_RE-DRO_ALL_ALL_si_tesmit											
Mitigation and monitoring activities on the Test (enabling option, no DO benefit)											
Southern Water											
No option description or GIS provided. Assessed based on the option name at this stage.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	No new infrastructure is anticipated associated with the option therefore no direct impacts are anticipated. The mitigation and monitoring activities are not specified at this stage and the exact location is unknown, however there is potential that these could benefit biodiversity and ecology. The River Test is a SSSI (17.91% favourable, 37.53% unfavourable - no change, 43.52% unfavourable - no change, 1.03% unfavourable - declining), therefore potential that monitoring and mitigation will have beneficial effects on the SSSI, and there is potential that other designated sites may also benefit depending on the locations and the activities involved. HRA ToLS (2021) identified no likely significant effects on Solent & Southampton Water Ramsar and SPA, and Solent Maritime SAC. Mitigation, such as restoration works, and monitoring activities have the potential to benefit in river habitats and species which in turn may benefit the N2K sites. Low risk of INNS transfer assumes good working practice during mitigation and monitoring activities. For example, the use of vircon before entering a water course, cleaning/maintaining equipment and the correct handling and disposal of any water or biological samples.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	As there is no new infrastructure likely to be associated with this option, no effects on soils are anticipated.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No effects on flood risk are anticipated as a result of this option. It is not anticipated that the option will be affected by flood risk as there is not likely to be any infrastructure.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	There is not anticipated to be any new infrastructure and it is not clear what the mitigation and monitoring activities entail or the exact location of where these will be implemented. However, there is potential for positive effects on the water environment of the River Test.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	It is not clear what the monitoring and mitigation activities will entail, however there is potential that these activities will help to secure resilient supplies.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	0	0	0	It is not anticipated that the option will have any effects on air quality as there is not likely to be any infrastructure associated with the option.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No embodied or operational carbon available for this option. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	There is potential that the climate resilience of the local environment will be improved as a result of the mitigation and monitoring activities. It is not clear what these measures will entail, however if water levels are being monitored and mitigation put in place to prevent further abstraction then there is potential for benefits.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	It is not anticipated that the option will have any effects on landscape as there is not likely to be any infrastructure associated with the option.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	It is not anticipated that the option will have any effects on historic environment as there is not likely to be any infrastructure associated with the option.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	It is not anticipated that the option will have any effects on local communities as there is not likely to be any infrastructure associated with the option.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	+	0	It is unknown what the mitigation and monitoring activities are at this stage. However, there is potential that water based recreational activities along the River Test, such as angling or boating, could be improved if water levels are monitored and mitigation is put in place.	N/A	0	0	+	0
Material Assets	Minimise resource use and waste production	0	0	0	0	It is not anticipated that the option will have any effects on resource use or waste as there is not likely to be any infrastructure associated with the option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	It is not anticipated that the option will have any effects on built assets and infrastructure as there is not likely to be any infrastructure associated with the option.	N/A	0	0	0	0
SEA Metrics											
				Positive	5					Positive	5
				Negative	0					Negative	0

SWS_HSW_RE-OTH_REP_ALL_bs_kmt_resil											
Reduce transfer to other commercial customers: Hampshire Southampton West											
Southern Water											
Drought Option: In the event of a drought the Company would hold discussions with a commercial customer with regards to the resources position and their supply.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option may reduce the amount of water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during drought conditions and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) indicated no likely significant effect on Natura 2000 sites.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	There is not anticipated to be any effects on soil quality as a result of this option.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is not likely to be affected by flooding or lead to the exacerbation of flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and is only to be implemented in drought conditions. Option aims to reduce the water required for supply to other commercial customers, therefore potentially resulting in a reduction in abstraction. WFD assessment (2020) states no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to commercial companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the resilience of supply for these commercial customers.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	No effect on air emissions is anticipated from this option.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data has been provided for this option. Neutral effects have been identified at this stage.	N/A	0	0	0	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to commercial companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water within the natural environment. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	-	The reduction in the amount of water supplied to commercial customers may have an impact on the local economy if they are not able to carry out their business activity or have to operate at a reduced capacity. However, there is potential that the wider population will benefit from this option.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	+	-
	Maintain and enhance tourism and recreation	0	0	0	-	Given the option is to reduce the transfer of water for commercial customers, tourism and recreation could be affected if these customers rely on water to support these activities.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 5 Negative -3				Positive 5 Negative -3					

SWS_HSW_RE-OTH_REP_ALL_bs_vws_resil											
Reduce transfer to other water companies: Hampshire Southampton West											
Southern Water											
Drought Option: In the event of a drought the Company would hold discussions with neighbouring Companies with regards to their resources position and their supply. There are three main bulk transfers to the South East: its entitlement to 25% of the yield of the River Medway Scheme, the Sheldwich Scheme, and the Bewl-Darwell transfer. This option considers reduction of the transfer from Veolia Water Southeast to SWS Kent Thanet. The trigger for this would be when rainfall and groundwater level trigger is exceeded and/or if veolia Water Southeast is not affected as much as Kent Thanet WRZ.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Given the option reduces the transfer of water to other companies in the event of a drought, there is potential that water will be retained within the natural environment. Ecosystems may already be under severe stress therefore additional water retained in the natural environment will be beneficial. The HRA ToLS (2021) identified that the option unlikely to impact Hampshire Southampton West WRZ N2K sites (New Forest SPA, SAC and Ramsar), as scheme is geographically separated from WRZ. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The option may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	It is not likely the option will affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply to other water companies, therefore may result in a reduction in abstraction. WFD assessment (2020) identified no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to other water companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the other water companies.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available for this option. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to other companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	The reduction in the amount transferred to other water companies may have some effects on the wider population outside of Southern Water's boundary. However, this will only occur where groundwater levels are exceeded and if the Veolia Water Southeast is not affected as much as SWS Kent Thanet WRZ.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation has the potential to be affected if the reduction in water to other companies results in restrictions for water based activities.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -3				Positive 4 Negative -3					

SWS_HSW_RE-TFR_IKT_ALL_do_si_tan_resil											
Tankering: Hampshire Southampton West											
Southern											
Tankering water from adjacent WRZs or other water companies would be considered in severe droughts. Can be applied on a WRZ basis.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	Depending on the number of vehicles required for the operation, an increase in emissions may have negative impacts on nearby habitat.	Emission levels can be mitigated by using low emission vehicles (including electric vehicles) and strategic timing of transport e.g. avoiding driving lorries during rush hour.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option will supply water to Southampton West in an emergency circumstance of severe drought.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	--	Option will cause an increase in emissions during transportation of water. This option is only to be implemented in severe circumstances therefore an increase in emissions will only be temporary.	Emission levels can be mitigated by using low emission vehicles (including electric vehicles) and strategic timing of transport e.g. avoiding driving lorries during rush hour.	0	0	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	-	There is no carbon data available for this option. There may be some negative effects from an increase in carbon emissions associated with tankering, however these are anticipated to be minor due to the temporary nature of the option.	Option only to be implemented in severe drought, emissions can be mitigated for by using low emission vehicles.	0	0	0	-

	Reduce vulnerability to climate change risks and hazards	0	0	0	0	This option is to be used only in severe drought and not a long term option. It will not affect resilience to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Visual amenity may be affected by an increase in lorries on the roads. This option is only to be implemented in severe circumstances therefore effects on visual amenity will be temporary.	Can be mitigated by strategic timing of transport of tankers.	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	-	Increased traffic may impact on built heritage e.g. conservation areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	Can be mitigated by strategic timing of transport of tankers.	0	0	0	-
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Route is not outlined in option description, but there is a potential for noise from vehicles and an increase in air pollution to cause disturbances in populated areas. This option provides water in an emergency drought situation and is likely to be accompanied with water usage restrictions.	Can be mitigated by strategic timing of transport of tankers e.g. avoiding driving tankers during rush hour.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Route is not outlined in option description, but there is a potential for an increase in congestion on roads from tankers and effects on visual amenity may have an effect on tourism in Andover. This option provides water in an emergency drought situation and is likely to be accompanied with water usage restrictions.	Best practice mitigation techniques to reduce impacts.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	--	Use of fuel resources.	Fuel utilisation may be reduced by strategic timing of transport vehicles e.g. avoid driving tankers in rush hour.	0	0	0	-
	Avoid negative effects on built assets and infrastructure	0	0	0	-	Depending on the number of tankers required for the operation, there may be an increase in congestion on roads. This option is only to be implemented in severe circumstances therefore negative effects will only be temporary.	Can be mitigated by strategic timing of transport of tankers e.g. avoiding driving tankers in rush hour.	0	0	0	-
SEA Metrics		Positive 1 Negative -15				Positive 1 Negative -9					

SWS_HTE_HI-TFR_PWE_ALL_ht-ott mm 90											
Raw water Transfer between Havant Thicket res and Otterbourne WSW - First Section, 90 MI/d.											
Thames Water											
Raw water transfer (PS, Pipe & Break tank) between Havant Thicket Res and Otterbourne WSW. First section for 90MI/d to the mid-point and a possible connection to PWc. 22h/d operation assumed.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	Catherington Down SSSI (100% favourable) is within 500m and the Catherington Lith and Yeoll's Copse LNRs are also within 500m. There are also two additional LNRs within 2000m. The option is within a SSSI risk zone. The pipeline passes through woodland, ancient woodland and priority habitat therefore potential for direct effects. There is no impacts anticipated for chalk rivers or GWDTE. The HRA ToLS (2021) identified no likely significant effects for this first part of this route. There is likely significant effects identified for the second part of the route which is covered under SWS_OTT_HI-TFR_HTE_ALL_ott mm to otter 90. There is a low risk of the transfer / spread of INNS. The option involves the physical transfer of untreated water (between two locations assumed currently unconnected). It is assumed that any transferred INNS would be treated/removed at water treatment facility. Additional risks from pipeline washout, pipeline bursts, wash water discharge, overflows and sludge disposal.	Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid designated sites and sensitive habitat. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys.	0	-	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The pipeline passes through agricultural land classed as Grade 3 and 4, and non-agricultural. There is potential for these soils to be disturbed during the construction phase. There are historic landfill sites within close proximity to the pipeline route therefore there is potential for contaminants to be disturbed during construction.	Ground will be reinstated for along pipeline route. Best practice techniques to prevent potential disturbance of contaminated material during construction.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The pipeline passes through areas of flood zones 2 and 3 therefore some risk of flooding during construction. The pipeline will be buried therefore effects on operation not anticipated.	Best practice methods to reduce flood risk to be implemented during the construction phase.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	The pipeline intersects waterbodies, including main rivers, therefore potential for the construction phase to contaminant the water environment. The pipeline also intersects SPZs. The WFD Screening Assessment (2021) identified further WFD assessment is not required.	Best practice mitigation measures to be implemented during construction including use of trenchless crossings and appropriate bedding materials.	0	0	0	0

	Deliver reliable and resilient water supplies	0	0	+++	0	The option is likely to increase water supplies significantly with 90ML/d DO.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	--	0	0	Construction is likely to result in air emissions from plant equipment, dust and transport.	Best practice mitigation measures to be implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is likely to have minor construction and operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	The option is not thought to result in an overall change in water level. Therefore, no effect on climate change vulnerability is expected.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option intersects three NCLAs. The South Downs National Park is also within 500m. Temporary visual disturbance is likely from pipeline construction.	Best practicable means to minimise potential visual impact during construction such as use of screening, however impacts are anticipated to remain.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The pipeline passes through a conservation area, Leigh Park Registered Park and Garden, and numerous listed buildings, and scheduled monuments are within 500m of the pipeline. There is potential for the construction phase to impact the setting of these assets. There is potential for the pipeline excavation to impact archaeology, if present.	Best practice measures to be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The pipeline passes through a public park or garden, and is also within 500m of schools, playing field, play spaces, noise action planning areas, churches and religious grounds. There is potential for disturbance to the local community and users of these community facilities during the construction phase. IMD deciles range from 2 to 10 along the pipeline route.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0	
	Maintain and enhance tourism and recreation	0	--	0	0	The pipeline passes through a public park or garden, and is also within 500m of playing fields and play spaces. The South Downs National Park is also within 500m. There is potential for diversions to public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0	
Material Assets	Minimise resource use and waste production	0	-	0	0	The option requires new infrastructure and will use materials, and generate waste, including excavated materials.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0	
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option intersects major roads and national cycle routes. There is potential for moderate and temporary disruption during the construction phase.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0	
SEA Metrics			Positive Negative	8 -28	Positive Negative							8 -12

SWS_HTE_HI-TFR_PWE_ALL_ht-ott mm 120											
Raw water Transfer between Havant Thicket res and Otterbourne WSW - First Section, 120 MI/d.											
Thames Water											
Raw water transfer (PS, Pipe & Break tank) between Havant Thicket Res and Otterbourne WSW. First section for 120MI/d to the mid-point and a possible connection to PWc.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	Catherington Down SSSI (100% favourable) is within 500m and the Catherington Lith and Yeoll's Copse LNRs are also within 500m. There are also two additional LNRs within 2000m. The option is within a SSSI risk zone. The pipeline passes through woodland, ancient woodland and priority habitat therefore potential for direct effects. There is no impacts anticipated for chalk rivers or GWDTE. The HRA ToLS (2021) identified no likely significant effects for this first part of this route. There is likely significant effects identified for the second part of the route which is covered under SWS_OTT_HI-TFR_HTE_ALL_ott mm to otter 120. There is a low risk of the transfer / spread of INNS. The option involves the physical transfer of untreated water (between two locations assumed currently unconnected). It is assumed that any transferred INNS would be treated/removed at water treatment facility. Additional risks from pipeline washout, pipeline bursts, wash water discharge, overflows and sludge disposal.	Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid designated sites and sensitive habitat. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys.	0	-	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The pipeline passes through agricultural land classed as Grade 3 and 4, and non-agricultural. There is potential for these soils to be disturbed during the construction phase. There are historic landfill sites within close proximity to the pipeline route therefore there is potential for contaminants to be disturbed during construction.	Ground will be reinstated for along pipeline route. Best practice techniques to prevent potential disturbance of contaminated material during construction.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The pipeline passes through areas of flood zones 2 and 3 therefore some risk of flooding during construction. The pipeline will be buried therefore effects on operation not anticipated.	Best practice methods to reduce flood risk to be implemented during the construction phase.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	The pipeline intersects waterbodies, including main rivers, therefore potential for the construction phase to contaminant the water environment. The pipeline also intersects SPZs. The WFD Screening Assessment (2021) identified further WFD assessment is not required.	Best practice mitigation measures to be implemented during construction including use of trenchless crossings and appropriate bedding materials.	0	0	0	0

	Deliver reliable and resilient water supplies	0	0	+++	0	The option is likely to increase water supplies significantly with 120ML/d DO.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	--	0	0	Construction is likely to result in air emissions from plant equipment, dust and transport.	Best practice mitigation measures to be implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is likely to have minor construction and operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	The option is not thought to result in an overall change in water level. Therefore, no effect on climate change vulnerability is expected.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option intersects three NCLAs. The South Downs National Park is also within 500m. Temporary visual disturbance is likely from pipeline construction.	Best practicable means to minimise potential visual impact during construction such as use of screening, however impacts are anticipated to remain.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The pipeline passes through a conservation area, Leigh Park Registered Park and Garden, and numerous listed buildings, and scheduled monuments are within 500m of the pipeline. There is potential for the construction phase to impact the setting of these assets. There is potential for the pipeline excavation to impact archaeology, if present.	Best practice measures to be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The pipeline passes through a public park or garden, and is also within 500m of schools, playing field, play spaces, noise action planning areas, churches and religious grounds. There is potential for disturbance to the local community and users of these community facilities during the construction phase. IMD deciles range from 2 to 10 along the pipeline route.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	--	0	0	The pipeline passes through a public park or garden, and is also within 500m of playing fields and play spaces. The South Downs National Park is also within 500m. There is potential for diversions to public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	The option requires new infrastructure and will use materials, and generate waste, including excavated materials.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option intersects major roads and national cycle routes. There is potential for moderate and temporary disruption during the construction phase.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive 8 Negative -28				Positive 8 Negative -12					

SWS_HTE_HI-TFR_PWE_ALL_ht-ott mm 150											
Raw water Transfer between Havant Thicket res and Otterbourne WSW - First Section, 150 MI/d.											
Thames Water											
Raw water transfer (PS, Pipe & Break tank) between Havant Thicket Res and Otterbourne WSW. First section for 150MI/d to the mid-point and a possible connection to PWc. 22h/d operation assumed.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	Catherington Down SSSI (100% favourable) is within 500m and the Catherington Lith and Yeoll's Copse LNRs are also within 500m. There are also two additional LNRs within 2000m. The option is within a SSSI risk zone. The pipeline passes through woodland, ancient woodland and priority habitat therefore potential for direct effects. There is no impacts anticipated for chalk rivers or GWDTE. The HRA ToLS (2021) identified no likely significant effects for this first part of this route. There is likely significant effects identified for the second part of the route which is covered under SWS_OTT_HI-TFR_HTE_ALL_ott mm to otter 150. There is a low risk of the transfer / spread of INNS. The option involves the physical transfer of untreated water (between two locations assumed currently unconnected). It is assumed that any transferred INNS would be treated/removed at water treatment facility. Additional risks from pipeline washout, pipeline bursts, wash water discharge, overflows and sludge disposal.	Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid designated sites and sensitive habitat. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys.	0	-	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The pipeline passes through agricultural land classed as Grade 3 and 4, and non-agricultural. There is potential for these soils to be disturbed during the construction phase. There are historic landfill sites within close proximity to the pipeline route therefore there is potential for contaminants to be disturbed during construction.	Ground will be reinstated for along pipeline route. Best practice techniques to prevent potential disturbance of contaminated material during construction.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The pipeline passes through areas of flood zones 2 and 3 therefore some risk of flooding during construction. The pipeline will be buried therefore effects on operation not anticipated.	Best practice methods to reduce flood risk to be implemented during the construction phase.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	The pipeline intersects waterbodies, including main rivers, therefore potential for the construction phase to contaminant the water environment. The pipeline also intersects SPZs. The WFD Screening Assessment (2021) identified further WFD assessment is not required.	Best practice mitigation measures to be implemented during construction including use of trenchless crossings and appropriate bedding materials.	0	0	0	0

	Deliver reliable and resilient water supplies	0	0	+++	0	The option is likely to increase water supplies significantly with 150ML/d DO.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	--	0	0	Construction is likely to result in air emissions from plant equipment, dust and transport.	Best practice mitigation measures to be implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is likely to have minor construction and operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	The option is not thought to result in an overall change in water level. Therefore, no effect on climate change vulnerability is expected.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option intersects three NCLAs. The South Downs National Park is also within 500m. Temporary visual disturbance is likely from pipeline construction.	Best practicable means to minimise potential visual impact during construction such as use of screening, however impacts are anticipated to remain.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The pipeline passes through a conservation area, Leigh Park Registered Park and Garden, and numerous listed buildings, and scheduled monuments are within 500m of the pipeline. There is potential for the construction phase to impact the setting of these assets. There is potential for the pipeline excavation to impact archaeology, if present.	Best practice measures to be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The pipeline passes through a public park or garden, and is also within 500m of schools, playing field, play spaces, noise action planning areas, churches and religious grounds. There is potential for disturbance to the local community and users of these community facilities during the construction phase. IMD deciles range from 2 to 10 along the pipeline route.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	--	0	0	The pipeline passes through a public park or garden, and is also within 500m of playing fields and play spaces. The South Downs National Park is also within 500m. There is potential for diversions to public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	The option requires new infrastructure and will use materials, and generate waste, including excavated materials.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option intersects major roads and national cycle routes. There is potential for moderate and temporary disruption during the construction phase.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics			Positive Negative	8 -28				Positive Negative	8 -12		

SWS_HTE_HI-TFR_PWE_ALL_ht-ott mm 190											
Raw water Transfer between Havant Thicket res and Otterbourne WSW - First Section, 190 MI/d.											
Thames Water											
Raw water transfer (PS, Pipe & Break tank) between Havant Thicket Res and Otterbourne WSW. First section for 190MI/d to the mid-point and a possible connection to PWc. 22h/d operation assumed.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	Catherington Down SSSI (100% favourable) is within 500m and the Catherington Lith and Yeoll's Copse LNRs are also within 500m. There are also two additional LNRs within 2000m. The option is within a SSSI risk zone. The pipeline passes through woodland, ancient woodland and priority habitat therefore potential for direct effects. There is no impacts anticipated for chalk rivers or GWDTE. The HRA ToLS (2021) identified no likely significant effects for this first part of this route. There is likely significant effects identified for the second part of the route which is covered under SWS_OTT_HI-TFR_HTE_ALL_ott mm to otter 190. There is a low risk of the transfer / spread of INNS. The option involves the physical transfer of untreated water (between two locations assumed currently unconnected). It is assumed that any transferred INNS would be treated/removed at water treatment facility. Additional risks from pipeline washout, pipeline bursts, wash water discharge, overflows and sludge disposal.	Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid designated sites and sensitive habitat. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys.	0	-	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The pipeline passes through agricultural land classed as Grade 3 and 4, and non-agricultural. There is potential for these soils to be disturbed during the construction phase. There are historic landfill sites within close proximity to the pipeline route therefore there is potential for contaminants to be disturbed during construction.	Ground will be reinstated for along pipeline route. Best practice techniques to prevent potential disturbance of contaminated material during construction.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The pipeline passes through areas of flood zones 2 and 3 therefore some risk of flooding during construction. The pipeline will be buried therefore effects on operation not anticipated.	Best practice methods to reduce flood risk to be implemented during the construction phase.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	The pipeline intersects waterbodies, including main rivers, therefore potential for the construction phase to contaminant the water environment. The pipeline also intersects SPZs. The WFD Screening Assessment (2021) identified further WFD assessment is not required.	Best practice mitigation measures to be implemented during construction including use of trenchless crossings and appropriate bedding materials.	0	0	0	0

	Deliver reliable and resilient water supplies	0	0	+++	0	The option is likely to increase water supplies significantly with 190ML/d DO.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	--	0	0	Construction is likely to result in air emissions from plant equipment, dust and transport.	Best practice mitigation measures to be implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is likely to have minor construction and operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	The option is not thought to result in an overall change in water level. Therefore, no effect on climate change vulnerability is expected.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option intersects three NCLAs. The South Downs National Park is also within 500m. Temporary visual disturbance is likely from pipeline construction.	Best practicable means to minimise potential visual impact during construction such as use of screening, however impacts are anticipated to remain.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The pipeline passes through a conservation area, Leigh Park Registered Park and Garden, and numerous listed buildings, and scheduled monuments are within 500m of the pipeline. There is potential for the construction phase to impact the setting of these assets. There is potential for the pipeline excavation to impact archaeology, if present.	Best practice measures to be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The pipeline passes through a public park or garden, and is also within 500m of schools, playing field, play spaces, noise action planning areas, churches and religious grounds. There is potential for disturbance to the local community and users of these community facilities during the construction phase. IMD deciles range from 2 to 10 along the pipeline route.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	--	0	0	The pipeline passes through a public park or garden, and is also within 500m of playing fields and play spaces. The South Downs National Park is also within 500m. There is potential for diversions to public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	The option requires new infrastructure and will use materials, and generate waste, including excavated materials.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option intersects major roads and national cycle routes. There is potential for moderate and temporary disruption during the construction phase.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive 8 Negative -28				Positive 8 Negative -12					

SWS_HWZ_EF-CRE_ALL_ALL_do_di_res_regi											
Restriction to non-essential use; Hampshire Winchester											
Southern Water											
Drought Option: The Company has recourse to a range of restrictions to Non-Essential Use. However, it can take a significant time to apply for and then implement a Drought Order. The Company might decide not to exercise all its powers until severe drought conditions are reached. Can be applied on a WRZ basis. Level of intervention for this option: Severe drought conditions.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) identified no likely significant effects for the River Itchen SAC. The HRA Tols identifies that the River Itchen SAC is a GWDTEs as well as being dependent upon surface flows therefore reductions in non-essential water use is likely to mitigate the impacts of drought and aid drought recovery by increasing rates of recharge post drought when restrictions are still in place. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Non-essential use restrictions may marginally impact soil quality, however the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Non-essential use restrictions are not anticipated to affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicates short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	By reducing the amount of water required for supply through restrictions to non-essential use, the option maintains resilience of water for essential services.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available. Neutral effects identified.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of gardens, and use of ornamental fountains for example, may be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	--	Restrictions on non-essential use is likely to have moderate negative effects on the community and social well-being as there may be imposed restrictions on irrigation of gardens and allotments and outdoor plants, restrictions of use of water for swimming pools, restriction of washing vehicles and non-domestic property exteriors. Restrictions may apply to all customers, domestic and commercial so potential for economic impacts.	Ensuring high level of communication with customers before, during and following the implementation of the measure.	0	0	0	--
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation sites dependant on public water supply may be affected due to non-essential restrictions.		0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics											
				Positive	4					Positive	4
				Negative	-6					Negative	-6

SWS_HAZ_EF-LKR_ALL_ALL_dmp hwz high											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
	Deliver reliable and resilient water supplies	0	0	+++	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Minor positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive 28		Negative -3				Positive 28		Negative -2	

SWS_HWZ_HI-TFR_HKZ_ALL_bsgstke/otter & SWS_HKZ_HI-TFR_KVZ_ALL_re/bsgstke											
Basingstoke to Otterbourne (Potable) - Real Group & Reading to Basingstoke (Potable) - Real Group											
Southern Water											
Potable water transfer from existing Reading WTW (with treatment at Reading) to the existing Otterbourne WTW. 120MI/d transfer capacity with the following offtakes: 10-20MI/d offtake to the existing near Basingstoke WSW, 10-20MI/d offtake to Andover, 10-20MI/d offtake to SEW at the existing Northgate WSR.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	The pipeline route intersects the River Test SSSI (a chalk river). There could be direct habitat loss and disturbance for species during construction. Land will be reinstated above the pipeline but habitats and species disturbed may take time to recover. There are a number of additional SSSIs and LNRs within 500m and the route is within 500m of the River Itchen SAC and SSSI. There are several other designated sites within 2000m. There are likely to be disturbance effects during construction. The majority of the sites are also GWDTE. The route also intersects four ancient woodlands and a variety of priority habitats including coastal and floodplain grazing marsh, deciduous woodland and good quality semi-improved grassland. There is likely to be direct loss of this habitat, although certain habitat types can be reinstated following construction of the pipeline. Operation is unlikely to have effects unless maintenance is required within designated sites. The HRA ToLS concluded that a HRA Appropriate Assessment will be required for a number of the designated sites including those mentioned above and others that are further away but potentially hydrologically linked.	Investigate feasibility of directional drilling under the designated river sites. Detailed ecological surveys and assessment will be required. Introduce habitat compensation, relocation schemes, and habitat creation where required. HRA Appropriate Assessment required for a number of designated sites.	0	-	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The scheme intersects two authorised landfill sites and one historic landfill. Agricultural land classifications range from grade 1-4 but the majority would be reinstated above the pipeline. Pollution of soils may be possible during construction, with permanent land take possibly required for construction of pumping stations and other above ground structures.	Pollution prevention and control measures to reduce likelihood of contaminants leaching through soil and entering groundwater.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	Parts of the scheme lie in flood zones 2 and 3 and therefore, there is a risk of flooding during construction works. Operational effects are unlikely.	Measures to reduce the impact of flooding during the construction phase is likely to be implemented, however potential residual flood risk likely to remain.	0	-	0	0

	Protect and enhance the quality of the water environment and water resources	0	--	0	0	The scheme intersects SPZ1 and 2, as well as eight WFD groundwater bodies. The site also lies within a nitrate vulnerable zone and crosses several rivers. Potential for water quality effects during construction. The WFD phase 1 screening concluded that further WFD assessment is required for the Sulham Brook (assuming directional drilling for most rivers)	Pollution Prevention and control measures to reduce likelihood of contaminants leaching through soil and entering groundwater. Bedding material designed so as not to form preferential pathway for groundwater. Directional drilling used where possible. Further WFD assessment required.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+++	0	The scheme will improve water transfer across regions, improving water resource management and resilience of supply.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	The route does not pass through or near any AQMAs. Vehicle emissions and dust from construction activities will be generated but effects will be short-term.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	---	Carbon will be generated from materials used to construct the pipeline (embodied carbon), construction activities and from operation (e.g. pumping stations). The relative carbon scale identified that the options has minor construction and major operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	---
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The scheme will contribute to improved water resources management, providing potential security in future drought scenarios.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	-	The site intersects the North Wessex Downs AONB and NCAs. Construction will result in visual effects, however, the majority of the pipeline infrastructure will be below ground and land reinstated above it. The WSR and treatment works at the end of the route/offtake routes are existing and it is assumed that any upgrade works would be within the existing operational site boundaries (full options details have yet to be determined).	Best practice measures to reduce visual impact during construction. Construction to be conducted in phases so visual disturbance will be temporary at each location. Pipeline will be buried once constructed but pumping stations and other above ground structures may require screening. Once further option detail on WSR and treatment works upgrades are determined effects should be reviewed.	0	-	0	0

Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	---	0	-	There are numerous listed buildings within 500m of the route and several scheduled monuments. The scheme intersects two registered parks and gardens and runs along the boundary of a scheduled monument. During construction there will temporary effects on the setting of these assets and direct impacts on the two registered parks and gardens. There is also potential to uncover archaeology during excavation works for the pipeline. The majority of the pipeline infrastructure is underground and land will be reinstated above, therefore, operational effects on setting are unlikely. It is not clear where pumping stations will be located and whether these will be near historic assets.	Best practice measures during construction. Siting of pumping stations away from historic assets. Re-route pipeline around registered parks and gardens.	0	-	0	0
	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	---	0	0	The scheme intersects: Theale Golf course; Theale Green School; Tadley Rugby Club (playing fields); Tadley Community School; Drummer cricket club (playing fields); Ashe Park (public park; Picket Twenty Sports Grounds. The route is also within 500m of additional community facilities. Therefore, construction is likely to have a significant impact on the local community. Land will be reinstated following construction.	Re-route pipeline around community assets if possible. If not liaison with affected asset owners required. Best practice construction methods to reduce amenity effects for the community. Potential opportunities to enhance local areas when reinstating land.	0	--	+	0
Population and Human Health	Maintain and enhance tourism and recreation	0	-	0	0	The scheme intersects two cycle routes and a sports facility, therefore causing temporary disruption during construction. Land will be reinstated and it is likely that diversions would be put in place. However, the sports facility may need to temporarily close.	Best practice construction methods to minimise disruption and appropriate use of diversions and signage. Divert route around sports facility.	0	-	0	0
	Minimise resource use and waste production	0	--	0	0	The pipeline construction will require materials and resource use. Excavated material is likely to be reused onsite.	Opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain. Sourcing of materials locally where possible.	0	-	0	0
Material Assets	Avoid negative effects on built assets and infrastructure	0	--	0	0	The scheme intersects motorways at three locations, several A-roads and three railway lines potentially causing disruption during construction. It is likely that directional drilling would be implemented under the railways and motorways. Potential road closures on smaller roads may cause disruption. Operational effects are unlikely as the pipeline will be underground.	Use of directional drilling where possible to minimise disruption.	0	-	0	0
SEA Metrics			Positive	9				Positive	11		
			Negative	-51				Negative	-23		

SWS_HWZ_HI-TFR_HSE_ALL_oan1											
Otterbourne to Andover to Near Basingstoke - Otterbourne to Crabwood (HW)											
Southern Water Services											
Transfer from Otterbourne to Andover to Near Basingstoke. This scheme is designed to support network improvements needed for UTMRD transfer to Hampshire and/or the strategic scheme from IoW/South Hampshire											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	--	The option intersects SSSI Impact Risk Zones and two ancient woodlands. The option also intersects several priority habitats including deciduous woodland, good quality semi-improved grassland and lowland calcareous grassland. Potential disturbance to habitats, flora and fauna. The River Itchen SSSI / GWDTE and Crab Wood SSSI are within 2000m. Crab Wood LNR and Shawford Down LNR also within 2000m. Potential for indirect effects on these SSSIs and LNRs. HRA ToLS identifies uncertain effects on the River Itchen SAC during construction phase as pollutants or sediment may reach the SAC via runoff or drainage channels that are present. The alteration of abstraction or discharge regimes into the SAC from the WTW at Otterbourne may have significant effects to the Qualifying species. Moderate level construction phase INNS risk, as pipeline route passes through sensitive habitats. No INNS risk during operational phase as water is treated and free of INNS.	Ecological surveys prior to construction. Provide habitat compensation and relocation where required. Uncertain effects identified during construction phase on River Itchen SAC are considered to be mitigatable through use of best practice guidelines such as use of a robust CEMP.	0	-	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	Land is classed as Grade 3 agricultural land, there is likely to be disturbance to this land during construction. Historic landfill sites within 500m, however no direct impact anticipated.	Reinstate land following construction.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Option is within FZ1 therefore low risk of flooding.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	The option intersects SPZ1 and 2, a nitrate vulnerable zone and the River Itchen Chalk WFD groundwater body. Three WFD river waterbodies are also intersected. There is potential for contamination during the construction phase. WFD screening (2020) suggest no further assessment is required.	Implement pollution prevention and control measures. Use appropriate bedding materials and directional drilling where possible to minimise disturbance.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	The option will increase transfers within the region therefore increasing resilience.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	-	0	0	The option is not within an AQMA. There is potential for the construction phase to have an effect on quality, however this is likely to be minor and temporary.	Best construction practices and pollution prevention and control measures e.g. damping.	0	-	0	0
	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
Climatic Factors	Reduce vulnerability to climate change risks and hazards	0	0	0	0	The option is not anticipated to result in a change in water levels so no likely effect on water environment with respect to climate change.	N/A	0	0	0	0
	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option intersects the Hampshire Downs National Landscape Character Area. Visual disturbance is likely to occur during construction, however this will be minor and temporary.	Implement temporary screening during construction. Reinstate landscape to original state once pipeline is buried.	0	-	0	0
Landscape	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are multiple listed buildings and one conservation area within 500m. There are also scheduled monuments and Cranbury Park Registered Park and Garden within 2000m. There is potential for the setting of these assets to be affected during the construction phase, however this is likely to be minor and temporary. There is also potential that the pipeline excavation will impact archaeology if present.	Implement temporary screening during construction. Reinstate landscape to original state once pipeline is buried. Archaeological Watching Brief may be required during the construction phase depending on the presence / absence of archaeology.	0	-	0	0
Historic Environment	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There is golf courses, schools, playing fields, play space, and public parks and gardens within 500m of the pipeline. There is potential for disruption to the local community and users of these community facilities during the construction phase. Impacts may include noise, dust and vibration but no effects anticipated once operational as pipeline will be buried. IMD decile 10 along extent of route.	Implement best practice during construction to minimise effects, however residual effects are likely to remain.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The option is within 500m of golf courses, play spaces, playing fields and public parks and gardens. It is also crosses a national cycle route and may result in the diversion of public rights of way during the construction phase. As such,	Implement best practice during construction to minimise effects, however residual effects are likely to remain.	0	-	0	0
Population and Human Health											

						there is potential to impact recreation, however this is likely to be minimal and temporary.					
Material Assets	Minimise resource use and waste production	0	-	0	0	Construction is likely to require material resources and will generate waste, including excavated materials.	Source materials locally and reinstate dug materials where possible.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	The option is likely to disrupt transport infrastructure as it intersects major roads, railways and national cycle route. Moderate and temporary impacts are likely to occur during the construction phase.	Use of directional drilling where possible to minimise disruption. Traffic management plan to minimise disruption.	0	-	0	0
SEA Metrics		Positive 1 Negative -19					Positive 1 Negative -11				

SWS_HWZ_HI-TFR_HSE_ALL_obo											
Olivers battery											
Southern Water											
Olivers battery											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	The option is for an existing transfer. No new infrastructure likely to be required therefore no impacts identified. HRA ToLS (2021) identified no likely significant effects given there is no new infrastructure. No additional risk for the transfer of INNS.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No new infrastructure as existing transfer therefore neutral effects identified for soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No new infrastructure therefore no additional flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No new infrastructure therefore neutral effects identified for water resources. WFD Screening Assessment (2020) identified no impact as it is an existing transfer and further WFD assessment is therefore not required.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	0	0	The option transfers water which leads to more resilient supplies, however as this is an existing transfer, additional positive effects have not been identified.	N/A	0	0	0	0
Air	Reduce and minimise air emissions	0	0	0	0	No new infrastructure therefore no additional impacts on air quality.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data. No new infrastructure therefore no impacts identified.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	No new infrastructure, utilising existing transfer and water levels are not likely to be significantly affected, therefore no additional impacts on the climate resilience of the local environment.	N/A	0	0	0	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No new infrastructure therefore no additional impacts on landscape.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No new infrastructure therefore no additional impacts on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	No new infrastructure therefore no additional impacts on the local community.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	No new infrastructure therefore no additional impacts on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	No new infrastructure therefore no additional impact on resources and waste.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	No new infrastructure therefore no additional impacts on built assets and the built environment.	N/A	0	0	0	0
SEA Metrics		Positive 0 Negative 0				Positive 0 Negative 0					

SWS_HWZ_HI-TFR_HSE_ALL_ott-kin-and-cra											
Otterbourne to Andover to Near Basingstoke - Otterbourne to Crabwood (HW)											
Southern Water Services											
Otterbourne to Andover to Near Basingstoke - Otterbourne to Crabwood (HW) bidirectional 50 MI/d											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	-	<p>The River Itchen SAC is 100m from the site. The option intersects SSSI Impact Risk Zones and two ancient woodlands. The option also intersects several priority habitats including deciduous woodland, good quality semi-improved grassland and lowland calcareous grassland. Potential disturbance to habitats, flora and fauna. The HRA ToLS identifies uncertain effects on the River Itchen SAC as construction could result in sediment and pollutants entering the SAC via surface runoff and drainage channels.</p> <p>Moderate level construction phase INNS risk, as pipeline crosses habitats sensitive to INNS. No INNS risk during operational phase as water is treated and free of INNS.</p>	Ecological surveys prior to construction. Provide habitat compensation and relocation where required. Uncertain effects identified for the River Itchen SAC are considered to be mitigatable through use of best practice guidelines such as a robust CEMP during construction phase.	0	-	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	Land is classed as Grade 3 agricultural land. Soil contamination is possible during construction.	Implement pollution prevention and control measures.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option does not lie within a flood risk zone.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	The option intersects SPZ1 and 2, a nitrate vulnerable zone and the River Itchen Chalk WFD groundwater body, a potentially sensitive receptor. Three WFD river waterbodies are also intersected. The WFD screening (2020) states no further assessment is required.	Implement pollution prevention and control measures. Use appropriate bedding materials and directional drilling where possible to minimise disturbance.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	++	0	The option will increase transfers within the region with a 50MI/d bidirectional pipeline, increasing resilience.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	There are likely to be temporary impacts on air quality during the construction phase.	Best construction practices and pollution prevention and control measures e.g. damping.	0	-	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational emissions.	N/A	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	The option is not thought to result in a change in water levels and therefore unlikely to exacerbate climate change vulnerability.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option intersects the Hampshire Downs National Landscape Character Area. Visual disturbance is likely to occur during construction. The pipeline will be buried once operational.	Implement temporary screening during construction. Reinstate landscape to original state once pipeline is buried.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There is one conservation area within 500m. Construction may affect the setting, however this is likely to be temporary as the pipeline will be buried. There is potential for the excavation of the pipeline to impact buried archaeology if present.	Best practice measures to be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There is likely to be temporary disturbance to the local community during construction. IMD deciles 4-9 along extent of pipeline.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The option intersects a cycle route with temporary disturbance from obstruction, noise, dust and vibration.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option is likely to disrupt transport infrastructure due to intersecting an A road, motorway and cycle route.	Use of directional drilling where possible to minimise disruption and implement a traffic management plan.	0	-	0	0
SEA Metrics		Positive 4 Negative -25				Positive 4 Negative -11					

SWS_HWZ_HI-TFR_SWX_ALL_ab/otter											
Abingdon to Otterbourne (Raw) - Real Group											
Southern Water											
Raw water transfer from Culham (SESRO scheme) to the existing Otterbourne WTW. 120MI/d transfer capacity with the following offtakes: 10-20MI/d offtake to the existing near Basingstoke WSR, 10-20MI/d offtake to the existing Micheldever WSR, 10-20MI/d offtake to SEW at the existing Northgate WSR. Treatment within SRN/SEW supply area.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	The pipeline route intersects two SACs and four SSSIs: Kennet and Lambourn Floodplain SAC and SSSI, River Kennet SSSI, River Lambourn SAC and SSSI and River Test SSSI (the rivers are all classed as chalk streams). There could be direct habitat loss and disturbance for species during construction. Land will be reinstated above the pipeline but habitats and species disturbed may take time to recover. There are an additional two SACs and seven SSSIs within 500m, and a further six SSSIs and three LNRs within 2000m. There are likely to be disturbance effects during construction. The majority of the sites are also GWDTE. The route also intersects seven ancient woodlands and a variety of priority habitats including deciduous woodland, coastal and floodplain grazing marsh and lowland calcareous grasslands. There is likely to be direct loss of this habitat, although certain habitat types can be reinstated following construction of the pipeline. Operation is unlikely to have effects unless maintenance is required within designated sites. The HRA ToLS concluded that a HRA Appropriate Assessment will be required for a number of SACs including those mentioned above and others that are further away but potentially hydrologically linked. This is a raw water transfer and therefore, there is potential for INNS transfer.	Investigate feasibility of directional drilling under the designated river sites. Detailed ecological surveys and assessment will be required. Introduce habitat compensation, relocation schemes, and habitat creation where required. HRA Appropriate Assessment required for a number of SACs. Undertake INNS risk assessment.	0	--	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	There are three historic landfill sites which intersect the pipeline route. Agricultural land is classed as grades 1-4 but the majority would be reinstated above the pipeline. Pollution of soils may be possible during construction, with permanent land take possibly required for construction of pumping stations and other above ground structures.	Pollution prevention and control measures to reduce likelihood of contaminants leaching through soil and entering groundwater.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	Parts of the scheme lie in flood zones 2 and 3 and therefore, there is a risk of flooding during construction works. Operational effects are unlikely.	Measures to reduce the impact of flooding during the construction phase is likely to be implemented, however potential residual flood risk likely to remain.	0	-	0	0

	Protect and enhance the quality of the water environment and water resources	0	--	0	0	The site lies within SPZ1 and 2, with seven WFD groundwater bodies intersected by the scheme. The site also lies within a nitrate vulnerable zone and crosses several rivers. Potential for water quality effects during construction. The WFD phase 1 screening concluded that further WFD assessment is required for the Cow Common Brook and Portobello Ditch (assuming directional drilling for most rivers)	Pollution Prevention and control measures to reduce likelihood of contaminants leaching through soil and entering groundwater. Bedding material designed so as not to form preferential pathway for groundwater. Directional drilling used where possible. Further WFD assessment required.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+++	0	The scheme will improve water transfer across regions, improving water resource management and resilience of supply.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	The route does not pass through or near any AQMAs. Vehicle emissions and dust from construction activities will be generated but effects will be short-term.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	---	Carbon will be generated from materials used to construct the pipeline (embodied carbon), construction activities and from operation (e.g. pumping stations). The relative carbon scale identified that the options has minor construction and major operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	---
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	This scheme contributes to efficient use of water resources, providing protection against future drought scenarios (and potentially avoids abstractions in more vulnerable areas).	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	-	The site intersects the North Wessex Downs AONB and Thames Basin Heaths, Hampshire Downs, Upper Thames Clay Vales and Berkshire and Marlborough Downs NCAs. Construction will result in visual effects, however, the majority of the pipeline infrastructure will be below ground and land reinstated above it. The WSR and treatment works at the end of the route/offtake routes are existing and it is assumed that any upgrade works would be within the existing operational site boundaries (full options details have yet to be determined).	Best practice measures to reduce visual impact during construction. Construction to be conducted in phases so visual disturbance will be temporary at each location. Pipeline will be buried once constructed but pumping stations and other above ground structures may require screening. Once further option detail on WSR and treatment works upgrades are determined effects should be reviewed.	0	-	0	0

Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	-	There are numerous listed buildings within 500m of the route and several scheduled monuments. There is also a registered battlefield (Battle of Newbury 1643) and four registered parks and gardens within 500m of the scheme. There are unlikely to be direct affects, although the route is adjacent to several of the identified assets. During construction there will temporary effects on the setting of these assets. There is also potential to uncover archaeology during excavation works for the pipeline. The majority of the pipeline infrastructure is underground and land will be reinstated above, therefore, operational effects on setting are unlikely. It is not clear where pumping stations will be located and whether these will be near historic assets.	Best practice measures during construction. Siting of pumping stations away from historic assets.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The scheme intersects a gold course and the boundary of a primary school. Construction may require the closure of the golf course and school playing fields. The route is also within 500m of allotments, churches, schools, a playing field and a cemetery. Construction is likely to cause noise and visual disruption for users of these assets. Land will be reinstated following construction.	Liaison with golf and primary school if route cannot be re-routed around these assets. Best practice construction methods to reduce amenity effects for the community. Potential opportunities to enhance local areas when reinstating land.	0	-	+	0
	Maintain and enhance tourism and recreation	0	-	0	0	The scheme intersects the Ridgeway National Trail, sports facility and three cycle routes, therefore causing temporary disruption during construction. Land will be reinstated and it is likely that diversions would be put in place. However, the sports facility may need to temporarily close.	Best practice construction methods to minimise disruption and appropriate use of diversions and signage. Divert route around sports facility.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	--	0	0	The pipeline construction will require materials and resource use. Excavated material is likely to be reused onsite.	Opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain. Sourcing of materials locally where possible.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The scheme intersects motorways at three locations, a number of A-roads and one railway line potentially causing disruption during construction. It is likely that directional drilling would be implemented under the railway and motorways. Potential road closures on smaller roads may cause disruption. Operational effects are unlikely as the pipeline will be underground.	Use of directional drilling where possible to minimise disruption.	0	-	0	0
SEA Metrics			Positive	9				Positive	11		
			Negative	-44				Negative	-23		

SWS_HWZ_RE-DRO_ALL_ALL_di-hw											
TUBS and NEU Ban - HW WRZ											
Southern water											
Temporary use bans and Non-essential use bans											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Temporary use bans and non-essential use bans in the Hampshire Winchester area may help protect GWDTE and priority habitat by conserving water in the environment. The HRA Tols (2021) indicated the following Natura sites that may be affected: Salisbury Plain SAC (Distance N/A); Mottisfont Bats SAC (Distance N/A); Emer Bog SAC (Distance N/A); River Itchen SAC (Distance N/A); Solent & Southampton Water RAMSAR (Distance N/A); Solent & Southampton Water SPA (Distance N/A); Solent Maritime SAC (Distance N/A); The New Forest SAC (Distance N/A). The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to sites which ecosystems are dependent upon ground and surface water. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	A temporary use ban and non-essential use ban may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of several water bodies. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	By reducing demand through temporary use band and non-essential use ban, option maintains resilience of water for essential services.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available. Neutral effects identified.	N/A	0	0	0	0
Climatic Factors	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The option is for a temporary use ban and non-essential use ban. By reducing demand and potentially reducing abstraction the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented in drought conditions, it will not result in the long term resilience of the local environment.	N/A	0	0	+	0
	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of private gardens, and use of ornamental fountains etc will be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to have a significant effect on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Temporary use ban and non-essential use ban is likely to have minor negative effects on the community and social well-being as there will be restrictions on irrigation of gardens and allotments and use of water for recreational purposes. There may also be a small increased risk of fires in allotments as vegetation dries out.	Allowing allotments limited supplies of water. Ensuring high levels of communication before, during and following the implementation of these measures.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Assuming commercial properties including gardens are exempt from bans and restrictions there is likely to be only a minor effect on tourism and recreation. Non-commercial tourism sites may be affected.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effect on waste production or resource use.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effects on built assets and infrastructure.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -3				Positive 4 Negative -3					

SWS_HWZ_RE-DRO_ALL_ALL_do_di_eme_regi											
Emergency restrictions: Hampshire Winchester											
Southern water											
Drought Option: Emergency Drought Orders allow water companies to restrict supplies to customers through the imposition of rota cuts and/or the introduction of standpipes. These measures exist to deal with the very remote possibility of a drought much worse than any seen in the last century or more in the UK. Emergency Drought Orders have not been put in place in the UK since 1976. Ministers have made it clear that such measures should be avoided at all costs and introduced only as a last resort. The Company will make full use of all other measures before considering whether the severity of drought conditions mean that Emergency Drought Orders might be required. The full range of measures available under Emergency Drought Order include powers: To limit the use of water for such purposes as it considers necessary (i.e. further measures not specified in the Drought Direction 2011); To introduce rota cuts; and To set up, and supply water by means of, stand-pipes or water tanks. Level of intervention for this option: Unprecedented drought conditions. We intend the need for these to only arise in conditions of civil emergency and as such our emergency plan covers this in more detail.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) identified no likely significant effects for the River Itchen SAC which is the only N2K site within the Hampshire Winchester WRZ. The HRA Tols indicate the option is unlikely to have a negative impact and may be of benefit as the site contains GWDTEs and is dependent on surface water flows. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Emergency restrictions may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is only to be used in severe drought circumstances so is therefore not likely to affect flood risk or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0

	Deliver reliable and resilient water supplies	0	0	++	0	Option maintains resilience of water for essential services.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available. Neutral effects identified.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have temporary effects on visual amenity as restricted water use may impact parks and gardens reliant on public water supply.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	---	Emergency restrictions such as rota cuts and imposition of standpipes may have major negative effects on social well-being, with the potential for breakdown of social cohesion and impacts on public health. Imposition of standpipes will particularly effect people with limited mobility or other disabilities. Businesses that use water and do not have access to private water supply will be largely affected with the potential for substantial economic losses. There may also be an increased risk of fires as public access to water is restricted.	Ensure high level of communication with customers before, during and after the restrictions have been imposed.	0	0	0	---
	Maintain and enhance tourism and recreation	0	0	0	--	Tourism and recreation is likely to be affected as water restrictions may force some tourist attractions and recreational activities to temporarily close.	N/A	0	0	0	--
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 7 Negative -13				Positive 7 Negative -13					

SWS_HWZ_RE-OTH_REP_ALL_bs_kmt_resil											
Reduce transfer to other commercial customers: Hampshire Winchester											
Southern Water											
Drought Option: In the event of a drought the Company would hold discussions with a commercial customer with regards to the resources position and their supply.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option may reduce the amount of water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during drought conditions and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) indicated no likely significant effect on Natura 2000 sites.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	There is not anticipated to be any effects on soil quality as a result of this option.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is not likely to be affected by flooding or lead to the exacerbation of flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and is only to be implemented in drought conditions. Option aims to reduce the water required for supply to other commercial customers, therefore potentially resulting in a reduction in abstraction. WFD assessment (2020) states no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to commercial companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the resilience of supply for these commercial customers.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data has been provided for this option. Neutral effects have been identified at this stage.	N/A	0	0	0	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to commercial companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water within the natural environment. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	-	The reduction in the amount of water supplied to commercial customers may have an impact on the local economy if they are not able to carry out their business activity or have to operate at a reduced capacity. However, there is potential that the wider population will benefit from this option.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	+	-
	Maintain and enhance tourism and recreation	0	0	0	-	Given the option is to reduce the transfer of water for commercial customers, tourism and recreation could be affected if these customers rely on water to support these activities.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 5 Negative -3				Positive 5 Negative -3					

SWS_HWZ_RE-OTH_REP_ALL_bs_vws_resil											
Reduce transfer to other water companies: Hampshire Winchester											
Southern Water											
Drought Option: In the event of a drought the Company would hold discussions with neighbouring Companies with regards to their resources position and their supply. There are three main bulk transfers to the South East: its entitlement to 25% of the yield of the River Medway Scheme, the Sheldwich Scheme, and the Bewl-Darwell transfer. This option considers reduction of the transfer from Veolia Water Southeast to SWS Kent Thanet. The trigger for this would be when rainfall and groundwater level trigger is exceeded and/or if veolia Water Southeast is not affected as much as Kent Thanet WRZ.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Given the option reduces the transfer of water to other companies in the event of a drought, there is potential that water will be retained within the natural environment. Ecosystems may already be under severe stress therefore additional water retained in the natural environment will be beneficial. The HRA ToLS (2021) identified that the option unlikely to impact Hampshire Winchester WRZ N2K sites (River Itchen SAC), as scheme is geographically separated from WRZ. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The option may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	It is not likely the option will affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply to other water companies, therefore may result in a reduction in abstraction. WFD assessment (2020) identified no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to other water companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the other water companies.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available for this option. Neutral effects identified at this stage.	N/A	0	0	0	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to other companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	The reduction in the amount transferred to other water companies may have some effects on the wider population outside of Southern Water's boundary. However, this will only occur where groundwater levels are exceeded and if the Veolia Water Southeast is not affected as much as SWS Kent Thanet WRZ.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation has the potential to be affected if the reduction in water to other companies results in restrictions for water based activities.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -3				Positive 4 Negative -3					

SWS_HWZ_RE-TFR_IKT_ALL_do_si_tan_resil											
Tankering: Hampshire Winchester											
Southern											
Tankering water from adjacent WRZs or other water companies would be considered in severe droughts. Can be applied on a WRZ basis.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	Depending on the number of vehicles required for the operation, an increase in emissions may have negative impacts on nearby habitat.	Emission levels can be mitigated by using low emission vehicles (including electric vehicles) and strategic timing of transport e.g. avoiding driving lorries during rush hour.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option will supply water to Winchester in an emergency circumstance of severe drought.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	--	Option will cause an increase in emissions during transportation of water. This option is only to be implemented in severe circumstances therefore an increase in emissions will only be temporary.	Emission levels can be mitigated by using low emission vehicles (including electric vehicles) and strategic timing of transport e.g. avoiding driving lorries during rush hour.	0	0	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	-	There is no carbon data available for this option. There may be some negative effects from an increase in carbon emissions associated with tankering, however these are anticipated to be minor due to the temporary nature of the option.	Option only to be implemented in severe drought, emissions can be mitigated for by using low emission vehicles.	0	0	0	-

	Reduce vulnerability to climate change risks and hazards	0	0	0	0	This option is to be used only in severe drought and not a long term option. It will not affect resilience to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Visual amenity may be affected by an increase in lorries on the roads. This option is only to be implemented in severe circumstances therefore effects on visual amenity will be temporary.	Can be mitigated by strategic timing of transport of tankers.	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Increased traffic may impact on built heritage e.g. conservation areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	Can be mitigated by strategic timing of transport of tankers.	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Noise from vehicles and increase in air pollution can cause disturbance in populated areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	Can be mitigated by using electric vehicles and strategic timing of transport of tankers e.g. avoiding driving tankers during rush hour.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Increase in congestion on roads from tankers and effects on visual amenity may have an effect on recreation and tourism in Winchester. This option is only to be implemented in severe circumstances therefore effects on recreation and tourism will be temporary.	Best practice mitigation techniques to reduce impacts.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	--	Use of fuel resources.	Fuel utilisation may be reduced by strategic timing of transport vehicles e.g. avoid driving tankers in rush hour.	0	0	0	-
	Avoid negative effects on built assets and infrastructure	0	0	0	-	Depending on the number of tankers required for the operation, there may be an increase in congestion on roads. This option is only to be implemented in severe circumstances therefore negative effects will only be temporary.	Can be mitigated by strategic timing of transport of tankers e.g. avoiding driving tankers in rush hour.	0	0	0	-
SEA Metrics		Positive 1 Negative -14				Positive 1 Negative -8					

SWS_IOW_EF-CRE_ALL_ALL_do_di_res_regi											
Restriction to non-essential use; Isle of Wight											
Southern water											
Drought Option: The Company has recourse to a range of restrictions to Non-Essential Use. However, it can take a significant time to apply for and then implement a Drought Order. The Company might decide not to exercise all its powers until severe drought conditions are reached. Can be applied on a WRZ basis. Level of intervention for this option: Severe drought conditions.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) no likely significant effects for the following NK2 sites within the WRZ: Isle of Wight Downs SAC (Distance N/A); Solent and Southampton Water Ramsar (Distance N/A); Solent and; Southampton Water SPA (Distance N/A); Briddlesford Copses SAC (Distance N/A); Solent and Isle of Wight Lagoons SAC (2.8km northeast of proposed option); South Wight Maritime SAC. The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to sites which ecosystems are dependent upon ground and surface water. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Non-essential use restrictions may marginally impact soil quality, however the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Non-essential use restrictions are not anticipated to effect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicates short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0

	Deliver reliable and resilient water supplies	0	0	+	0	By reducing the amount of water required for supply through restrictions to non-essential use, the option maintains resilience of water for essential services.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available. Neutral effects identified.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of gardens, and use of ornamental fountains for example, may be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	--	Restrictions on non-essential use is likely to have moderate negative effects on the community and social well-being as there may be imposed restrictions on irrigation of gardens and allotments and outdoor plants, restrictions of use of water for swimming pools, restriction of washing vehicles and non-domestic property exteriors. Restrictions may apply to all customers, domestic and commercial so potential for economic impacts.	Ensuring high level of communication with customers before, during and following the implementation of the measure.	0	0	0	--
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation sites dependant on public water supply may be affected due to non-essential restrictions.		0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -6				Positive 4 Negative -6					

SWS_HAZ_EF-LKR_ALL_ALL_dmp iow high											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
	Deliver reliable and resilient water supplies	0	0	+++	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Minor positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive 28 Negative -3		Positive 28 Negative -2							

SWS_IOW_HI-GRW_ALL_ALL_br_less											
Eastern Yar3 replacement borehole											
Southern Water											
The option is to drill a new replacement borehole, 100m deep, for Eastern Yar3 Augmentation well on the Isle of Wight. The existing Eastern Yar3 borehole has c. 90%+ loss in performance, and previous well rehabilitation and cleaning has not provided a notable improvement. A replacement well is required to regain resilience within the augmentation well field.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	<p>There are no designated sites within 2000m. The option is within a SSSI risk zone. There is woodland and priority habitat within 500m of the option location and there is not anticipated to be any direct effects, however there may be disturbance effects construction. There are no GWDTE within 2000m.</p> <p>The HRA ToLS (2021) identified uncertain effects for Solent and Southampton Water SPA and Ramsar (10.5km to the east). The nature and magnitude of the work are unknown at this stage. However, the indicated locations are close to watercourses that flow downstream into the Solent and Southampton Water SPA and Ramsar. This means than any pollution or mobilised sediment could travel downstream to the SPA and Ramsar, affecting habitats and potentially therefore qualifying species too.</p> <p>There is a very low risk for the transfer / spread of INNS as the source water is likely to be entirely free of INNS. It is assumed that groundwater is free of INNS, and that accessing it will not permit any additional inputs of INNS.</p>	<p>Best practice mitigation to minimise impacts. If applicable, ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. The HRA Tier 2 Screening Assessment identified that the uncertain effects for the Solent and Southampton Water and Ramsar are likely to be mitigable. With the use of careful construction management, most appropriately through the use of a CEMP, it should be possible to ensure that sediment and/or pollution are both controlled and not allowed to enter into any water infrastructure that may then see it transported to the SPA and Ramsar. The CEMP would also include measures to ensure that no disturbance to bird species took place.</p>	0	-	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	<p>The option is within Grade 3 agricultural land, there may be disturbance to the soil during the construction phase and there may also be a permanent loss as a result of the option. There are historic landfills within 2000m, however there is not likely to be effects.</p>	<p>Reinstate land where possible, however potential for the option to lead to the permanent loss of soil due to the new boreholes.</p>	0	-	0	0

Water	Increase resilience and reduce flood risk	0	0	0	0	The option is located within Flood Zone 1 therefore low risk of flooding at the construction and operational phase. Option is not likely to exacerbate flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	-	There is potential for impacts on the construction phase on the water environment, including groundwater as the option involves drilling new borehole. Increased abstraction may impact groundwater levels. Option lies within SPZs and within IOW Lower Greensand WFD groundwater body. The WFD Screening Assessment (2021) identified no further WFD assessment is required.	Best practice construction measures to be implemented to mitigate effects therefore residual effects are unlikely for construction phase. Residual effects for operational have the potential to remain.	0	0	0	-
	Deliver reliable and resilient water supplies	0	0	+	0	Replacement borehole likely to increase reliability of supply.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	There are no AQMAs within 2000m. Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	No carbon data available for the option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	It is uncertain as to whether there is increased abstraction related to this option. Under the assumption there will not be increased abstraction, this option is unlikely to have any effects on vulnerability to climate change risks and hazards.	Monitor groundwater levels.	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	There is an AONB within 1500m of option. There will likely to be minor negative impacts on landscape character and visual amenity during the construction phase.	Best practice will be implemented to avoid negative effects, ground will be reinstated, however likely to be some disturbance to landscape during works. Implement screening and other best	0	-	0	0

							practice techniques to minimise operational impacts.				
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are listed buildings within 500m. The construction phase may impact the setting of these assets. Excavation may impact archaeology, if present.	Best practice mitigation measures to be implemented to minimise setting effects during construction. Given there is potential to impact buried archaeology, an Archaeology Watching Brief may be required during the construction phase. Further work may be required to determine the significance of the effect depending on the presence / absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The option is within 2km of play spaces and religious grounds. There is potential for the community and users of these community facilities to be impacted during the construction phase, however this is likely to be minor and temporary. The option is within IMD decile 5.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	There may be diversions to public rights of way during the construction phase. Minor impacts on recreation therefore identified for the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste, including excavation materials.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0

	Avoid negative effects on built assets and infrastructure	0	-	0	0	There are major roads and a national cycle trail within 2000m. There may be disruption to the local road network during the construction phase.	Best practice mitigation measures including a Traffic Management Plan to be implemented to minimise effects during construction.	0	-	0	0
SEA Metrics		Positive		1				Positive		1	
		Negative		-16				Negative		-12	

SWS_IOW_HI-GRW_ALL_ALL_nw_gwa_bro_westi											
Near Cowes WSW											
Southern water											
The near Cowes groundwater source has been disused since 1989. This option would involve bringing the source back online by replacing the boreholes and undertaking the appropriate rehabilitation and repairs to the on-site near Cowes reservoir.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	--	There are two GWDTEs in close proximity to the option: Parkhurst Forest SSSI (61.72% favourable, 38.28% unfavourable recovering) and Medina Estuary SSSI (14.25% favourable, 85.75% unfavourable no change). The option is within a SSSI risk zone. There is also Solent & Southampton Water Ramsar and SPA; Solent Maritime SAC and Yarmouth to Cowes MCZ within 2km of option. The increased abstraction may have impacts on protected habitats and species that are reliant on ground water flows. There may also be disturbance to habitats during construction. The boreholes are within 500m of ancient woodland, woodland and priority habitats and there may be some indirect disturbance during the construction phase. The HRA Tols (2021) identified no likely significant effects, no further assessment required. The risk of transfer / movement of INNS is very low.	Best practice mitigation to minimise impacts and reinstatement /compensation of habitats however it is not possible to mitigate for the loss of habitat that the installation of this pipeline would require. Future design will need to undertake ecology surveys.	0	--	0	--
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	Option located on urban and grade 3 agricultural land. Possible impacts on soil during construction, replacing boreholes and repairs to reservoir. There is one historic landfill in proximity to the option, however risk of contamination is minimal.	Excavated ground will be reinstated where possible. Best practice methods for working in historic landfill sites.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Both boreholes are located within FZ1 therefore low risk of flooding.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	Option involves new abstraction therefore potential to have impacts on groundwater levels and quality. The construction phase may have impacts on water quality. Option is to be located on SP22 and is within IOW Solent Group WFD groundwater body. WFD assessment (2020) identified further WFD assessment is required due to operational effects.	Best practice construction measures will likely be implemented. Undertake further WFD assessment.	0	0	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	The option reimplements abstraction of near Cowes groundwater source with default benefit of 1Ml/d therefore minor positive effects identified.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	-	0	0	There are no AQMAs within 2000m. Likely to be an increase in emissions during construction phase.	Best practice mitigation measures likely to be implemented during construction phase, such as the use of low emission vehicles and switch off policies, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	+	-	Increased abstraction may reduce the water sources resilience to potential drought scenarios. However, there may be positive effects due to reduced demand on surface water.	Monitor ground water levels.	0	0	+	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	Potential for short term impacts to visual amenity during construction. Option makes use of existing infrastructure so unlikely to have effects on landscape during the operational phase.	Ground will be reinstated following pipeline construction therefore residual effects unlikely. Measures to reduce the visual impact during construction e.g. screening could be implemented, however residual effects remain.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are listed buildings within 500m of the boreholes, however given the localised nature of the works, there is not anticipated to be effects on the setting of these assets. There is potential for disturbance of buried archaeological artifacts if excavation is required during construction.	Best practice mitigation measures will likely be implemented to minimise setting effects during construction. Archaeological Watching Brief may be required during the construction phase.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	Love Lane Primary School, St Faith's Church, play spaces, playing fields, and allotments are within 500m of option. There are further schools, religious buildings and other important buildings within 2km. There may be disturbance impacts to user of these facilities during construction. The option is located within IMD decile 4 and 5.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	There are allotments, play spaces and playing fields within 500m of the boreholes as well as a national cycle route. The construction phase may lead to the diversion of public rights of way. Impacts on recreation are likely to be minor and temporary.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Waste likely to be generated and materials to be used during construction.	Opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	The option is within close proximity to Newport Road (A road) and cycle path. Given the nature of the works, there may be disturbance to these assets and the local road network, however this is likely to be minor.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics		Positive 2 Negative -24				Positive 2 Negative -23					

SWS_IOW_HI-GRW_ALL_ALL_nw_gwa_chi_westi											
Rookley- new BHs											
Southern water											
Rookley LGS well/adit suffers from turbidity - likely due to runoff from adjacent agricultural fields as well as construction and geology. There are water quality challenges during high rainfall causing outage/resilience/compliance risks. Option proposes replacement new collector well or similar.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	The Wilderness SSSI, which is a GWDTE, and Garston's Down SSSI are within 2000m. However, given the nature of the works, effects are not anticipated. The option is within a SSSI risk zone. There is Priority Habitat (Deciduous Woodland) and woodland close to option and ancient woodland. Given the nature of the works, impacts are likely to be minimal. The HRA Tols (2021) identified no likely significant effects, no further assessment needed. Additional risk of the transfer / movement of INNS is anticipated to be very low.	Best practice mitigation to minimise impacts and reinstatement /compensation of habitats however it is not possible to mitigate for the loss of habitat that the installation of this pipeline would require. Future design will need to undertake ecology surveys.	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	Option is located on grade 3 and 4 Agricultural Land. There may be construction impacts on soil as excavation may be necessary for construction of well.	Land to be reinstated where possible, however there may be some permanent losses.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is within FZ1 therefore low risk of flooding.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	There may be short term effects on ground water quality during construction. Assuming there is no increase in abstraction associated with this option it is unlikely for there to be any operational effects. The option is within IOW Central Downs Chalk WFD groundwater body and SPZ 2 and 3. The WFD Screening Assessment (2021) identified further WFD assessment is required due to operational effects.	Best practice construction measures will likely be implemented, however possibility for impacts to remain.	0	-	0	--
	Deliver reliable and resilient water supplies	0	0	0	0	The option is not anticipated to have any effects on the resilience of supplies. The default benefit is OMI/d.	N/A	0	0	0	0
Air	Reduce and minimise air emissions	0	-	0	0	There are no AQMAs within 2000m. There is potential for the construction phase to have an impact on air quality.	Best practice mitigation measures likely to be implemented during construction phase, such as the use of low emission vehicles and switch off policies, however minor	0	-	0	0

							and temporary impacts on air quality are likely to still occur.				
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data for this option. This option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Option unlikely to have significant impact on vulnerability to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	Option is located within Isle of Wight AONB. Construction likely to involve excavation of new well therefore it is likely that there will be permanent alteration to the landscape.	Ground will be reinstated where possible, Measures to reduce the visual impact during construction e.g. screening could be implemented, however residual effects remain. Opportunity for landscaping to mitigate impacts.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There is potential for the excavation of the collector well to impact buried archaeology, if present. There are listed buildings within 500m and the construction may affect the setting of historic assets, however this is likely to be temporary and minimal given the localised nature of effects.	Best practice mitigation measures will likely be implemented to minimise setting effects during construction. Archaeological Watching Brief may be required during the construction phase.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	Chillerton And Rookley Primary School is within 500m. The users of the school and the wider community may be affected by noise and dust during construction works. The option is located in IMD decile 4 area.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0

	Maintain and enhance tourism and recreation	0	0	0	0	Option unlikely to have any impact on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Materials will be required for construction of well and waste will be generated, including excavated material.	Opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	There may be some disturbance to the local road network, however this will be minor.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics		Positive		0				Positive		0	
		Negative		-17				Negative		-14	

SWS_IOW_HI-GRW_ALL_ALL_nw_gwa_kni_westi											
Newchurch LGS - new BHs (BH4 and replacing BH1 & BH2)											
Southern water											
Lower Greensand Boreholes 1&2 are operational but are operating at 1.5MI/d instead of 6MI/d due to screen de-watering. Borehole 4 on site has never been operational. This option proposes replacing all 3 boreholes so that the site can operate to it's licensed capacity.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	-	0	-	There are three SSSIs within 2km of option: Alverstone Marshes SSSI (6.63% Favourable, 7.22% Unfavourable - Recovering, 18.78% Unfavourable - No change, 67.38% Unfavourable - Declining) / GWDTE; Eaglehead and Bloodstone Copses SSSI (63.00% Favourable, 37.00% Unfavourable - Recovering) and Arreton Down SSSI (70.84% Favourable, 23.98% Unfavourable - Recovering). There may be some disturbance effect during construction from noise and dust pollution, minor effects identified. Depending on the hydrological links, there may be impacts during operation on the GWDTE as a result of increased abstraction. There is potential for direct effects on woodland and priority habitats. There is ancient woodland within 500, however not anticipated to be affected. The HRA Tols (2021) identified no likely significant effects, no further assessment required. The risk of the transfer / movement of INNS is very low given the groundwater sources will likely be entirely free of INNS.	Best practice mitigation to minimise impacts and reinstatement /compensation of habitats however it is not possible to mitigate for the loss of habitat that the installation of this pipeline would require. Future design will need to undertake ecology surveys.	0	-	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Option is located on grade 3 and 4 Agricultural Land. No effects on soil identified under the assumption that construction involves replacing pre-existing boreholes.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is within FZ1 therefore low risk of flooding.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	-	There may be short term effects on ground water quality during construction. Operational impacts are anticipated from increased abstraction which may have effects on groundwater levels. The option is within IOW Central Downs Chalk WFD groundwater body and is SPZs. The WFD Screening Assessment (2021) identified further WFD assessment is not required.	Best practice construction measures will likely be implemented, however possibility for impacts to remain. Monitor groundwater levels.	0	0	0	-

	Deliver reliable and resilient water supplies	0	0	+	0	Option will provide increased water to enable the site to abstract up to licenced capacity. The default benefit is 4.5ML/d therefore minor positive effects have been identified.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	There are no AQMAs within 2000m. There is potential for the construction phase to have an impact on air quality.	Best practice mitigation measures likely to be implemented during construction phase, such as the use of low emission vehicles and switch off policies, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data for this option. This option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	+	-	The option has the potential to benefit the surface water environment by utilising groundwater sources. However, there may be negative effects on the resilience of groundwater sources.	Monitor groundwater levels.	0	0	+	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	Option is located within Isle of Wight AONB. There is likely to be temporary impacts on visual amenity during construction. The option involves replacing existing boreholes therefore no operational impacts anticipated.	Ground will be reinstated where possible, Measures to reduce the visual impact during construction e.g. screening could be implemented, however residual effects remain.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	There are numerous listed building within 500m and there are scheduled monuments within 2000m. Given the nature of these works, construction is not anticipated the setting of these assets. There is not anticipated to be effects on archaeology given it is a replacement of existing boreholes. However, if any further excavation is required and archaeology is present, there may be effects.	N/A	0	0	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are no community facilities within 500m of the option. There may be some disturbance to the local community during the construction phase, however this will likely be minor and temporary. The option is within IMD decile 7.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	Option unlikely to have any impact on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Materials will be required for replacement boreholes and waste is likely to be generated.	Opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	There may be some disturbance to the local road network, however this will be minor.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics		Positive 2 Negative -15				Positive 2 Negative -11					

SWS_IOW_HI-GRW_RE1_ALL_ass_dp_rgs1_westi											
Rest groundwater sources - Isle of Wight											
Southern water											
IOW - Drought Intervention Option. Operational strategy to limit the use of indigenous groundwater sources (such as Newport) as much as possible during the early stages of drought so that these groundwater supplies are available as a last resort as surface water recesses during extended drought periods.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	South Wight Maritime SAC, Bembridge MCZ, Bembridge Down SSSI, and Brading Down LNR are within 2000m. The Brading Marshes to St. Helen's Ledges SSSI, which is also a GWDTE, is also within 2000m. Limiting use of ground water sources may have beneficial effects on health of GWDTE close to sources and increase ecosystems resilience to drought. HRA Tols (2021) indicates no likely significant effects, no further assessment required. The risk of the movement / transfer of INNS is anticipated to be very low.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The option is within Grade 3 agricultural land. However, there is not anticipated to be any effects on soils. There are historic and authorised landfills within 500m, however there is not likely to be any effects.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is located within FZ2 and FZ3, however given the nature of the option, it is not likely to be affected by flood risk. The option is not likely to affect the risk of flooding.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	++	--	The option is within the IOW Lower Greensand WFD waterbody and is not within SPZs. Option likely to have beneficial effects on ground water sources as resting periods will increase the resilience of the water environment and may improve water quality and levels. However, subsequent increased abstraction during drought may have detrimental effects. WFD assessment (2020) indicates no waterbodies which require further assessment.	Monitor groundwater levels.	0	0	++	--
	Deliver reliable and resilient water supplies	0	0	+	0	Option will conserve ground water sources to increase supply in drought demand. The option has a default benefit of 1Ml/d therefore minor positive effects identified.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	There are no AQMAs within 2000m. The option is not anticipated to have an effects on air quality.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	-	There is no carbon data available for this option. This option is estimated to have neutral construction and minor operational carbon emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	0	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	+	-	The option limits the use of indigenous groundwater sources as far as possible during the early stages of drought so they are available at a later stages during extended droughts. This may have positive effects on the resilience of these sources to climate change as they are used as a last resort. However, they abstraction will resume during extended periods of drought therefore negative effects have been identified.	Monitor groundwater levels.	0	0	+	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	The Isle of Wight AONB is within 2000m. However, the option is not anticipated to have an effect on the landscape.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	There are listed buildings within 500. However, the option is not anticipated to have an effect on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	There is a sports facility, allotments, noise action area and emergency services within 500m. The users of these community facilities and the wider community are unlikely to be affected by the option. The option is within IMD decile 3.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	There is a sports facility and allotments within 500m. However, the option is unlikely to affect recreation or tourism.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	Provided no new infrastructure is required for this option, it is anticipated that there will be minimal resource use and minimal waste produced.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	It is not anticipated that there will be an impact on built assets and infrastructure as a result of this option.	N/A	0	0	0	0
SEA Metrics		Positive 7 Negative -6				Positive 7 Negative -6					

SWS_IOW_HI-IMP_HSW_ALL_sol											
Cross-Solent main export to IOW											
Southern Water											
Cross - Solent main export to IOW											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	The option is for an existing transfer. No new infrastructure likely to be required therefore no impacts identified. HRA ToLS (2021) identified no likely significant effects given there is no new infrastructure. No additional risk for the transfer of INNS.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No new infrastructure as existing transfer therefore neutral effects identified for soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No new infrastructure therefore no additional flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No new infrastructure therefore neutral effects identified for water resources. WFD Screening Assessment (2020) identified no impact as it is an existing transfer and further WFD assessment is therefore not required.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	0	0	The option transfers water which leads to more resilient supplies, however as this is an existing transfer, additional positive effects have not been identified.	N/A	0	0	0	0
Air	Reduce and minimise air emissions	0	0	0	0	No new infrastructure therefore no additional impacts on air quality.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	No new infrastructure, utilising existing transfer and water levels are not likely to be significantly affected, therefore no additional impacts on the climate resilience of the local environment.	N/A	0	0	0	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No new infrastructure therefore no additional impacts on landscape.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No new infrastructure therefore no additional impacts on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	No new infrastructure therefore no additional impacts on the local community.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	No new infrastructure therefore no additional impacts on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	No new infrastructure therefore no additional impact on resources and waste.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	No new infrastructure therefore no additional impacts on built assets and the built environment.	N/A	0	0	0	0
SEA Metrics		Positive 0 Negative 0				Positive 0 Negative 0					

SWS_IOW_HI-REU_RE1_ALL_sey5											
Sandown WwTW Indirect Potable Reuse (5MI/d)											
Southern Water											
This option proposes the transfer of treated effluent from Sandown WwTW (currently discharged to sea), to support flows in the Eastern River Yar upstream of the Sandown WSW abstraction at Alverstone. Treated water in excess of the local demand will be transferred through a new transfer pipeline to the Alvington High Level WSR, near Newport, for supply to much of the island. This option is reliant on the WSR enlargements carried out in IZT_CSM Cross-Solent upgrade. (2) Option 2 also includes upgrades to Sandown WSW to achieve the extra flow.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	Alverstone Marshes SSSI GWDES (Approx. 67% unfavourable declining, 19% unfavourable no change, 7% unfavourable recovering and 6% favourable) is within 500m of proposed pipeline. Brading marshes Nature reserve, Solent and Southampton waters Ramsar site SPA and South Wight Maritime SAC is also within 2000m of pipeline. No direct effects but there may be disturbance effects during the construction phase and potential effects on protected species. Pipeline intersects with areas of priority habitat; coastal and floodplain grazing marsh, deciduous woodland, good quality semi-improved grassland, lowlands dry acid grassland, lowlands fens, purple moor grass and rush pastures, reed beds and additional habitat. While unlikely to have operational effects there is a high risk of direct impact on priority species during construction. Very low risk of transfer of INNS as the treated source water is likely to be entirely free of INNS. Construction phase risk of INNS is considered to be low. HRA ToLS (2021) identifies no likely significant effects for Isle of Wight Downs SAC (6.4m southwest of proposed option), Solent and Isle of Wight Lagoons SAC (2.8km northeast of proposed option) or South Wight Maritime SAC (550m to the southeast of the option). However, uncertain effects are identified for Solent and Southampton Water Ramsar and SPA (1.5km north of proposed option) and Briddlesford Copses SAC (2.43km north of proposed option) for the construction phase. There is potential for sediment discharge or pollution which could impact qualifying features.	Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. HRA ToLS uncertain effects for Solent and Southampton Water Ramsar are considered to be partially mitigatable through use of best practice measures such as a robust CEMP. Despite these measures, likely significant effects on bechsteins bats could, potentially still occur. The effects therefore remain uncertain. Undertake HRA AA to address uncertain effects identified for Solent and Southampton Water Ramsar and SPA, and Briddlesford Copses SAC.	0	--	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	Option located on grade 2, 3 and 4 agricultural soil. Disturbance to this land is likely to occur during construction. Pipeline passes through Lower Knighton Landfill site, where there is a possible risk of contamination during construction.	Ground will be reinstated therefore residual effects unlikely. Best practice techniques likely to be implemented for construction work in landfill	0	-	0	0

Water	Increase resilience and reduce flood risk	0	-	0	0	Option passes through areas of flood zone 2 and 3 and areas of flood defences. While the pipeline itself is unlikely to increase risk of flooding flood defences will be compromised during construction.	Best practice mitigation measures likely to be implemented during construction phase, however an increased risk of flooding during construction likely to remain.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	+	-	This option proposes the transfer of treated effluent from Sandown WwTW (currently discharged to sea), to support flows in the Eastern River Yar upstream of the Sandown WSW abstraction at Alverstone. Quality of treated effluent water likely to be of less favourable quality, however positive effects identified as it excess water is being used to support flows. Option passes through two areas of WFD ground water, there may be a risk of impacting the quality of water at these sites during construction. WFD assessment completed in 2021 indicates that all waterbodies have a passing WFD and none require further assessment.	Best practice construction measures will likely be implemented to mitigate effects during construction.	0	0	+	-
	Deliver reliable and resilient water supplies	0	0	+	0	Treated water in excess of the local demand will be transferred through a new transfer pipeline to the Alvington High Level WSR, near Newport, for supply to much of the island	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Construction likely to cause temporary increase in emissions which could impact air quality.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts are likely to occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and minor operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Option may reduce vulnerability to climate change by providing greater resilience of water supplies and supporting flows of the river Yar by reusing effluent water that is currently discharged to the sea.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	Pipeline passes through areas of outstanding natural beauty, there are likely to be negative effects on visual amenity during construction and possible effects on landscape post construction of pipeline.	Best practice mitigation measures likely to be implemented during construction phase. Possibility for landscaping to restore/enhance visual amenity. However minor and temporary impacts are likely to occur.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	Option is located within a conservation area, minor negative effects during construction likely as excavation will be required for the transfer pipeline. There is potential that the pipeline excavation will impact archaeology. Pipeline immediately adjacent/ partly intersects Clatterford Roman Villa scheduled monument.	Re-route the pipeline or utilise directional drilling to minimise effects on the scheduled monument. Best practice construction likely to be implemented during construction phase. However minor and temporary impacts are likely to occur. Archaeological Watching Brief may be required during the construction phase if archaeology is present.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are two schools, two cemeteries, five churches, two major roads and two cycle routes within 500m of option. There is no direct land take from these areas. There is likely to be minimal and temporary disturbance effects on users of these sites and the local community during construction. IMD deciles range from 3 to 7 along the pipeline route.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	Option crosses cycle path so diversions/closures likely during construction, excavated areas of path will be reinstated. There are several parks and green spaces that may be temporarily affected during construction by noise and dust pollution.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	+	0	Option reuses effluent water. Pipeline infrastructure required for option which will use materials and excavated material will be generated.	Opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that	0	-	+	0

							minor negative effects will remain.					
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option crosses major roads, and national cycle routes. There is likely to be moderate and temporary impacts during the construction phase from disruption for users (e.g. road closures, diversions).	Best practice mitigation measures will likely be implemented to minimise effects during construction and roads and cycle routes will be reinstated above the pipeline. However, minor and temporary effects are likely to still occur.	0	-	0	0	
SEA Metrics			Positive Negative	4 -29					Positive Negative	4 -16		

SWS_IOW_HI-REU_RE1_ALL_sey9											
Sandown WwTW Indirect Potable Reuse (8.5Ml/d)											
Southern Water											
This option proposes the transfer of treated effluent from Sandown WwTW (currently discharged to sea), to support flows in the Eastern River Yar upstream of the Sandown WSW abstraction at Alverstone. Treated water in excess of the local demand will be transferred through a new transfer pipeline to the Alvington High Level WSR, near Newport, for supply to much of the island. This option is reliant on the WSR enlargements carried out in IZT_CSM Cross-Solent upgrade. (2) Option 2 also includes upgrades to Sandown WSW to achieve the extra flow.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	Alverstone Marshes SSSI GWDES (Approx. 67% unfavourable declining, 19% unfavourable no change, 7% unfavourable recovering and 6% favourable) is within 500m of proposed pipeline. Brading marshes Nature reserve, Solent and Southampton waters Ramsar site SPA and South Wight Maritime SAC is also within 2000m of pipeline. No direct effects but there may be disturbance effects during the construction phase and potential effects on protected species. Pipeline intersects with areas of priority habitat; coastal and floodplain grazing marsh, deciduous woodland, good quality semi-improved grassland, lowlands dry acid grassland, lowlands fens, purple moor grass and rush pastures, reed beds and additional habitat. While unlikely to have operational effects there is a high risk of direct impact on priority species during construction. Very low risk of transfer of INNS as the treated source water is likely to be entirely free of INNS. Construction phase risk of INNS is considered to be low.	Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Uncertain effects are considered to be mitigatable through use of best practice measures such as a robust CEMP. However, for Briddlesford Copses SAC, despite these best practice mitigation measures, likely significant effects on bechsteins bats could potentially still occur. The effects therefore remain uncertain. Undertake HRA AA to address uncertain effects identified for Briddlesford Copses SAC.	0	--	0	0
						HRA ToLS (2021) identifies no likely significant effects for Isle of Wight Downs SAC (6.4m southwest of proposed option), Solent and Isle of Wight Lagoons SAC (2.8km northeast of proposed option) or South Wight Maritime SAC (550m to the southeast of the option). However, uncertain effects are identified for Solent and Southampton Water Ramsar and SPA (1.5km north of proposed option) and Briddlesford Copses SAC (2.43km north of proposed option) for the construction phase. There is potential for sediment discharge or pollution which could impact qualifying features.					
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	Option located on grade 2, 3 and 4 agricultural soil. Disturbance to this land is likely to occur during construction. Pipeline passes through Lower Knighton Landfill site, where there is a	Ground will be reinstated therefore residual effects unlikely. Best practice techniques likely to be implemented for	0	-	0	0

						possible risk of contamination during construction.	construction work in landfill.				
Water	Increase resilience and reduce flood risk	0	-	0	0	Option passes through areas of flood zone 2 and 3 and areas of flood defences. While the pipeline itself is unlikely to increase risk of flooding flood defences will be compromised during construction.	Best practice mitigation measures likely to be implemented during construction phase, however an increased risk of flooding during construction likely to remain.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	+	-	<p>This option proposes the transfer of treated effluent from Sandown WwTW (currently discharged to sea), to support flows in the Eastern River Yar upstream of the Sandown WSW abstraction at Alverstone. Quality of treated effluent water likely to be of less favourable quality, however positive effects identified as it excess water is being used to support flows. Option passes through two areas of WFD ground water, there may be a risk of impacting the quality of water at these sites during construction.</p> <p>WFD assessment completed in 2021 indicates that all waterbodies have a passing WFD and none require further assessment.</p>	Best practice construction measures will likely be implemented to mitigate effects during construction.	0	0	+	-
	Deliver reliable and resilient water supplies	0	0	+	0	Treated water in excess of the local demand will be transferred through a new transfer pipeline to the Alvington High Level WSR, near Newport, for supply to much of the island.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Construction likely to cause temporary increase in emissions which could impact air quality.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts are likely to occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and minor operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Option may reduce vulnerability to climate change by providing greater resilience of water supplies and supporting flows of the river Yar by reusing effluent water that is currently discharged to the sea.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	Pipeline passes through areas of outstanding natural beauty, there are likely to be negative effects on visual amenity during construction and possible effects on landscape post construction of pipeline.	Best practice mitigation measures likely to be implemented during construction phase. Possibility for landscaping to restore/enhance visual amenity. However minor and temporary impacts are likely to occur.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	Option is located within a conservation area, minor negative effects during construction likely as excavation will be required for the transfer pipeline. There is potential that the pipeline excavation will impact archaeology. Pipeline immediately adjacent/ partly intersects Clatterford Roman Villa scheduled monument.	Re-route the pipeline or utilise directional drilling to minimise effects on the scheduled monument. Best practice construction likely to be implemented during construction phase. However minor and temporary impacts are likely to occur. Archaeological Watching Brief may be required during the construction phase if archaeology is present.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are two schools, two cemeteries, five churches, two major roads and two cycle routes within 500m of option. There is no direct land take from these areas. There is likely to be minimal and temporary disturbance effects on users of these sites and the local community during construction. IMD deciles range from 3 to 7 along the pipeline route.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	Option crosses cycle path so diversions/closures likely during construction, excavated areas of path will be reinstated. There are several parks and green spaces that may be temporarily affected during construction by noise and dust pollution.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	+	0	Option reuses effluent water. Pipeline infrastructure required for option which will use materials and excavated material will be generated.	Opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that	0	-	+	0

							minor negative effects will remain.				
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option crosses major roads, and national cycle routes. There is likely to be moderate and temporary impacts during the construction phase from disruption for users (e.g. road closures, diversions).	Best practice mitigation measures will likely be implemented to minimise effects during construction and roads and cycle routes will be reinstated above the pipeline. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics		Positive 4		Negative -29				Positive 4		Negative -16	

SWS_IOW_HI-ROC_ALL_ALL_env_lv_yar_westi											
Drought option: Modification of operational rules for the Eastern Yar scheme											
Southern Water											
Modification of operational rules for the Eastern Yar scheme.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	---	<p>The following SSSI is located within 1km of the option: Shide Quarry (approx. 0.12km, 100% favourable). The option would be situated within SSSI Impact Risk Zones associated with the Shide Quarry and Briddlesford Copses SSSI's, including areas where all planning applications (except householder) outside or extending outside existing settlements/urban areas affecting greenspace, farmland, semi natural habitats or landscape features such as trees, hedges, streams, rural buildings/structures, and any discharge of water or liquid waste that is discharged to ground (i.e. to seep away) or to surface water, such as a beck or stream, have been highlighted as being a risk to the sensitive features for which the SSSI is notified.</p> <p>No adverse effects on National Nature Reserves are expected.</p> <p>The option would not cross, or be situated immediately adjacent to, any areas of Ancient Woodland, although it would be located within priority habitats and woodland. As there is no construction, no impacts are identified.</p> <p>The HRA Appropriate Assessment, as reported in the Drought Plan SEA, identified potential adverse effects on the Solent Maritime SAC, Solent and Southampton Water SPA and Ramsar due to the reduction in freshwater input, which could lead to a change in wetted area, and nutrient loading and flushing, with potential changes to the benthic invertebrate communities and feeding patterns of bird species. Uncertainty in these conclusions will be addressed through a Monitoring and Mitigation Package being developed in consultation with Natural England and Environment Agency. No adverse effects on Marine Conservation Zones are expected.</p> <p>This option will have major adverse effects on natural capital assets and provides some minor opportunities for enhancement of natural capital</p>	HRA Level 2 screening identified uncertain effects despite mitigation, further AA would be required. Uncertainty will be addressed through a Monitoring and Mitigation Package.	0	0	0	---/?

						through the associated catchment management mitigation measures proposed for this option. The additional risk / transfer of INNS is very low given the option is related to a change in operational rules.					
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The option is within Grade 3 and urban land. No effects on soil identified given there is no construction.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	--	The option is located within FZ1 and FZ2. There may be operational flood risk effects.	Measures to reduce the impact on flooding during the operational phase are likely to be implemented, to minimise risk of flooding.	0	0	0	-
	Protect and enhance the quality of the water environment and water resources	0	0	0	--	The option will increase abstraction therefore may have an effect on the quality, level and flow in the River Yar. The option is within SPZs. Moderate negative effects during operation have been assessed in line with the SEA for the Southern Water Drought Plan.	Monitor flow and levels. Undertake further WFD assessment.	0	0	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	Option will increase water available for abstraction at Sandown. The default benefit is 1Ml/d therefore minor positive effects identified.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	There is not anticipated to be additional effects on air quality.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available for this option. The option is estimated to have neutral construction and operational emissions.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	-	The option increases abstraction therefore reducing the resilience of the local environment to climate change.	Monitor flow and levels.	0	0	0	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	The following AONB is within 5km of the option: Isle of Wight (approx. 0.25km). There is not anticipated to be any significant effects on the landscape as a result of this option.	N/A	0	0	0	0

Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	The option is unlikely to have any impacts on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	The drought permit would provide additional yield, helping to maintain essential public water supplies during drought conditions, and will therefore help maintain public health and wellbeing to a minor degree.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	The option is unlikely to have any impact on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	The option is unlikely to have any significant effects of resource use or waste production.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	The option is unlikely to have significant effect on built assets and infrastructure.	N/A	0	0	0	0
SEA Metrics		Positive 1 Negative -13				Positive 1 Negative -10					

SWS_IOW_RE-DRO_ALL_ALL_di-iw											
TUBS and NEU Ban - IW WRZ											
Southern water											
Temporary use bans and Non-essential use bans											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Temporary use bans and non-essential use bans on the Isle of Wight may help protect GWDTE and priority habitat by conserving water in the environment. The HRA Tols (2021) indicated the following Natura sites that may be affected: Isle of Wight Downs SAC (Distance N/A); Solent and Southampton Water Ramsar (Distance N/A); Solent and; Southampton Water SPA (Distance N/A); Briddlesford Copses SAC (Distance N/A); Solent and Isle of Wight Lagoons SAC (2.8km northeast of proposed option); South Wight Maritime SAC. The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit	N/A	0	0	+	0

						to sites which ecosystems are dependent upon ground and surface water. No INNS risk/transfer associated with this option.					
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	A temporary use ban and non-essential use ban may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of several water bodies. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	By reducing demand through temporary use band and non-essential use ban, option maintains resilience of water for essential services.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available. Neutral effects identified.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The option is for a temporary use ban and non-essential use ban. By reducing demand and potentially reducing abstraction the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented in drought conditions, it will not result in the long term resilience of the local environment.	N/A	0	0	+	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of private gardens, and use of ornamental fountains etc will be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to have a significant effect on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Temporary use ban and non-essential use ban is likely to have minor negative effects on the community and social well-being as there will be restrictions on irrigation of gardens and allotments and use of water for recreational purposes. There may also be a small increased risk of fires in allotments as vegetation dries out.	Allowing allotments limited supplies of water. Ensuring high levels of communication before, during and following the implementation of these measures.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Assuming commercial properties including gardens are exempt from bans and restrictions there is likely to be only a minor effect on tourism and recreation. Non-commercial tourism sites may be affected.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effect on waste production or resource use.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effects on built assets and infrastructure.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -3				Positive 4 Negative -3					

SWS_IOW_RE-DRO_ALL_ALL_do_di_eme_regi					
Emergency restrictions: Isle of Wight					
Southern water					
Drought Option: Emergency Drought Orders allow water companies to restrict supplies to customers through the imposition of rota cuts and/or the introduction of standpipes. These measures exist to deal with the very remote possibility of a drought much worse than any seen in the last century or more in the UK. Emergency Drought Orders have not been put in place in the UK since 1976. Ministers have made it clear that such measures should be avoided at all costs and introduced only as a last resort. The Company will make full use of all other measures before considering whether the severity of drought conditions mean that Emergency Drought Orders might be required. The full range of measures available under Emergency Drought Order include powers: To limit the use of water for such purposes as it considers necessary (i.e. further measures not specified in the Drought Direction 2011); To introduce rota cuts; and To set up, and supply water by means of, stand-pipes or water tanks. Level of intervention for this option: Unprecedented drought conditions. We intend the need for these to only arise in conditions of civil emergency and as such our emergency plan covers this in more detail.					

SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) identified no likely significant effects for the N2K sites within the Isle of Wight WRZ: Isle of Wight Downs SAC, Briddelford Copses SAC, and Solent Maritime SAC. The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit for all the N2K sites within this WRZ as they contain GWDTE or are dependent on surface water flows. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Emergency restrictions may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is only to be used in severe drought circumstances so is therefore not likely to affect flood risk or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	++	0	Option maintains resilience of water for essential services.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available. Neutral effects identified.	N/A	0	0	0	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have temporary effects on visual amenity as restricted water use may impact parks and gardens reliant on public water supply.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	---	Emergency restrictions such as rota cuts and imposition of standpipes may have major negative effects on social well-being, with the potential for breakdown of social cohesion and impacts on public health. Imposition of standpipes will particularly effect people with limited mobility or other disabilities. Businesses that use water and do not have access to private water supply will be largely affected with the potential for substantial economic losses. There may also be an increased risk of fires as public access to water is restricted.	Ensure high level of communication with customers before, during and after the restrictions have been imposed.	0	0	0	---
	Maintain and enhance tourism and recreation	0	0	0	--	Tourism and recreation is likely to be affected as water restrictions may force some tourist attractions and recreational activities to temporarily close.	N/A	0	0	0	--
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 7 Negative -13				Positive 7 Negative -13					

SWS_IOW_RE-DRO_ALL_ALL_env_lv_cal_westi											
Caul Bourne											
Southern water											
Drought Option: Reduce or remove the MRF which controls the abstraction from this source. Drought Order. Level of intervention: Severe drought conditions.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-

Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	Calbourne Down SSSI (100% unfavourable - recovering) is within 500m of the option location and Mottistone Down SSSI and Isle of Wight SAC are within 2000m. The option is within a SSSI risk zone. There is not anticipated to be any construction associated with this option. Removing a statutory Minimum Residual Flow to enable increased abstraction during extreme drought when water resources and riverine ecosystems may already be under severe stress may have irreversible impacts on local ecosystems. There are priority habitats and woodland within close proximity which may be affected by increased abstraction. There are no likely impacts on GWDTE or chalk rivers. The HRA ToLs identified no likely significant effects on N2K sites. There is very low risk for the transfer / movement of INNS.	Further assessments required to establish potential impacts from reduction/removal of MRF. Monitor groundwater levels.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Option located on Grade 3 and 4 agricultural land, however there is no construction and therefore disturbance to these soils is unlikely. There are historic and authorised landfill sites within 2000m, however no effects anticipated.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is located within FZ1, however part of the option is located within close proximity to FZ2 and FZ3 along the watercourse route. No effects identified. The option is not anticipated to increase the risk of flooding.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	--	Option is within SPZs and is located within the IOW Solent Group and IOW Central Downs Chalk WFD groundwater bodies. Given this option is only to be implemented under drought conditions when water resources are vulnerable, the option may have further negative effects on levels, flows and quality of the water environment. WFD assessment (2020) indicate further WFD assessment is required due to operational effects on the IOW Solent Group and IOW Central Downs Chalk WFD groundwater bodies.	Further assessments required to establish potential impacts from reduction/removal of MRF. Monitor groundwater levels. Undertake further WFD assessment.	0	0	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	Option will reduce/remove statutory Minimum Residual Flow (MRF) to enable abstraction during severe drought conditions. The default benefit is 1.77Ml/d therefore minor positive effects identified.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	There may be some negative effects from an increase in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	-	There is no carbon data available for this option. The option is estimated to have neutral construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy	0	0	0	-

							supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.				
	Reduce vulnerability to climate change risks and hazards	0	0	0	-	Increased abstraction during period of drought will reduce the water environment's ability to recover and may increase ground water resources vulnerability to drought in the future.	Further assessments required to establish potential impacts from reduction/removal of MRF. Monitor groundwater levels.	0	0	0	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	The option is within the Isle Of Wight AONB. However, given there is no construction, the option is unlikely to have effects on landscape, townscape and seascape character and visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	There is a registered park and garden, scheduled monument and numerous listed buildings within 500. However, given there is no construction, the option unlikely to have effect on the historic environment. The option is not anticipated to impact archaeology.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	There are playing fields, churches and sports facilities within 500m. However, given there is no construction, there is not anticipated to be any effects on the local community or users of these community facilities. The option is within IMD decile 4.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	There are playing fields and sports facilities within 500m. However, given there is no construction, there is not anticipated to be any effects that will be an impact on tourism or recreation as a result of this option.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	Provided no new infrastructure is required for this option, it is anticipated that there will be minimal resource use and minimal waste produced.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	It is not anticipated that there will be an impact on built assets and infrastructure as a result of this option given there is no construction.	N/A	0	0	0	0
SEA Metrics											
		Positive 1 Negative -7				Positive 1 Negative -7					

SWS_IOW_RE-DRO_ALL_ALL_iw											
Drought Permit/Order Barcombe, Calborne, Shalcombe, Eastern Yar augmentation combined (2020-27)											
Southern water											
Drought Permit/Order Barcombe, Calborne, Shalcombe, Eastern Yar augmentation combined (2020-27)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-

Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	Potential impacts on GWDTEs and chalk rivers in proximity to the abstraction points, it is not known how far the effects of increased abstraction will be seen therefore minor operational effects have been identified. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress. The HRA ToIS (2021) identified no likely significant effects on N2K sites. Very low risk of spreading of INNS associated with this option.	N/A	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No new infrastructure required. Increased groundwater abstraction may impact local soil quality, however effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No new infrastructure required. The option is not likely to affect flood risk or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	-	Given this option is only to be implemented under drought conditions when groundwater resources are vulnerable, the option may have negative impacts on resilience of the water environment. WFD assessment not undertaken as there is no GIS and the option is a drought option.	Monitor groundwater flows.	0	0	0	-
	Deliver reliable and resilient water supplies	0	0	+	0	Option will increase supply with an assumed drought action duration, however it is not a long-term resilient solution.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	No new infrastructure required. There may be some negative effects from an increase in emissions associated with water supply / treatment, however since this is a temporary operational change to the abstraction licence, this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No new infrastructure required. There may be some negative effects from an increase in carbon emissions associated with water supply / treatment, however since this is a temporary operational change to the abstraction licence, this is not anticipated to be significant.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	-	Increased abstraction during period of drought will reduce the ability of the water environment to recover and may increase groundwater resource vulnerability to drought in the future.	Monitor groundwater flows.	0	0	0	-

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No new infrastructure required. Option unlikely to have effect on landscape, townscape and seascape character and visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No new infrastructure required. Option unlikely to have effect on the historic environment	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	No new infrastructure required. Option not likely to have a significant effect on the local community.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	Drought permit option could temporarily affect recreation, angling and other water based activities. However, as residents are likely to be aware of low flows and drought will worsen flow naturally, there will be negligible effects as a result of the option.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	No new infrastructure required. There may be some negative effects from increased resources required and waste produced from increased water treatment, however since this is a temporary operational change to the abstraction licence, this is not anticipated to be significant.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	No new infrastructure required. Unlikely to have effect on built assets and infrastructure.	N/A	0	0	0	0
SEA Metrics		Positive 1 Negative -3				Positive 1 Negative -3					

SWS_IOW_RE-DRO_ALL_ALL_iw2					
Drought Permit/Order Barcombe, Calborne, Shalcombe, Eastern Yar augmentation combined (from 2027 onwards)					
Southern water					

Drought Permit/Order Barcombe, Calborne, Shalcombe, Eastern Yar augmentation combined (2020-27)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	Potential impacts on GWDTEs and chalk rivers in proximity to the abstraction points, it is not known how far the effects of increased abstraction will be seen therefore minor operational effects have been identified. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress. The HRA ToIS (2021) identified no likely significant effects on N2K sites. Very low risk of spreading of INNS associated with this option.	N/A	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No new infrastructure required. Increased groundwater abstraction may impact local soil quality, however effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No new infrastructure required. The option is not likely to affect flood risk or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	-	Given this option is only to be implemented under drought conditions when groundwater resources are vulnerable, the option may have negative impacts on resilience of the water environment. WFD assessment not undertaken as there is no GIS and the option is a drought option.	Monitor groundwater flows.	0	0	0	-
	Deliver reliable and resilient water supplies	0	0	+	0	Option will increase supply with an assumed drought action duration, however it is not a long-term resilient solution.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	No new infrastructure required. There may be some negative effects from an increase in emissions associated with water supply / treatment, however since this is a temporary operational change to the abstraction licence, this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No new infrastructure required. There may be some negative effects from an increase in carbon emissions associated with water supply / treatment, however since this is a temporary operational change to the abstraction licence, this is not anticipated to be significant.	N/A	0	0	0	0

	Reduce vulnerability to climate change risks and hazards	0	0	0	-	Increased abstraction during period of drought will reduce the ability of the water environment to recover and may increase groundwater resource vulnerability to drought in the future.	Monitor groundwater flows.	0	0	0	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No new infrastructure required. Option unlikely to have effect on landscape, townscape and seascape character and visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No new infrastructure required. Option unlikely to have effect on the historic environment	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	No new infrastructure required. Option not likely to have a significant effect on the local community.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	Drought permit option could temporarily affect recreation, angling and other water based activities. However, as residents are likely to be aware of low flows and drought will worsen flow naturally, there will be negligible effects as a result of the option.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	No new infrastructure required. There may be some negative effects from increased resources required and waste produced from increased water treatment, however since this is a temporary operational change to the abstraction licence, this is not anticipated to be significant.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	No new infrastructure required. Unlikely to have effect on built assets and infrastructure.	N/A	0	0	0	0
SEA Metrics		Positive 1 Negative -3				Positive 1 Negative -3					

SWS_IOW_RE-DRP_ALL_ALL_env_lv_bow_westi					
Drought option: Relaxation of Lukely Brook MRF from Lower Chalk in Lukely Brook Valley					

Southern Water											
Relaxation of Lukely Brook MRF from Lower Chalk in Lukely Brook Valley											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	<p>There are no SSSI's within 1km of the option. The option would be situated within SSSI Impact Risk Zones associated with the Rowridge Valley and Garston's Down SSSI's, in an area where any discharge of water or liquid waste that is discharged to ground (i.e. to seep away) or to surface water, such as a beck or stream has been highlighted as being a risk to the sensitive features for which the SSSI is notified.</p> <p>No adverse effects on National Nature Reserves are expected.</p> <p>There are no GWDTEs in close proximity to or downstream of the option, however reducing the MRF to enable abstraction when flows are vulnerable and when water resources and riverine ecosystems may already be under severe stress may have irreversible impacts on local ecosystems.</p> <p>The option would not cross, or be situated immediately adjacent to, any areas of Ancient Woodland, although there is woodland and priority habitat within 500m, however no effects are anticipated.</p> <p>The HRA screening identified no LSE's of the drought measure on the Solent Maritime SAC and the Solent and Southampton Water SPA and Ramsar sites. Reduced supply of resh water flows and deterioration in water quality would result in low magnitude impacts on the Medina Estuary SSSI, Solent Maritime SAC, and the Solent and Southampton SPA and Ramsar sites. As these sites overlap with the Yarmouth to Cowes, Bembridge, and The Needles Marine Conservation Zones, there is potential for minor adverse effects on these MCZ's.</p> <p>The risk of the transfer / movement of INNS is likely to be very low.</p>	Further assessments required to establish potential impacts from reduction/removal of MRF. Monitor groundwater levels.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Increased groundwater abstraction may impact local soil quality, however effects are not anticipated to be significant. Option located in Grade 3 agricultural land, however no disturbance to these soils are likely. There are no authorised or historic landfill sites within 2000m.	N/A	0	0	0	0

Water	Increase resilience and reduce flood risk	0	0	0	0	The option is located within FZ1, however is within close proximity to FZ2 and FZ3. Flood risk is not anticipated to affect the option. The option is not anticipated to exacerbate the risk of flooding.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	--	Option is located within the IOW Central Downs Chalk WFD groundwater body and is also within SPZs. Given this option is only to be implemented under drought conditions when groundwater resources are vulnerable, the option may have negative impacts on resilience of the water environment. WFD assessment (2020) indicate further WFD assessment is required due to operational effects.	Monitor ground water levels. Undertake further WFD assessment.	0	0	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	Option will reduce MRF to enable continued abstraction from Lukely Brook during severe drought conditions. The default benefit for the option is 4Ml/d therefore minor positive effects have been identified.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	There may be some negative effects from an increase in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	-	There is no carbon data available for this option. The option is estimated to have neutral construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	0	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	-	Increased abstraction during period of drought will reduce the water environment's ability to recover and may increase ground water resources vulnerability to drought in the future.	Monitor ground water levels. Reduce MRF as opposed to remove.	0	0	0	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	The option is within the Isle Of Wight AONB. However, given there is no construction, the option is unlikely to have effects on landscape, townscape and seascape character and visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	There are listed buildings within 500m of the option. However, given there is no construction, the option is unlikely to have effect on the historic environment.	N/A	0	0	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	There are no community facilities within 500m. The option is not anticipated to affect the local community. The option is within IMD decile 7.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	It is not anticipated that there will be an impact on tourism or recreation as a result of this option.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	Provided no new infrastructure is required for this option, it is anticipated that there will be minimal resource use and minimal waste produced.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	It is not anticipated that there will be an impact on built assets and infrastructure as a result of this option.	N/A	0	0	0	0
SEA Metrics		Positive 1 Negative -7				Positive 1 Negative -7					

SWS_IOW_RE-OTH_REP_ALL_bs_kmt_resil											
Reduce transfer to other commercial customers: Isle of Wight											
Southern Water											
Drought Option: In the event of a drought the Company would hold discussions with a commercial customer with regards to the resources position and their supply.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option may reduce the amount of water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during drought conditions and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) indicated no likely significant effect on Natura 2000 sites.	N/A	0	0	+	0

Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	There is not anticipated to be any effects on soil quality as a result of this option.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is not likely to be affected by flooding or lead to the exacerbation of flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and is only to be implemented in drought conditions. Option aims to reduce the water required for supply to other commercial customers, therefore potentially resulting in a reduction in abstraction. WFD assessment (2020) states no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to commercial companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the resilience of supply for these commercial customers.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	No effect on air emissions is anticipated from this option.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data has been provided for this option. Neutral effects have been identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to commercial companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water within the natural environment. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	-	The reduction in the amount of water supplied to commercial customers may have an impact on the local economy if they are not able to carry out their business activity or have to operate at a reduced capacity. However, there is potential that the wider population will benefit from this option.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	+	-
	Maintain and enhance tourism and recreation	0	0	0	-	Given the option is to reduce the transfer of water for commercial customers, tourism and recreation could be affected if these customers rely on water to support these activities.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 5 Negative -3				Positive 5 Negative -3					

SWS_IOW_RE-OTH_REP_ALL_bs_vws_resil											
Reduce transfer to other water companies: Isle of Wight											
Southern Water											
Drought Option: In the event of a drought the Company would hold discussions with neighbouring Companies with regards to their resources position and their supply. There are three main bulk transfers to the South East: its entitlement to 25% of the yield of the River Medway Scheme, the Sheldwich Scheme, and the Bewl-Darwell transfer. This option considers reduction of the transfer from Veolia Water Southeast to SWS Kent Thanet. The trigger for this would be when rainfall and groundwater level trigger is exceeded and/or if veolia Water Southeast is not affected as much as Kent Thanet WRZ.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-

Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Given the option reduces the transfer of water to other companies in the event of a drought, there is potential that water will be retained within the natural environment. Ecosystems may already be under severe stress therefore additional water retained in the natural environment will be beneficial. The HRA ToLS (2021) identified that the option unlikely to impact Isle of Wight WRZ N2K sites (Isle of Wight Downs SAC, Solent and Southampton Water Ramsar and SPA, Briddlesford Copses SAC, Solent and Isle of Wight Lagoons SAC, South Wight Maritime SAC), as scheme is geographically separated from WRZ. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The option may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	It is not likely the option will affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply to other water companies, therefore may result in a reduction in abstraction. WFD assessment (2020) identified no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to other water companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the other water companies.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available for this option. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to other companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	The reduction in the amount transferred to other water companies may have some effects on the wider population outside of Southern Water's boundary. However, this will only occur where groundwater levels are exceeded and if the Veolia Water Southeast is not affected as much as SWS Kent Thanet WRZ.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation has the potential to be affected if the reduction in water to other companies results in restrictions for water based activities.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -3				Positive 4 Negative -3					

SWS_IOW_RE-TFR_IQT_ALL_do_si_tan_resil											
Tankering: Isle of Wight											
Southern											
Tankering water from adjacent WRZs or other water companies would be considered in severe droughts. Can be applied on a WRZ basis.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-

Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	Depending on the number of vehicles required for the operation, an increase in emissions may have negative impacts on nearby habitat.	Can be mitigated by using electric vehicles and strategic timing of transport of tankers e.g. avoiding driving tankers during rush hour.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option will supply water to the Isle of Wight in an emergency circumstance of severe drought.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	--	Option will cause an increase in emissions during transportation of water. This option is only to be implemented in severe circumstances therefore an increase in emissions will only be temporary.	Emission levels can be mitigated by using low emission vehicles (including electric vehicles) and strategic timing of transport e.g. avoiding driving lorries during rush hour.	0	0	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	-	There is no carbon data available for this option. There may be some negative effects from an increase in carbon emissions associated with tankering, however these are anticipated to be minor due to the temporary nature of the option.	Option only to be implemented in severe drought, emissions can be mitigated for by using low emission vehicles.	0	0	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	This option is to be used only in severe drought and not a long term option. It will not affect resilience to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Visual amenity may be affected by an increase in lorries on the roads. This option is only to be implemented in severe circumstances therefore effects on visual amenity will be temporary.	Can be mitigated by strategic timing of transport of tankers.	0	0	0	-

Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	-	Increased traffic may impact on built heritage e.g. conservation areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	Can be mitigated by strategic timing of transport of tankers.	0	0	0	-
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Noise from vehicles and increase in air pollution can cause disturbance in populated areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	Can be mitigated by using electric vehicles and strategic timing of transport of tankers e.g. avoiding driving tankers during rush hour.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Increase in congestion on roads from tankers and effects on visual amenity may have an effect on recreation and tourism on the Isle of Wight. This option is only to be implemented in severe circumstances therefore effects on recreation and tourism will be temporary.	Best practice mitigation techniques to reduce impacts.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	--	Use of fuel resources.	Fuel utilisation may be reduced by strategic timing of transport vehicles e.g. avoid driving tankers in rush hour.	0	0	0	-
	Avoid negative effects on built assets and infrastructure	0	0	0	-	Depending on the number of tankers required for the operation, there may be an increase in congestion on roads. This option is only to be implemented in severe circumstances therefore negative effects will only be temporary.	Can be mitigated by strategic timing of transport of tankers e.g. avoiding driving tankers in rush hour.	0	0	0	-
SEA Metrics		Positive 1 Negative -15			Positive 1 Negative -9						

SWS_KME_EF-CRE_ALL_ALL_do_di_res_regi						
Restriction to non-essential use; Kent Medway East						
Southern Water						
Drought Option: The Company has recourse to a range of restrictions to Non-Essential Use. However, it can take a significant time to apply for and then implement a Drought Order. The Company might decide not to exercise all its powers until severe drought conditions are reached. Can be applied on a WRZ basis. Level of intervention for this option: Severe drought conditions.						
SEA Topic	SEA Objective	Construction Effects	Operational Effects	Comment	Mitigation	Residual Construction Effects
						Residual Operational Effects

		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) identified no likely significant effects for The Swale Ramsar and SPA; Queendown Warren SAC; Medway Estuary & Marshes Ramsar and SPA. The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to sites as they are all contain GWDTE or are partially dependent upon surface flows. The option may mitigate impact of drought and aiding in drought recovery by increasing rates of recharge post drought when restrictions are still in place. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Non-essential use restrictions may marginally impact soil quality, however the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Non-essential use restrictions are not anticipated to affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicates short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	By reducing the amount of water required for supply through restrictions to non-essential use, the option maintains resilience of water for essential services.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available. Neutral effects identified.	N/A	0	0	0	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of gardens, and use of ornamental fountains for example, may be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	--	Restrictions on non-essential use is likely to have moderate negative effects on the community and social well-being as there may be imposed restrictions on irrigation of gardens and allotments and outdoor plants, restrictions of use of water for swimming pools, restriction of washing vehicles and non-domestic property exteriors. Restrictions may apply to all customers, domestic and commercial so potential for economic impacts.	Ensuring high level of communication with customers before, during and following the implementation of the measure.	0	0	0	--
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation sites dependant on public water supply may be affected due to non-essential restrictions.		0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -6				Positive 4 Negative -6					

SWS_HAZ_EF-LKR_ALL_ALL_dmp kme high						
Demand Management Strategy						
Southern Water						
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)						
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment
		+	-	+	-	
		Residual Construction Effects		Residual Operational Effects		
		+	-	+	-	

Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
	Deliver reliable and resilient water supplies	0	0	+++	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Minor positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0

Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive 28 Negative -3				Positive 28 Negative -2					

SWS_KME_HI-DES_ALL_ALL_ios10					
Isle of Sheppey Desalination Plant 10MI/d					
Southern					
This option proposes a 10 MI/d desalination plant to meet demand on the Isle of Sheppey. Locating a desalination plant on the Isle of Sheppey has a clear advantage: it would meet local demand while significantly reducing the need for transfers along the main from Deans Hill BPT. This option could be enhanced to transfer treated water from the Isle of Sheppey to the wider Kent-Medway WRZ. A number of sites for a desalination plant were investigated and the most suitable would be located on land south of Sheerness Docks, currently used for storage of car imports. Water treated at this site would then be pumped to Southdown WSR and Kins Borough WSR on the island for distribution to customers. This site will be investigated further in the feasibility appraisal.					

SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	---	Potential direct impacts from construction and operation on Medway and Estuary Marshes SSSI (53.72% Unfavourable - Recovering, 0.24% Unfavourable - No change, 45.56% Unfavourable - Declining) and the Medway Estuary & Marshes SPA/RAMSAR. Potential for indirect impact on The Swale SPA/RAMSAR and Thames Estuary & Marshes SPA/RAMSAR, Outer Thames Estuary SPA South Thames Estuary and Marshes SSSI (95.28% Favourable, 2.35% Unfavourable - Recovering, 0.59% Unfavourable - No change, 1.79% Unfavourable - Declining) and Medway Estuary - Zone 1 and Medway Estuary - Zone 2 MCZs. The option is within SSSI Impact Risk Zones. Potential operational impacts associated with brine outfall. The HRA ToLS (2021) identified likely significant effects for the following N2K sites due to the construction and operation of the desalination plant: The Swale Ramsar and SPA (4km to the south-east); Medway Estuary & Marshes Ramsar and SPA (approximately 700m south); and Thames Estuary & Marshes Ramsar and SPA (approximately 1.2km north-west). The risk of INNS is considered to be low as there is potential for pipe bursts cause water to be released to the environment (creating pathway for the transfer of INNS).	Best practice mitigation to minimise impacts and reinstatement /compensation of habitats, but potential for residual direct and indirect effects remain for designated sites. Future design will need to undertake ecology surveys. HRA required to address likely significant effects. The HRA Tier 2 Enhanced Screening concluded that construction effects could be mitigable, however operational impacts and therefore likely significant effects are likely to remain. During operation, it is unknown if the saline waste from the proposed new plant would be diluted within existing outflows therefore it is assumed hyper saline plumes would continue to effect designated habitats and species of the designated site.	0	-	0	---
	Soil	0	--	0	0	The preferred location for the desalination plant is on land south of Sheerness Docks, currently used for storage of car imports. The option intersects with Lappel Bank Foreshore authorised landfill site, potential to disturb contaminated material during construction.	Best practicable means to prevent potential disturbance of contaminated material during construction.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	--	0	--	The preferred location is located entirely in Flood Zones 2 and 3, which may have an impact on construction and operation.	Measures to reduce the impact on flooding during the construction phase is likely to be implemented, however potential residual flood risk likely to remain. The desalination plant would be subject to FRA and would need to be flood resilient.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	--	Potential for water quality impacts during construction and during operation due to brine discharge. A new abstraction license will also need to be attained. WFD Screening Assessment (2020) identified that further WFD assessment will be required.	Best practice construction measures to be implemented to mitigate effects.	0	-	0	--

	Deliver reliable and resilient water supplies	0	0	+	0	The option is likely to provide 10MI/d supply of desalinated and treated water.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	-	The option is not within an AQMA nor are there any within 2km. Construction likely to have minor and temporary impact on air quality. There is potential for air quality impacts during operation given the high energy intensive process.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts may remain. Opportunity to use renewable energy to minimise air quality impacts.	0	-	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	---	0	--	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has major construction and moderate operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	---	0	--
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Desalination provides good climate change resilience for supply, especially for intakes from the sea. Where the use of desalination relieves pressure on stressed freshwater environments it could also contribute to environmental resilience.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	-	The preferred location is within the Greater Thames Estuary NCA. Negative effects likely during construction and operational phase however anticipated to be minor as site currently used for storage of car imports.	Best practice will be implemented to avoid negative effects, however likely to be some disturbance to landscape during works. Screening could be implemented to minimise visual impact of plant.	0	-	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The Queenborough Lines scheduled monument is within 500m of the preferred location. Construction and operation may affect the setting of this historic asset since the preferred location is currently in an industrialised area, this may be limited. There is potential for any excavation to impact buried archaeology if present, however this is considered to be limited given the current use of the preferred location.	Best practice mitigation measures will likely be implemented to minimise setting effects during construction. An Archaeology Watching Brief may be required during the construction phase.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are numerous schools, medical facilities and other important buildings within 2km of option. There may be temporary disturbances during construction to users of these facilities. The preferred location is adjacent to an area in IMD decile 3.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction and land will be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	There are a number of parks and gardens and playing spaces along with sports facilities, and a National Cycle Network route within 2km that may be temporarily affected during construction works, e.g. noise, dust pollution, road congestion.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for option anticipated to generate waste. Brine waste will be produced during desalination.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	-
	Avoid negative effects on built assets and infrastructure	0	-	0	0	There is likely to be localised traffic disruption during the construction phase. Operational effects on the local road network are likely to be minimal. There may be impacts on the operations of the Sheerness Docks although this is likely to be minimal.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics			Positive Negative	2 -58				Positive Negative	2 -37		

SWS_KME_HI-DES_ALL_ALL_ios20					
Isle of Sheppey Desalination Plant 20MI/d					
Southern					
This option proposes a 10 MI/d desalination plant to meet demand on the Isle of Sheppey. Locating a desalination plant on the Isle of Sheppey has a clear advantage: it would meet local demand while significantly reducing the need for transfers along the main from Deans Hill BPT. This option could be enhanced to transfer treated water from the Isle of Sheppey to the wider Kent-Medway WRZ. A number of sites for a desalination plant were investigated and the most suitable would be located on land south of Sheerness Docks, currently used for storage of car imports. Water treated at this site would then be pumped to Southdown WSR					

and Kins Borough WSR on the island for distribution to customers. This site will be investigated further in the feasibility appraisal. (ASSUMED 20 Ml/d from option name and title)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	---	Potential direct impacts from construction and operation on Medway and Estuary Marshes SSSI (53.72% Unfavourable - Recovering, 0.24% Unfavourable - No change, 45.56% Unfavourable - Declining) and the Medway Estuary & Marshes SPA/RAMSAR. Potential for indirect impact on The Swale SPA/RAMSAR and Thames Estuary & Marshes SPA/RAMSAR, Outer Thames Estuary SPA South Thames Estuary and Marshes SSSI (95.28% Favourable, 2.35% Unfavourable - Recovering, 0.59% Unfavourable - No change, 1.79% Unfavourable - Declining) and Medway Estuary - Zone 1 and Medway Estuary - Zone 2 MCZs. The option is within SSSI Impact Risk Zones. Potential operational impacts associated with brine outfall. The HRA ToLS (2021) identified likely significant effects for the following N2K sites due to the construction and operation of the desalination plant: The Swale Ramsar and SPA (4km to the south-east); Medway Estuary & Marshes Ramsar and SPA (approximately 700m south); and Thames Estuary & Marshes Ramsar and SPA (approximately 1.2km north-west). The risk of INNS is considered to be low as there is potential for pipe bursts cause water to be released to the environment (creating pathway for the transfer of INNS).	Best practice mitigation to minimise impacts and reinstatement /compensation of habitats, but potential for residual direct and indirect effects remain for designated sites. Future design will need to undertake ecology surveys. HRA required to address likely significant effects. The HRA Tier 2 Enhanced Screening concluded that construction effects could be mitigable, however operational impacts and therefore likely significant effects are likely to remain. During operation, it is unknown if the saline waste from the proposed new plant would be diluted within existing outflows therefore it is assumed hyper saline plumes would continue to effect designated habitats and species of the designated site.	0	-	0	---
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The preferred location for the desalination plant is on land south of Sheerness Docks, currently used for storage of car imports. The option intersects with Lappel Bank Foreshore authorised landfill site, potential to disturb contaminated material during construction.	Best practicable means to prevent potential disturbance of contaminated material during construction.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	--	0	--	The preferred location is located entirely in Flood Zones 2 and 3, which may have an impact on construction and operation.	Measures to reduce the impact on flooding during the construction phase is likely to be implemented, however potential residual flood risk likely to remain. The desalination plant would be subject to FRA and would need to be flood resilient.	0	-	0	0

	Protect and enhance the quality of the water environment and water resources	0	--	0	--	Potential for water quality impacts during construction and during operation due to brine discharge. A new abstraction license will also need to be attained. WFD Screening Assessment (2020) identified that further WFD assessment will be required.	Best practice construction measures to be implemented to mitigate effects.	0	-	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	The option is likely to provide 20Ml/d supply of desalinated and treated water.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	-	The option is not within an AQMA nor are there any within 2km. Construction likely to have minor and temporary impact on air quality. There is potential for air quality impacts during operation given the high energy intensive process.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts may remain. Opportunity to use renewable energy to minimise air quality impacts.	0	-	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	---	0	--	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has major construction and moderate operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	---	0	--
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Desalination provides good climate change resilience for supply, especially for intakes from the sea. Where the use of desalination relieves pressure on stressed freshwater environments it could also contribute to environmental resilience.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The preferred location is within the Greater Thames Estuary NCA. Negative effects likely during construction and operational phase however anticipated to be minor as site currently used for storage of car imports.	Best practice will be implemented to avoid negative effects, however likely to be some disturbance to landscape during works. Screening could be implemented to minimise visual impact of plant.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The Queenborough Lines scheduled monument is within 500m of the preferred location. Construction and operation may affect the setting of this historic asset since the preferred location is currently in an industrialised area, this may be limited. There is potential for any excavation to impact buried archaeology if present, however this is considered to be limited given the current use of the preferred location.	Best practice mitigation measures will likely be implemented to minimise setting effects during construction. An Archaeology Watching Brief may be required during the construction phase.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are numerous schools, medical facilities and other important buildings within 2km of option. There may be temporary disturbances during construction to users of these facilities. The preferred location is adjacent to an area in IMD decile 3.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction and land will be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	There are a number of parks and gardens and playing spaces along with sports facilities, and a National Cycle Network route within 2km that may be temporarily affected during construction works, e.g. noise, dust pollution, road congestion.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for option anticipated to generate waste. Brine waste will be produced during desalination.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	-
	Avoid negative effects on built assets and infrastructure	0	-	0	0	There is likely to be localised traffic disruption during the construction phase. Operational effects on the local road network are likely to be minimal. There may be impacts on the operations of the Sheerness Docks although this is likely to be minimal.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics			Positive	2				Positive	2		
			Negative	-57				Negative	-36		

SWS_KME_HI-GRW_ALL_ALL_nw_gwa_win_eastrn					
Recommission Gravesend source					
Southern water					

New Resource. Recommissioning of Gravesend source which was previously decommissioned due to high nitrate levels. Assumed 5Ml/d, capacity TBC											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	There are no designated sites within 2000m. The option is within a SSSI Impact Risk Zone and there is woodland within 500m. There are no GWDTE or chalk rivers within 2km. Construction impacts are not likely given this is a recommission. The HRA Tols (2021) identified no likely significant effects for Thames Estuary & Marshes SPA and Ramsar (located approximately 6.12km to the east) or North Downs Woodlands SAC (located approximately 8km to the south-east). The sites are not a groundwater dependant ecosystem and therefore abstraction from the North Kent Chalk aquifer would not have adverse impacts upon the designated features. This option is a recommission and therefore no construction works form part of this option. The risk of the transfer / spread of INNS is anticipated to be very low as groundwater will likely be entirely free from INNS.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The option is located on urban land. It is not anticipated that this option will have significant impacts on local soil. There are historic landfill sites within 500m, however effects are not anticipated.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is within Flood Zone 1 and therefore flood risk is low. No effects on flood risk are anticipated as a result of this option.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	--	Option intersects with SPZ I, II and III and North Kent Medway Chalk WFD Groundwater body. Abstraction capacity to be confirmed, however the recommissioning of this source has the potential to have an impact on groundwater quality and levels. WFD assessment (2021) indicates further WFD assessment is required due to operational effects.	Monitor ground water levels.	0	0	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	New resource. 5Ml/d capacity TBC.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	Northfleet Industrial Area AQMA and Gravesham A226 One-way system AQMA are within 2000m. There is no construction likely given the option is recommissioning of an existing source. There may be operational impacts on air quality, however these are likely be negligible.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	-	There is no carbon data available for this option. The option is estimated to have neutral construction and minor operational carbon emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower	0	0	0	-

							embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.				
	Reduce vulnerability to climate change risks and hazards	0	0	+	-	There may be positive effects on the resilience of the freshwater environment as the option aims to recommission a groundwater abstraction source. However, the resilience of groundwater to climate change may be impacted.	Monitor ground water levels.	0	0	+	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	Option is located on existing site and involves recommissioning of an existing source therefore impacts on landscape are unlikely.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	The option is within Gravesend Conservation Area and there are also listed buildings within 500m. Effects on the setting of these assets are unlikely given the option is the recommissioning of an existing source. Excavation is not likely to be required, as it is an existing source, therefore impacts on buried archaeology are unlikely.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	There is a school, sports facility, play space, playing field, public parks or gardens, and a nursing home within 500m. No disturbance to the wider community and users of these community facilities is anticipated as the option involves recommissioning of an existing source and construction effects are not likely. The option is within IMD decile 6.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	There are sports facilities, play spaces, playing fields and public parks or gardens within 500m. However, given the nature of the option, it is unlikely to have any impact on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	Given the option involves recommissioning an existing source, it is not likely new infrastructure will be required on a significant scale.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	No effects on built assets and infrastructure are anticipated given the option involves recommissioning of an existing source. There may be some disruption on the local road network, however this is likely to be negligible.	N/A	0	0	0	0
SEA Metrics		Positive 2 Negative -6				Positive 2 Negative -6					

SWS_KME_HI-IMP_KTZ_ALL_sel1					
Reverse Faversham4-Fleete main					
Southern Water					

<p>(1) Conditioning of existing Faversham4-Fleete main to enable bi-directional transfers (and specifically from Kent Thanet to Kent Medway). It is not thought that any additional pipeline would be required, although this is dependent on the existing main being structurally sound. A new 25 MI/d pumping station is required at Fleete WSR along with a possible booster pumping station to reduce the pressure head along the main. (Option TT3 in AMP 5). Minimum engineering requirements: new 25 MI/d pumping station at Fleete Reservoir, modifications to pipework at Near Test Valley Bypass Break Pressure Tank or alterations to pipework and construction of a new Near Test Valley Bypass Break Pressure Tank, installation of energy dissipation measures at Faversham4.</p> <p>(2) The Kent Medway to Kent Thanet transfer scheme option proposes to increase the existing transfer capacity by 10 MI/d between the Sheldwich boreholes and Fleete service reservoir. This would be achieved by duplicating the existing transfer main and a new pumping station at Faversham4. (Option TT1 in AMP 5). Main elements of scheme are: modification of borehole pumps at Sheldwich to allow additional 10 MI/d to be pumped to Faversham4 through the new main, pumping main from Sheldwich to Faversham4 (approx. 6.5km), booster PS at Faversham4 and a disinfection unit, break pressure tank at Near Test Valley Bypass, gravity main from Near Test Valley Bypass to Fleete reservoir - 31.5km of main and phosphate dosing at Fleete reservoir for 10 MI/d.</p> <p>(3) The operational transfer is limited to the output from Faversham4. This option enables flows from the Faversham3 source to be directed, via an existing main, towards Faversham4 WSW. A soakaway is installed at Faversham4 to allow for reconditioning of the existing main and the addition of UV treatment at Faversham4 permits disinfection of the Faversham3 flows. (Option TT1a in AMP 5). Main scheme components are: 13 MI/d soakaway at Faversham4, increased pumping capacity at Faversham4, new UV treatment at Faversham4 WSW.</p>											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	-	<p>The option passes through West Blean and Thornden Woods SSSI (48.53% favourable, 42.11% unfavourable - recovering, 3.05% unfavourable - no change, 6.31% unfavourable - declining) / GWDTE, and also passes through East Blean Woods SSSI (99.30% favourable, 0.70% unfavourable - recovering). Church Woods, Blean SSSI (92.18% favourable, 7.82% unfavourable - recovering), Ellenden Wood SSSI (100.00% favourable), Stodmarsh SSSI (60.86% favourable, 21.49% unfavourable - recovering, 17.66% unfavourable - no change) / SAC / SPA and Ramsar, Blean Complex SAC and Blean Woods NNR are all within 500m of the option location. As such there is potential for indirect effects during the construction works as part 2 of the option outlines the need for a duplication of the existing main. The option is within a SSSI risk zone.</p> <p>The HRA ToLS (2021) identified no likely significant effects for Blean Complex SAC, Stodmarsh SAC, SPA and Ramsar. The INNS risk is broken down across the following three areas aligned with the option description:</p> <p>(1) High risk of INNS transfer and the pipeline will now become bi-directional. Construction is</p>	Re-route the works to avoid direct effects on the designated sites. Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys.	0	--	0	-

						considered to have a low risk of INNA transfer. (2) Low risk of transfer of INNS as the abstracted (BH) source water is likely to be entirely free of INNS. Construction phase risk of INNS is considered to be low. More information is needed on the Near Test Valley Bypass to Fleete res. aspect of this option. (3) More information needed					
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	There are historic landfill sites within 500m therefore potential for disturbance to contaminants during construction. The pipeline passes through Grade 1, 2, 3, 4 and non-agricultural land. There is potential for these soils to be disturbed during the construction of the duplication pipeline outlined in part 2 of the option.	Land reinstated upon completion. Best practice construction measures to be implemented, however residual construction effects likely.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	Option predominately located within Flood Zone 1, however there is a large area of Flood Zones 2 and 3 on the pipeline route. This may have an effect on construction. Any above ground infrastructure anticipated to be located in FZ1 therefore no operational effects identified.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	--	There is potential for contamination to water bodies, including main rivers, which the pipeline crosses. Option is within SPZ and partly within North Kent Tertiaries and East Kent Tertiaries WFD groundwater bodies. WFD assessment (2020) identified further WFD assessment is required due to construction and operation phase impacts of underground structures on groundwater features for GB107040019620 Sarre Penn and River Wantsum.	Best practice mitigation measures likely to be implemented during construction.	0	--	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	The option is anticipated to increase resilience by increasing transfer capacities.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	The option does not pass through any AQMAs. Thanet Urban AQMA is within 2000m. The construction phase will likely impact air quality.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon	0	-	0	-

							savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.				
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	The option is not anticipated to affect the resilience of the local environment to climate change as water levels are not likely to be affected.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	-	The option is partly within Kent Downs AONB. There will likely be minor and temporary effects on landscape and visual during the construction works, and there may also be permanent changes to the landscape as a result of new above ground infrastructure, however effects are anticipated to be minor.	Best practice measures will likely be implemented to minimise effects during construction and to reduce visual impact during operation, however minor and temporary impacts may remain. Land reinstated upon completion where possible.	0	-	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	The option passes through conservation areas, and appears to pass through or is directly adjacent to two scheduled monuments (Anglo-Saxon cemetery, parish church of St Giles and associated remains immediately east of Sarre Mill, and Anglo-Saxon cemetery and associated remains at Monkton, 550m north of Walters Hall Farm). There are also listed buildings, conservation areas and other scheduled monuments within 500m. There is potential for direct impacts on the scheduled monuments and potential for impacts on the setting of the other historic assets during construction. There is also potential that any excavation required will impact buried archaeology.	Re-route or use directional drilling to minimise direct impacts on the scheduled monuments. Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The option passes through a golf course and Kent International Airport. There are also churches and religious grounds, cemeteries, public parks or gardens, schools, play spaces, playing fields, sports facilities, allotments and other community facilities within 500m of the option. There is likely to be minor and temporary impacts on users of these community facilities and the wider community during construction. IMD deciles range from 4 to 10 along the route.	Best practice measures will likely be implemented to minimise disturbance during construction. However, effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The option intersects a golf course and national cycle route, and there are also other recreational facilities within 500m of the option. There is potential that construction will lead to diversions of public rights of way. As such, there is potential	Best practice measures will likely be implemented to minimise disturbance during construction. However, effects are likely to still occur.	0	-	0	0

						for minor and temporary effects for recreation during the construction phase.					
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials.	Opportunity to implement sustainable design measures and reuse excavated material on site where possible, to reduce impact.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option intersects major roads, railways and national cycle routes. It also passes through Kent International Airport. There is likely to be moderate and temporary disturbance during the construction phase.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still remain.	0	-	0	0
SEA Metrics		Positive		1				Positive		1	
		Negative		-41				Negative		-25	

SWS_KME_HI-REU_RE1_ALL_mot20											
Medway estuary WTW (20MI/d)											
Southern Water											
Motney Hill WwTW has a consented DWF of 44 MI/d which is currently discharged to the sea. This option proposes advanced treatment and transfer of this effluent to support the flows in the River Medway upstream of the Springfield Abstraction that supplies near Rochester WSW with raw water. Two alternative locations for the discharge location have been identified, both of which are small streams that flow into the River Len, a tributary of the Medway.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	The pipeline passes through the Medway Estuary and Marshes SSSI (53.72% unfavourable - recovering, 0.24% unfavourable - no change, 45.56% unfavourable - declining, 0.47% destroyed), and the Medway Estuary & Marshes SPA and Ramsar, therefore potential for direct effects. These sites are also GWDTE. The Wouldham to Detling Escarpment SSSI (49.44% favourable, 35.70% unfavourable - recovering, 12.14% unfavourable - no change, 2.72% unfavourable - declining), Purple Hill SSSI (64.01% favourable, 35.99% unfavourable - recovering), Queendown Warren SSSI (100.00% favourable) / SAC / LNR, North Downs Woodlands SAC are all within 500m of the pipeline route. It is also within 500m of the Medway Estuary MCZ and Berengrave Chalk Pit LNR, and Vinters Valley Park LNR. No impacts anticipated for chalk rivers. There is likely to be direct effects on woodland, ancient woodland and priority habitats. The HRA ToLS (2020) identified likely significant effects for Medway Estuary & Marshes SPA and Ramsar, Queendown Warren SAC, and North Downs Woodlands SAC for the construction phase. Very low risk of transfer of INNS as the treated source water is likely to be entirely free of INNS. Construction phase risk of INNS is considered to be low.	Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. LSE identified for Medway Estuary & Marshes SPA, Ramsar are not considered to be mitigatable. Disturbance remains likely even with basic mitigation in place, so likely significant effects remain. LSE for Queendown Warren SAC and for North Downs Woodlands SAC are considered mitigatable through use of robust CEMP. Undertake HRA AA to address likely significant effects identified for Medway Estuary & Marshes SPA and Ramsar.	0	---	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The pipeline passes through Grade 1 and Grade 2, Grade 3, Grade 4 and urban land. There is likely to be disturbance to these soils during construction works. The pipeline also passes through historic and authorised landfill sites and contaminants may be disturbed during the works.	Land reinstated upon completion. Best practice construction measures to be implemented, however residual construction effects likely.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	Option predominately located within Flood Zone 1, however there is a large area of Flood Zones 2 and 3 on the pipeline route. This may have an effect on construction.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0

	Protect and enhance the quality of the water environment and water resources	0	-	+	0	There is potential for contamination to the water environment during construction, the pipeline crosses waterbodies and is adjacent to main rivers. No chalk rivers anticipated to be impacted. There is potential water levels in the River Medway will be affected from increased abstraction, however this option proposes to provide additional transfer to support the flows therefore positive effects identified. The pipeline is in SPZs. The WFD screening assessment (2020) identified no further WFD assessment is required.	Best practice mitigation measures likely to be implemented during construction.	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	The option will increase resilience by reusing treated effluent to support flows in the River Medway.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	--	0	0	The pipeline passes through Maidstone Borough AQMA. There is likely to be impacts on air quality during the construction phase.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	--	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and moderate operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	--
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	There is potential for the option to benefit the resilience of the local environment by providing additional flows in the River Medway to support abstraction.	Monitor river levels.	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option is within the Kent Downs AONB. Potential for impacts on landscape character and visual amenity during construction.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic	0	--	0	0	The pipeline is within Mote Park Registered Park and Garden and passes through a conservation area. It is also within 500m of listed buildings and	Re-route or utilise directional drilling to prevent impacts on	0	-	0	0

	environment, including archaeology					scheduled monuments. The construction phase is likely to have direct effects on the Registered Park and Garden and may impact the setting of the other historic assets, however this is likely to be minimal and temporary. The pipeline excavation may impact buried archaeology.	Registered Park and Garden. Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The pipeline is within 500m of country park, golf courses, schools, allotments, public parks or gardens, medical facilities, play spaces, and other community facilities. It also passes through a public park or garden. here is likely to be minor and temporary disruption to the community and users of these community facilities during the construction phase. IMD deciles range from 3 to 10 along the pipeline route.	Best practice measures will likely be implemented to minimise disturbance during construction. However, effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The pipeline intersects national cycle routes, a national trail and is likely to lead to the diversion of public rights of way during construction. It also passes through a public park or garden. As such, there is likely to be minor and temporary impacts during construction.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials.	Opportunity to implement sustainable design measures and reuse excavated material on site, to reduce impact.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The pipeline intersects major roads, railways, national cycle routes and a national trail. There is likely to be moderate and temporary impacts during construction.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still remain.	0	-	0	0
SEA Metrics		Positive 3 Negative -38		Positive 3 Negative -22							

SWS_KME_HI-REU_RE1_ALL_sit8											
Sittingbourne Industrial Water Reuse (7.5Mld)											
Southern Water											
This option is to use the reuse scheme to free up additional volume in DS Smith borehole licence to increase the scope of the licence trading. DS Smith utilises the groundwater in its paper/board making processes. It has been assumed at this stage that the RO wastewater can be discharged through Sittingbourne WwTW existing outfall. <i>GIS provided shows that there are pipelines associated with this option, however it is not clear from the option description whether this is the case. Option has been assessed on the basis that a pipeline is included as per the GIS provided for SWS_KME_HI-REU_ALL_ALL_sit8.</i>											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	--	The option is within 500m of the Swale SSSI (97.83% favourable, 2.17% unfavourable - no change), SPA and Ramsar which are GWDTE. The option is within SSSI risk zone. Elmley NNR and The Swale Estuary MCZ is also within 500m. There is ancient woodland within 500m of the option, and the option is anticipated to have direct effects on woodland and priority habitats. No effects anticipated for chalk rivers. The HRA ToLS (2020) identified uncertain effects for the Swale SPA and Ramsar as the outfall of Sittingbourne WwTW is hydrologically connected to sites. It is unclear as to the content of the wastewater joining the existing outflow, contaminated wastewater from works may impact the sites. Moderate INNS construction phase risk due to nearby sensitive habitats. Very limited operational INNS risk/transfer as the source water is likely to be treated and be entirely free of INNS.	Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Uncertain effects identified for The Swale SPA and Ramsar are considered partially mitigatable through use of construction best practice measures such as a robust CEMP. despite this Despite this, the proximity of the option to the designated sites mean that adverse effects due to disturbance remain possible. Undertake HRA AA to address residual uncertain effects identified for the Swale SPA and Ramsar. Consider alternative routing options.	0	-	0	--
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The pipeline passes through Grade 1, 2, 3 and 4 agricultural land as well as non-agricultural land. There is potential that these soils will be disturbed during the construction phase. There are authorised and historic landfill sites within 500m therefore potential for contaminants to be disturbed during construction.	Land reinstated upon completion. Best practice methods for working adjacent to or within landfills.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	Option predominately located within Flood Zone 1, however there are areas of Flood Zones 2 and 3 on the pipeline route. This may have an effect on construction. The WTWs may be located in	Measures to reduce the impact on flooding during the construction phase. Flood risk during	0	-	0	0

						FZ2 and FZ3 therefore potential to be at risk from flooding, however this is an existing site therefore operational effects not included in this assessment.	construction may still occur.				
	Protect and enhance the quality of the water environment and water resources	0	--	0	--	The works are adjacent to main rivers and as such there is potential for contamination during the construction phase. There may be impacts on water quality from the discharges as a result of this option. The option is within SPZs. The WFD assessment identified further WFD assessment is required.	Best practice mitigation measures likely to be implemented during construction. Undertake WFD assessment.	0	--	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	The option aims to use the reuse scheme to free up water within the borehole licence which may help to increase the resilience of supplies.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	The option is not within an AQMA. AQMA No 4 - St Pauls Street, Sittingbourne and AQMA No 3 - East Street, Sittingbourne Kent are within 2000m. There is likely to be impacts to air quality during the construction.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	There is not anticipated to be any effects on the resilience of the local environment as water levels are not anticipated to be affected.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The North Downs AONB is within 2000m. There is potential for minor and temporary impacts on the landscape during the construction phase.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The pipeline passes through a conservation area, and there are also listed buildings and a scheduled monument within 500m. There is potential that the construction phase will impact	Best practice measures will likely be implemented to minimise setting effects during construction.	0	-	0	0

						the setting of these historic assets, however this will be minor and temporary. The pipeline excavation may impact buried archaeology.	Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	There are sports facilities, schools, churches and religious grounds, play spaces, allotments, schools, playing fields and public parks or gardens within 500m. The pipeline also passes through a school, playing field, and country park. Users of these community facilities and the wider community may be disrupted during the construction phase, however this is likely to be minor and temporary. IMD deciles range from 2 to 10 along the route.	Best practice measures will likely be implemented to minimise disturbance during construction. However, moderate yet temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	--	0	0	The construction phase has the potential to result in the diversion of public rights of way and may also impact recreational facilities including the playing fields and country park the option passes through.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials.	Opportunity to implement sustainable design measures and reuse excavated material on site, to reduce impact.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The pipeline intersects major roads and railways. There is likely to be moderate and temporary impacts during construction.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still remain.	0	-	0	0
SEA Metrics			Positive Negative	1 -39				Positive Negative	1 -24		

SWS_KME_HI-TFR_KMW_ALL_med											
Current transfers from KMW to KME											
Southern Water											
Current transfers from KMW to KME <i>The GIS provided for the option provides a point location and therefore does not align with the option description which describes the option as a transfer. Assessment has been undertaken on the point location and it is assumed that the option is an existing transfer.</i>											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	Option located on Holborough to Burham Marshes SSSI (100% Favourable). No new infrastructure likely to be required given that this is an existing transfer. HRA ToLS (2021) identified no likely significant effects. There is not anticipated to be any additional risk for the transfer / spread of INNS as a result of this option.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No new infrastructure as existing transfer therefore neutral effects identified for soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Option located on flood zone 3, however option is an existing transfer so unlikely to increase flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	It is assumed that this is an existing transfer therefore no construction or operational effects. The WFD Screening A assessment (2021) identified no further WFD assessment is required.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	0	0	These are existing transfers therefore additional positive effects have not been identified.	N/A	0	0	0	0
Air	Reduce and minimise air emissions	0	0	0	0	No new infrastructure therefore no additional impacts on air quality.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data. As these are existing transfers no additional carbon impacts identified.	N/A	0	0	0	0

	Reduce vulnerability to climate change risks and hazards	0	0	0	0	No new infrastructure, utilising existing transfer and water levels are not likely to be significantly affected, therefore no additional impacts on the climate resilience of the local environment.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No new infrastructure therefore no additional impacts on landscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No new infrastructure therefore no additional impacts on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	No new infrastructure therefore no additional impacts on the local community.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	No new infrastructure therefore no additional impacts on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	No new infrastructure therefore no additional impact on resources and waste.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	No new infrastructure therefore no additional impacts on built assets and the built environment.	N/A	0	0	0	0
SEA Metrics		Positive 0 Negative 0				Positive 0 Negative 0					

SWS_KME_RE-DRO_ALL_ALL_di-kme											
TUBS and NEU Ban - KME WRZ											
Southern water											
Temporary use bans and Non-essential use bans											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Temporary use bans and non-essential use bans in Kent Medway East may help protect GWDTE and priority habitat by conserving water in the environment. The HRA Tols (2021) indicated the following Natura sites that may be affected: North Downs Woodlands SAC; Queendown Warren SAC; The Swale Ramsar; The Swale SPA; Thames Estuary and Marshes Ramsar; Thames Estuary and Marshes SPA; Medway Estuary & Marshes SPA. The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to sites which ecosystems are dependent upon ground and surface water. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	A temporary use ban and non-essential use ban may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of several water bodies. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	By reducing demand through temporary use band and non-essential use ban, option maintains resilience of water for essential services.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The option is for a temporary use ban and non-essential use ban. By reducing demand and potentially reducing abstraction the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented in drought conditions, it will not result in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of private gardens, and use of ornamental fountains etc will be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to have a significant effect on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Temporary use ban and non-essential use ban is likely to have minor negative effects on the community and social well-being as there will be restrictions on irrigation of gardens and allotments and use of water for recreational purposes. There may also be a small increased risk of fires in allotments as vegetation dries out.	Allowing allotments limited supplies of water. Ensuring high levels of communication before, during and following the implementation of these measures.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Assuming commercial properties including gardens are exempt from bans and restrictions there is likely to be only a minor effect on tourism and recreation. Non-commercial tourism sites may be affected.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effect on waste production or resource use.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effects on built assets and infrastructure.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -3				Positive 4 Negative -3					

SWS_KME_RE-DRO_ALL_ALL_do_di_eme_regi											
Emergency restrictions: Kent Medway East											
Southern water											
Drought Option: Emergency Drought Orders allow water companies to restrict supplies to customers through the imposition of rota cuts and/or the introduction of standpipes. These measures exist to deal with the very remote possibility of a drought much worse than any seen in the last century or more in the UK. Emergency Drought Orders have not been put in place in the UK since 1976. Ministers have made it clear that such measures should be avoided at all costs and introduced only as a last resort. The Company will make full use of all other measures before considering whether the severity of drought conditions mean that Emergency Drought Orders might be required. The full range of measures available under Emergency Drought Order include powers: To limit the use of water for such purposes as it considers necessary (i.e. further measures not specified in the Drought Direction 2011); To introduce rota cuts; and To set up, and supply water by means of, stand-pipes or water tanks. Level of intervention for this option: Unprecedented drought conditions. We intend the need for these to only arise in conditions of civil emergency and as such our emergency plan covers this in more detail.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) identified no likely significant effects for the N2K sites within the Kent Medway East WRZ: The Swale Ramsar and SPA; Queendown Warren SAC; Medway Estuary & Marshes Ramsar and SPA. The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to all sites, excluding the Queendown Warren SAC, as they all contain GWDTE or are dependent upon surface water flows. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Emergency restrictions may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is only to be used in severe drought circumstances so is therefore not likely to affect flood risk or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status	N/A	0	0	+	0

						of assessed water bodies. No further WFD assessments required.					
	Deliver reliable and resilient water supplies	0	0	++	0	Option maintains resilience of water for essential services.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have temporary effects on visual amenity as restricted water use may impact parks and gardens reliant on public water supply.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	---	Emergency restrictions such as rota cuts and imposition of standpipes may have major negative effects on social well-being, with the potential for breakdown of social cohesion and impacts on public health. Imposition of standpipes will particularly effect people with limited mobility or other disabilities. Businesses that use water and do not have access to private water supply will be largely affected with the potential for substantial economic losses. There may also be an increased risk of fires as public access to water is restricted.	Ensure high level of communication with customers before, during and after the restrictions have been imposed.	0	0	0	---
	Maintain and enhance tourism and recreation	0	0	0	--	Tourism and recreation is likely to be affected as water restrictions may force some tourist	N/A	0	0	0	--

						attractions and recreational activities to temporarily close.					
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 7 Negative -13					Positive 7 Negative -13				

SWS_KME_RE-DRO_ALL_ALL_si_ket2											
Faversham sources WSWs Drought Permit/Order (2025 onwards)											
Southern water											
Drought option: removal of seasonal constraints at Faversham1, Faversham2 and Millstead. Drought Option: Faversham1, Faversham2 and Millstead groundwater sources. These boreholes within the Kent Medway area are all licence-constrained and prevented from abstracting water outside the summer period in order to protect groundwater resources in the Faversham – Sittingbourne area. This option would involve the removal of these seasonal constraints in order to pump at the daily licensed amount throughout the year through the application for and implementation of a Drought Permit or Order. Daily license limit of 5 MI/d maximum abstraction from each of KH, HH, TW. Proposed drought option expected yields/gains: Faversham1: 5 MI/d (Oct to Apr) Faversham2: 5 MI/d (Oct to Apr) Millstead: 5 MI/d (Oct to Apr).											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	There are no designated sites within 2000m of the abstraction points. The abstraction points are located within SSSI Impact Risk Zones and woodland, including the Trundle/Savage Woods and deciduous woodland Priority Habitat (Trundle Wood). It is not anticipated that increased abstraction would directly impact these habitats. Though there are no GWDTEs in close proximity to the option, it is not known how far the effects of increased abstraction will be seen therefore minor operational effects have been identified. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress. The HRA Tols (2021) identified no likely significant effects, no further assessment required. No risk of transfer/movement of invasive or non-native species with this option type.	N/A	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Increased groundwater abstraction may impact local soil quality, however effects are not anticipated to be significant. Abstraction points located on grade 3 agricultural land.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Millstead abstraction point is located near flood zone 2 area however, option is unlikely to impact on flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	--	At present abstraction is reduced from October to April giving groundwater supplies a chance to replenish after the summer months. Increased abstraction may have negative impacts on resilience of local water resources. WFD assessment (2020) indicates one waterbody which requires further assessment during operation. The Drought Plan SEA references three waterbodies with low/negligible risk	Undertake further WFD assessment.	0	0	0	--

						GB106040018430 River Len; GB107040019660 Upper Great Stour; Swale (transitional water body)					
	Deliver reliable and resilient water supplies	0	0	+	0	Option will enable an increased supply of 5Ml/day from each of the three sites between October and April.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	There may be some negative effects from an increase in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	There may be some negative effects from an increase in carbon emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	-	Increased abstraction during period of drought will reduce the water environments ability to recover and may increase groundwater resources vulnerability to drought in the future.	Monitor groundwater flows.	0	0	0	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	Option unlikely to have effect on landscape, townscape and seascape character and visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option unlikely to have effect on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	May benefit wellbeing by providing additional water for public during drought.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Option unlikely to have any impact on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	-	Potential for increased resources required and waste produced from increased water treatment.	N/A	0	0	0	-
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure.	N/A	0	0	0	0

SEA Metrics	Positive 2 Negative -7	Positive 2 Negative -7
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SWS_KME_RE-OTH_REP_ALL_bs_kmt_resil											
Reduce transfer to other commercial customers: Kent Medway East											
Southern Water											
Drought Option: In the event of a drought the Company would hold discussions with a commercial customer with regards to the resources position and their supply.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option may reduce the amount of water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during drought conditions and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) indicated no likely significant effect on Natura 2000 sites.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	There is not anticipated to be any effects on soil quality as a result of this option.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is not likely to be affected by flooding or lead to the exacerbation of flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and is only to be implemented in drought conditions. Option aims to reduce the water required for supply to other commercial customers, therefore potentially resulting in a reduction in abstraction. WFD assessment (2020) states no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to commercial companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the resilience of supply for these commercial customers.	Ensure high levels of communication with the other water companies and commercial customers before, during	0	0	+	-

							and following the restrictions.				
Air	Reduce and minimise air emissions	0	0	0	0	No effect on air emissions is anticipated from this option.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data has been provided for this option. Neutral effects have been identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to commercial companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water within the natural environment. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	-	The reduction in the amount of water supplied to commercial customers may have an impact on the local economy if they are not able to carry out their business activity or have to operate at a reduced capacity. However, there is potential that the wider population will benefit from this option.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	+	-
	Maintain and enhance tourism and recreation	0	0	0	-	Given the option is to reduce the transfer of water for commercial customers, tourism and recreation could be affected if these customers rely on water to support these activities.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0

	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 5		Negative -3				Positive 5		Negative -3	

SWS_KME_RE-OTH_REP_ALL_bs_vws_resil											
Reduce transfer to other water companies: Kent Medway East											
Southern Water											
Drought Option: In the event of a drought the Company would hold discussions with neighbouring Companies with regards to their resources position and their supply. There are three main bulk transfers to the South East: its entitlement to 25% of the yield of the River Medway Scheme, the Sheldwich Scheme, and the Bewl-Darwell transfer. This option considers reduction of the transfer from Veolia Water Southeast to SWS Kent Thanet. The trigger for this would be when rainfall and groundwater level trigger is exceeded and/or if veolia Water Southeast is not affected as much as Kent Thanet WRZ.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Given the option reduces the transfer of water to other companies in the event of a drought, there is potential that water will be retained within the natural environment. Ecosystems may already be under severe stress therefore additional water retained in the natural environment will be beneficial. The HRA ToLS (2021) identified that the option unlikely to impact Kent Medway East WRZ N2K sites (The Swale Ramsar and SPA, Queendown Warren SAC, Medway Estuary & Marshes Ramsar and SPA), as scheme is geographically separated from WRZ. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The option may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	It is not likely the option will affect or be affected by flood risk.	N/A	0	0	0	0

	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply to other water companies, therefore may result in a reduction in abstraction. WFD assessment (2020) identified no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to other water companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the other water companies.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available for this option. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to other companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	The reduction in the amount transferred to other water companies may have some effects on the wider population outside of Southern Water's boundary. However, this will only occur where groundlevels are exceeded and if the Veolia Water Southeast is not affected as much as SWS Kent Thanet WRZ.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation has the potential to be affected if the reduction in water to other companies results in restrictions for water based activities.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0

	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 4		Negative -3				Positive 4		Negative -3	

SWS_KME_RE-TFR_IZT_ALL_do_si_tan_resil											
Tankering: Kent Medway East											
Southern											
Tankering water from adjacent WRZs or other water companies would be considered in severe droughts. Can be applied on a WRZ basis.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	Depending on the number of vehicles required for the operation, an increase in vehicle emissions may have negative effects on nearby habitats.	Emission levels can be mitigated by using low emission vehicles (including electric vehicles) and strategic timing of transport e.g. avoiding driving lorries during rush hour.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0

	Deliver reliable and resilient water supplies	0	0	+	0	Option will supply water to Medway East in an emergency circumstance of severe drought.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	--	Option will cause an increase in emissions during transportation of water. This option is only to be implemented in severe circumstances therefore an increase in emissions will only be temporary.	Emission levels can be mitigated by using low emission vehicles (including electric vehicles) and strategic timing of transport e.g. avoiding driving lorries during rush hour.	0	0	0	-
	Reduce embodied and operational carbon emissions	0	0	0	-	There is no carbon data available for this option. There may be some negative effects from an increase in carbon emissions associated with tankering, however these are anticipated to be minor due to the temporary nature of the option.	Option only to be implemented in severe drought, emissions can be mitigated for by using low emission vehicles.	0	0	0	-
Climatic Factors	Reduce vulnerability to climate change risks and hazards	0	0	0	0	This option is to be used only in severe drought and not a long term option. It will not affect resilience to climate change.	N/A	0	0	0	0
	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Visual amenity may be affected by an increase in lorries on the roads. This option is only to be implemented in severe circumstances therefore effects on visual amenity will be temporary.	Can be mitigated by strategic timing of transport of tankers e.g. avoiding driving tankers in rush hour.	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	-	Increased traffic may have minor impacts on built heritage e.g. conservation areas.	Can be mitigated by strategic timing of transport of tankers e.g. avoiding driving tankers in rush hour.	0	0	0	-
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Noise from vehicles and increase in air pollution can cause disturbance in populated areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	Can be mitigated by using electric vehicles and strategic timing of transport of tankers e.g. avoiding driving tankers during rush hour.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Increase in congestion on roads from tankers and effects on visual amenity may have an effect on recreation and tourism in Medway East. This option is only to be implemented in severe circumstances therefore effects on recreation and tourism will be temporary.	Best practice mitigation techniques to reduce impacts.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	--	Use of fuel resources.	Fuel utilisation may be reduced by strategic timing of transport	0	0	0	-

							vehicles e.g. avoid driving tankers in rush hour.				
	Avoid negative effects on built assets and infrastructure	0	0	0	-	Depending on the number of tankers required for the operation, there may be an increase in congestion on roads. This option is only to be implemented in severe circumstances therefore negative effects will only be temporary.	Can be mitigated by strategic timing of transport of tankers e.g. avoiding driving tankers in rush hour.	0	0	0	-
SEA Metrics		Positive 1 Negative -15				Positive 1 Negative -9					

SWS_KMW_EF-CRE_ALL_ALL_do_di_res_regi											
Restriction to non-essential use; Kent Medway West											
Southern Water											
Drought Option: The Company has recourse to a range of restrictions to Non-Essential Use. However, it can take a significant time to apply for and then implement a Drought Order. The Company might decide not to exercise all its powers until severe drought conditions are reached. Can be applied on a WRZ basis. Level of intervention for this option: Severe drought conditions.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) identified no likely significant effects for the N2K sites within the Kent Medway West WRZ (North Downs Woodlands SAC; Thames Estuary and Marshes Ramsar and SPA). The HRA Tols indicate the option is unlikely to have a negative impact on any of the N2K sites but is also unlikely to result in benefits given none are dependent on groundwater or surface water flows. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Non-essential use restrictions may marginally impact soil quality, however the effects are not anticipated to be significant.	N/A	0	0	0	0

Water	Increase resilience and reduce flood risk	0	0	0	0	Non-essential use restrictions are not anticipated to effect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	By reducing the amount of water required for supply through restrictions to non-essential use, the option maintains resilience of water for essential services.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of gardens, and use of ornamental fountains for example, may be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	--	Restrictions on non-essential use is likely to have moderate negative effects on the community and social well-being as there may be imposed restrictions on irrigation of gardens and allotments and outdoor plants, restrictions of use of water for swimming pools, restriction of washing vehicles and non-domestic property exteriors. Restrictions may apply to all customers, domestic and commercial so potential for economic impacts.	Ensuring high level of communication with customers before, during and following the implementation of the measure.	0	0	0	--
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation sites dependant on public water supply may be affected due to non-essential restrictions.		0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -6				Positive 4 Negative -6					

SWS_HAZ_EF-LKR_ALL_ALL_dmp kmw high											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0

Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
	Deliver reliable and resilient water supplies	0	0	+++	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Minor positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive 28 Negative -3				Positive 28 Negative -2					

SWS_KMW_HI-DES_ALL_ALL_med10							
River Medway Desalination, up as far as Allington Lock (10MI/d)							
Southern							
This option proposes abstraction of brackish water from the Tidal River Medway. The most feasible location for the desalination plant would be on or adjacent to Aylesford WwTW, although other locations have merit. The discharge of hyper saline effluent is assumed to be through the existing discharge for Aylesford WwTW.							
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation
		+	-	+	-		
		Residual Construction Effects		Residual Operational Effects			
		+	-	+	-		

Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	--	The option is located immediately adjacent to Holborough to Burham Marshes MCZ and Holborough to Burham Marshes SSSI (100% favourable), potential disturbance impact during construction and operation. The option is within SSSI Impact Risk Zones. Potential for direct impact on priority habitat from construction: Deciduous woodland. Potential operational impacts associated with brine outfall. The HRA ToLS (2020) identified likely significant effects during construction. There is a low risk for the transfer / spread of INNS.	Best practice methods to be implemented to minimise disturbance effects and habitat loss. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Potential for residual effects remain for designated sites. HRA AA required to understand uncertain effects identified during construction that remain despite mitigation.	0	--	0	--
	Soil	0	-	0	0	The option is located on grade 2 and 4 agricultural land. Likely to be loss of relatively small area of grade 2 agricultural land. Minor disturbance to soil is likely to occur during construction of plant. The option is within 500m of a historic landfill site with potential to disturb contaminated material during construction.	Land to be reinstated upon completion where possible although is likely to be permanent loss of a small area of grade 2 agricultural land. Best practice techniques to be implemented to prevent potential disturbance of contaminated material during construction.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	--	The option is located in Flood Zones 2 and 3 area which may have an impact during construction and operation.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur. Desalination plant to be designed to be flood resilient.	0	-	0	-
	Protect and enhance the quality of the water environment and water resources	0	--	0	--	Part of option located in SPZ 2/3. Potential for water quality impacts during operation due to brine discharge. Also potential for impacts to water quality during construction of abstraction point. WFD Screening Assessment (2020) identified that further WFD assessment will be required due to construction and operational effects.	Best practice mitigation measures to be implemented during construction. However minor and temporary impacts may remain.	0	--	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	Option may provide up to 10MI/d supply of desalinated and treated water.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	-	The option is not located within an AQMA although there are AQMAs within 2km (Tonbridge and Malling - M20 AQMA, Tonbridge and Malling - Larkfield AQMA and Tonbridge and Malling - Aylesford AQMA). Construction likely to have minor and temporary impact on air quality. There is	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts may remain. Desalination	0	-	0	-

						potential for operational effects due to emissions from the desalination plant.	plant to operate within agreed air quality limits.				
Climatic Factors	Reduce embodied and operational carbon emissions	0	---	0	--	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has major construction and moderate operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	---	0	--
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Desalination potentially provides climate change resilience for supply, especially for intakes from the sea. Where the use of desalination relieves pressure on stressed freshwater environments it could also contribute to environmental resilience.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option is located within Wealden Greensand NCA. Likely to be negative effects on landscape and visual amenity during construction of desalination plant and permanent effects once operational. The desalination plant is proposed to be located adjacent to an existing WwTW.	Best practice will be implemented to avoid negative effects, however likely to be some disturbance to landscape during works. Screening through landscaping planting could be implemented to minimise the visual impact of plant however residual effects likely to remain.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There is a listed building in close proximity to the option (Boundary Stone of the City of Rochester). There are conservation areas, scheduled monuments and further listed buildings within 2km of option. Construction may affect the setting of the historic assets, however this is likely to be temporary and minimal. There is potential for permanent effects on setting of the listed building once operational. The desalination plant is proposed to be located adjacent to an existing WwTW, which may limit the impact therefore minor operational effects identified. There is potential for any excavation to impact buried archaeology if present.	Best practice mitigation measures will likely be implemented to minimise setting effects during construction and operation. Given there is potential to impact buried archaeology, an Archaeology Watching Brief may be required during the construction phase. Further work is likely to be required to determine the significance of the effect depending on the presence / absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are numerous schools, medical facilities and other important buildings within 2km of option. There may be minor, temporary disturbances during construction to users of these facilities. IMD deciles range from 1 to 7 across the option location.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	There are a number of green spaces along with Laybourne Lakes which may be temporarily affected during construction works, e.g. noise, dust pollution, road congestion.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for option anticipated to generate waste. Brine waste will be produced during desalination.	Seek opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain during construction.	0	-	0	-
	Avoid negative effects on built assets and infrastructure	0	-	0	0	There is potential for localised traffic disruption during construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction.	0	-	0	0
SEA Metrics			Positive Negative	2 -49				Positive Negative	2 -40		

SWS_KMW_HI-DES_ALL_ALL_med20					
River Medway Desalination, up as far as Allington Lock (20MI/d)					

Southern											
This option proposes abstraction of brackish water from the Tidal River Medway. The most feasible location for the desalination plant would be on or adjacent to Aylesford WwTW, although other locations have merit. The discharge of hyper saline effluent is assumed to be through the existing discharge for Aylesford WwTW.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	--	The option is located immediately adjacent to Holborough to Burham Marshes MCZ and Holborough to Burham Marshes SSSI (100% favourable), potential disturbance impact during construction and operation. The option is within SSSI Impact Risk Zones. Potential for direct impact on priority habitat from construction: Deciduous woodland. Potential operational impacts associated with brine outfall. The HRA ToLS (2020) identified likely significant effects during construction. There is a low risk for the transfer / spread of INNS.	Best practice methods to be implemented to minimise disturbance effects and habitat loss. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Potential for residual effects remain for designated sites. HRA AA required to understand uncertain effects identified during construction that remain despite mitigation.	0	--	0	--
	Soil	0	-	0	0	The option is located on grade 2 and 4 agricultural land. Likely to be loss of relatively small area of grade 2 agricultural land. Minor disturbance to soil is likely to occur during construction of plant. The option is within 500m of a historic landfill site with potential to disturb contaminated material during construction.	Land to be reinstated upon completion where possible although is likely to be permanent loss of a small area of grade 2 agricultural land. Best practice techniques to be implemented to prevent potential disturbance of contaminated material during construction.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	--	The option is located in Flood Zones 2 and 3 area which may have an impact during construction and operation.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur. Desalination plant to be designed to be flood resilient.	0	-	0	-
	Protect and enhance the quality of the water environment and water resources	0	--	0	--	Part of option located in SPZ 2/3. Potential for water quality impacts during operation due to brine discharge. Also potential for impacts to water quality during construction of abstraction point. WFD Screening Assessment (2020) identified that further WFD assessment will be required due to construction and operational effects.	Best practice mitigation measures to be implemented during construction. However minor and temporary impacts may remain.	0	--	0	--

	Deliver reliable and resilient water supplies	0	0	+	0	Option may provide up to 20MI/d supply of desalinated and treated water.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	-	The option is not located within an AQMA although there are AQMAs within 2km (Tonbridge and Malling - M20 AQMA, Tonbridge and Malling - Larkfield AQMA and Tonbridge and Malling - Aylesford AQMA). Construction likely to have minor and temporary impact on air quality. There is potential for operational effects due to emissions from the desalination plant.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts may remain. Desalination plant to operate within agreed air quality limits.	0	-	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	---	0	--	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has major construction and moderate operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	---	0	--
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Desalination potentially provides climate change resilience for supply, especially for intakes from the sea. Where the use of desalination relieves pressure on stressed freshwater environments it could also contribute to environmental resilience.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option is located within Wealden Greensand NCA. Likely to be negative effects on landscape and visual amenity during construction of desalination plant and permanent effects once operational. The desalination plant is proposed to be located adjacent to an existing WwTW.	Best practice will be implemented to avoid negative effects, however likely to be some disturbance to landscape during works. Screening through landscaping planting could be implemented to minimise the visual impact of plant however residual effects likely to remain.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There is a listed building in close proximity to the option (Boundary Stone of the City of Rochester). There are conservation areas, scheduled monuments and further listed buildings within 2km of option. Construction may affect the setting of the historic assets, however this is likely to be temporary and minimal. There is potential for permanent effects on setting of the listed building once operational. The desalination plant is proposed	Best practice mitigation measures will likely be implemented to minimise setting effects during construction and operation. Given there is potential to impact buried archaeology, an Archaeology Watching Brief may be required during the construction	0	-	0	0

						to be located adjacent to an existing WwTW, which may limit the impact therefore minor operational effects identified. There is potential for any excavation to impact buried archaeology if present.	phase. Further work is likely to be required to determine the significance of the effect depending on the presence / absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are numerous schools, medical facilities and other important buildings within 2km of option. There may be minor, temporary disturbances during construction to users of these facilities. IMD deciles range from 1 to 7 across the option location.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	There are a number of green spaces along with Laybourne Lakes which may be temporarily affected during construction works, e.g. noise, dust pollution, road congestion.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for option anticipated to generate waste. Brine waste will be produced during desalination.	Seek opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain during construction.	0	-	0	-
	Avoid negative effects on built assets and infrastructure	0	-	0	0	There is potential for localised traffic disruption during construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction.	0	-	0	0
SEA Metrics		Positive 2 Negative -49						Positive 2 Negative -40			

SWS_KMW_HI-DES_ALL_ALL_swa10										
River Thames Desalination: abstraction from the Thames Estuary (10MI/d)										
Southern										
This option proposes the development of a desalination plant adjacent to Britannia Refined Metal on the Swanscombe Peninsula, which would be capable of producing 10MI/d, and would combine discharge with Swanscombe WwTW's existing outfall. Treated water would be transferred to Singlewell WSR for distribution to the Kent Medway WRZ.										
SEA Topic	SEA Objective	Construction Effects	Operational Effects	Comment	Mitigation	Residual Construction Effects		Residual Operational Effects		

		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	--	Bakers Hole SSSI (100% Unfavourable -declining) is within 500m of the option. West Thurrock Lagoon & Marshes SSSI, Swanscombe MCZ and Swanscombe Skull Site NNR are within 2000m. There is potential for indirect effects from the construction phase on these sites. The option intersects woodland and priority habitat. There is potential for direct loss of priority habitat from the construction of the desalination plant. There are no anticipated impacts on chalk rivers or GWDTE. Potential impacts from operation, as highly saline discharge from plant may have negative impacts on marine ecosystems. The HRA ToLS (2020) identified uncertain effects during construction and operation. The risk of transfer / spread of INNS is low.	Best practice mitigation to minimise impacts and reinstatement /compensation of habitats, but potential for residual direct and indirect effects remain for designated sites. Future design will need to undertake ecology surveys. HRA Level 2 assessment identified uncertain effects remain despite mitigation, further assessment would be required.	0	-	0	--
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The desalination plant and part of the pipeline route is within urban land. The pipeline also passes through Grade 1, 2 and Grade 3 agricultural land. There are historic landfill sites within close proximity to the option and the construction phase has the potential to disturb contaminants. Swanscombe Skull Site, a geological SSSI, is also within 2000m but no effects anticipated.	Reinstate land where possible. Best practice methods for working within landfill sites to be implemented to minimise effects.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	--	The desalination plant is located within FZ2 and FZ3 therefore potential risk for both the construction and operational phases.	Measures to reduce the impact on flooding during the construction phase is likely to be implemented, however potential residual flood risk likely to remain.	0	-	0	-
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	Option located in SPZ 3 and intersects with two WFDGW bodies: North Kent Medway Chalk; West Kent Darent and Cray Chalk. The construction phase could lead to contamination of the water environment and there is potential for water quality impacts during operation due to brine discharge. WFD Screening Assessment (2020) identified one waterbody which requires further assessment due to potential operational impacts.	Best practice construction measures including flood risk and pollution management will likely be implemented. A new abstraction license will also need to be attained. Further WFD assessment required	0	-	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	Option may provide up to 10MI/d supply of desalinated and treated water Kent Medway WRZ.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	--	0	--	The desalination plant is located within Northfleet Industrial Area AQMA and Gravesham A2 AQMA is within 500m. Construction likely to have minor and temporary impact on air quality. There is potential for air quality impacts during	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts may	0	-	0	-

						operation given the high energy intensive process.	remain. Use best practice methods to reduce operational impacts on air quality.				
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and minor operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	++	0	The use of desalination relieves pressure on stressed freshwater environments therefore contributing to increased resilience to climate change.	N/A	0	0	++	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	-	The option is located intersects the Greater Thames Estuary NLCA and the pipeline passes through the London Area Greenbelt. There is likely to be negative effects during the construction phase. There will also be permanent effects on visual amenity during operation.	Best practice will be implemented to avoid negative effects, however likely to be some disturbance to landscape during works. Screening could be implemented to minimise visual impact of plant.	0	-	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are listed buildings and conservation areas within 500m of the option. There is potential for the construction phase to affect the setting of these historic assets. The excavation for the desalination plant and pipeline may impact archaeology, if present.	Best practice mitigation measures will likely be implemented to minimise setting effects during construction and operation. Given there is potential to impact buried archaeology, an Archaeology Watching Brief may be required during the construction phase.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are schools, playing fields, play spaces, churches and religious grounds, cemeteries, emergency services, medical facilities and other community facilities within 500. There are also noise action areas within 500m. There may be minor, temporary disturbances during construction to users of these facilities and the wider community. The desalination plant is within IMD decile 1 and the pipeline passes through IMD decile 4 to 9.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0

	Maintain and enhance tourism and recreation	0	-	0	0	There are playing fields and play spaces within 500m. The pipeline also intersects national cycle routes. There may be diversions to public rights of way during the construction phase. Minor negative effects have therefore been identified.	Best practice mitigation measures will be implemented to minimise effects. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for option anticipated to generate waste. Brine waste will be produced during desalination.	Seek opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain during construction.	0	-	0	-
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option intersects major roads, railways and national cycle routes. There is likely to be disruption during the construction phase.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction.	0	-	0	0
SEA Metrics		Positive		5				Positive		5	
		Negative		-46				Negative		-25	

SWS_KMW_HI-DES_ALL_ALL_swa20											
River Thames Desalination: abstraction from the Thames Estuary (20MI/d)											
Southern											
This option proposes the development of a desalination plant adjacent to Britannia Refined Metal on the Swanscombe Peninsula, which would be capable of producing 20MI/d, and would combine discharge with Swanscombe WwTW’s existing outfall. Treated water would be transferred to Singlewell WSR for distribution to the Kent Medway WRZ.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-

Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	--	Bakers Hole SSSI (100% Unfavourable -declining) is within 500m of the option. West Thurrock Lagoon & Marshes SSSI, Swanscombe MCZ and Swanscombe Skull Site NNR are within 2000m. There is potential for indirect effects from the construction phase on these sites. The option intersects woodland and priority habitat. There is potential for direct loss of priority habitat from the construction of the desalination plant. There are no anticipated impacts on chalk rivers or GWDTE. Potential impacts from operation, as highly saline discharge from plant may have negative impacts on marine ecosystems. The HRA ToLS (2020) identified uncertain effects during construction and operation. The risk of transfer / spread of INNS is low.	Best practice mitigation to minimise impacts and reinstatement /compensation of habitats, but potential for residual direct and indirect effects remain for designated sites. Future design will need to undertake ecology surveys. HRA Level 2 assessment identified uncertain effects remain despite mitigation, further assessment would be required.	0	-	0	--
	Soil	0	--	0	0	The desalination plant and part of the pipeline route is within urban land. The pipeline also passes through Grade 1, 2 and Grade 3 agricultural land. There are historic landfill sites within close proximity to the option and the construction phase has the potential to disturb contaminants. Swanscombe Skull Site, a geological SSSI, is also within 2000m but no effects anticipated.	Reinstate land where possible. Best practice methods for working within landfill sites to be implemented to minimise effects.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	--	The desalination plant is located within FZ2 and FZ3 therefore potential risk for both the construction and operational phases.	Measures to reduce the impact on flooding during the construction phase is likely to be implemented, however potential residual flood risk likely to remain.	0	-	0	-
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	Option located in SPZ 3 and intersects with two WFDGW bodies: North Kent Medway Chalk; West Kent Darent and Cray Chalk. The construction phase could lead to contamination of the water environment and there is potential for water quality impacts during operation due to brine discharge. WFD Screening Assessment (2020) identified one waterbody which requires further assessment due to potential operational impacts.	Best practice construction measures including flood risk and pollution management will likely be implemented. A new abstraction license will also need to be attained. Further WFD assessment required	0	-	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	Option may provide up to 20MI/d supply of desalinated and treated water Kent Medway WRZ.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	--	0	--	The desalination plant is located within Northfleet Industrial Area AQMA and Gravesham A2 AQMA is within 500m. Construction likely to have minor and temporary impact on air quality. There is potential for air quality impacts during operation given the high energy intensive process.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts may remain. Use best practice methods to reduce	0	-	0	-

							operational impacts on air quality.				
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and minor operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	++	0	The use of desalination relieves pressure on stressed freshwater environments therefore contributing to increased resilience to climate change.	N/A	0	0	++	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	-	The option is located intersects the Greater Thames Estuary NLCA and the pipeline passes through the London Area Greenbelt. There is likely to be negative effects during the construction phase. There will also be permanent effects on visual amenity during operation.	Best practice will be implemented to avoid negative effects, however likely to be some disturbance to landscape during works. Screening could be implemented to minimise visual impact of plant.	0	-	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are listed buildings and conservation areas within 500m of the option. There is potential for the construction phase to affect the setting of these historic assets. The excavation for the desalination plant and pipeline may impact archaeology, if present.	Best practice mitigation measures will likely be implemented to minimise setting effects during construction and operation. Given there is potential to impact buried archaeology, an Archaeology Watching Brief may be required during the construction phase.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are schools, playing fields, play spaces, churches and religious grounds, cemeteries, emergency services, medical facilities and other community facilities within 500. There are also noise action areas within 500m. There may be minor, temporary disturbances during construction to users of these facilities and the wider community. The desalination plant is within IMD decile 1 and the pipeline passes through IMD decile 4 to 9.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0

	Maintain and enhance tourism and recreation	0	-	0	0	There are playing fields and play spaces within 500m. The pipeline also intersects national cycle routes. There may be diversions to public rights of way during the construction phase. Minor negative effects have therefore been identified.	Best practice mitigation measures will be implemented to minimise effects. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for option anticipated to generate waste. Brine waste will be produced during desalination.	Seek opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain during construction.	0	-	0	-
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option intersects major roads, railways and national cycle routes. There is likely to be disruption during the construction phase.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction.	0	-	0	0
SEA Metrics		Positive		5				Positive		5	
		Negative		-46				Negative		-25	

SWS_KMW_HI-REU_RE1_ALL_ayl18							
Medway WTW - Barming or Watlington discharge (18MI/d)							
Southern							
This option involves the transfer of approx. 18 MI/d of treated effluent from Aylesford WWTW to the River Medway upstream of Springfield abstraction. This would be used to supplement flows within the Medway during low flow periods, thus reducing the releases from Bewl Water and conserving storage.							
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation
		+	-	+	-		
		Residual Construction Effects		Residual Operational Effects			
		+	-	+	-		

Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	Pipeline intersects Holborough to Burham Marshes SSSI (100% Favourable) and through Peter's Pit SSSI (100% favourable) potential for direct impact on vulnerable habitats as a result of construction. Entire option located within SSSI Impact Risk Zones. Option also crosses woodland, including deciduous woodland and priority habitat including: Coastal and floodplain grazing marsh; Good quality semi-improved grassland. No risk of INNS transfer during operation as transfer relates to treated water. Moderate INNS risk during construction phase as route passes through vulnerable habitat such coastal and floodplain grazing marsh. HRA ToLS identified no likely significant effects. This option proposes to transfer treated water from Aylesford WwtW to a point upstream of water abstraction on the River Medway at either Barming or Wateringbury. The is insufficient information provided on the pipeline route (and/ or point of discharge) at the Barming option. Therefore, only the Wateringbury discharge option is assessed using GIS layer: SWS_KMW_HI-REU_ALL_ALL_ayl18_WBury_Full_Pipeline . Peters Pit SAC is less than 0.1km from the River Medway The SAC may be connected hydraulically, when considering its close proximity to the river. Given that the option is designed to maintain river levels in the Medway during extended periods of low rainfall, the option should aid in preventing changes in water levels etc at the SAC, thereby maintaining the habitat when otherwise it may be at risk of change. It is also predicted that the distance between the proposed pipeline and the DAS is sufficient that no construction phase effects due to dust deposition, noise, vibration etc would be felt.	Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Re-route pipeline to avoid designated sites.	0	-	0	0
	Soil Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	Option intersects historic landfill sites. There is potential to disturb contaminated material during construction. Option is predominately located on urban, grade 2 and grade 4 agricultural land. Likely disturbance to these soils during construction.	Land reinstated upon completion. Best practice construction measures to be implemented, however residual construction effects likely.	0	-	0	0
	Water Increase resilience and reduce flood risk	0	--	0	0	Option intersects areas of Flood Zone 2 and Flood Zone 3 and flood defences. This may have an impact on construction.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0

	Protect and enhance the quality of the water environment and water resources	0	--	+	---	Option crosses WFD groundwater and WFD surface waters as well as SPZ Zone 3, Zone 2 and Zone 1. There is potential for effects to water sources during construction. Option may help to support flows in the river Medway during periods of low flows. However increased abstraction may have detrimental effects on water environments. WFD screening (2020) identified the further assessments requires to assess the impacts on the following water bodies: Medway; Medway at Maidstone.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain.	0	--	+	---
	Deliver reliable and resilient water supplies	0	0	+	0	Option will supplement flows of River Medway upstream of Springfield abstraction. Capacity of 18Ml/d.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Option intersects AQMAs. However, construction is likely to have minor and temporary impact.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and minor operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Option may help to support flows of river Medway during period of low flows.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	Approximately passes through North Downs AONB and NLCA. Potential for impacts on landscape character and visual amenity during construction.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	Option within 500m of multiple listed buildings and Scheduled Monuments. Option crosses Conservation Areas. Construction may affect the setting of the historic assets, however this will be temporary. Potential impact on buried archaeology, if present.	Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to	0	-	0	0

							potential loss of archaeological remains due to construction.					
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	Option intersects Wouldham Allsaints C of E Primary School and an allotment with other important buildings including religious grounds and schools within 500m. There is likely to be impacts on users of these facilities during construction. Option runs close to one Noise Action Planning Important Area. IMD deciles vary along the option from 4 to 10. Disturbance to the local community will be temporary.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0	
	Maintain and enhance tourism and recreation	0	-	0	0	Option intersects through a sports facility and green spaces. Therefore, there may be some moderate and temporary effects on recreation during construction.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0	
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste	Seek opportunity to implement sustainable design measures and reuse excavated material on site, to reduce impact. Minor negative construction effects will likely remain.	0	-	0	0	
	Avoid negative effects on built assets and infrastructure	0	-	0	0	Option crosses Collapsed Dual Carriageway (M20) as well as several smaller roads and a multi-track railway. Likely to be moderate and temporary impacts during the construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0	
SEA Metrics			Positive Negative	3 -40	Positive Negative							3 -24

SWS_KMW_HI-REU_RE1_ALL_ecc18											
Medway WTW - Eccles Lake (18 MI/d)											
Southern Water Services											
This option involves the transfer of 18 MI/d of treated effluent from Aylesford WWTW to near Rochester WSW's raw water storage reservoir Eccles Lake.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-

Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	The option lies within an SSSI Impact Risk Zone. The route is within 500m of Medway Estuary Zone 2 Marine Conservation Zone. Holborough to Burham Marshes SSSI (100% favourable), which is a GWDTE, is within 500. Wouldham to Detling Escarpment SSSI, Peters Pit SAC and Ditton Quarry LNR are also within 2000m. There is potential for indirect effects on these sites during the construction phase. The option also intersects deciduous woodland and priority habitats therefore potential for direct effects during construction may impact habitats. The HRA ToIs indicate no likely significant effects on N2K sites. Very low risk of transfer of INNS as the treated source water is likely to be entirely free of INNS. Construction phase risk of INNS is considered to be very low.	Best practice mitigation to minimise impacts. If applicable, ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys.	0	-	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The pipeline passes through Grade 2, 3 and urban land. There is potential for disturbance to these soils during the construction phase. The pipeline is within close proximity to historic landfill sites therefore potential for the construction phase to disturb contaminants.	Reinstate land following construction stage. Implement best practice techniques for working within or within close proximity to landfill sites.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	The option is within FZ1, however there are areas within FZ2 and FZ3 therefore potential risk during the construction phase. The pipeline will be buried therefore operational impacts not anticipated.	Implement best practice techniques to reduce flood risk.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	--	The option intersects SPZ1 and 2 and two WFD groundwater bodies. There is potential for the water environment to be contaminated during the construction phase from leaching of contaminants. WFD assessments 2020 indicate potential effects on groundwater from construction and operation therefore further WFD assessment is required. The water bodies in question are not part of a river WB catchment.	Implement pollution prevention and control measures. Further WFD assessment is required therefore moderate effects remain.	0	--	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	The option will improve water transfers, increasing resilience.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Tonbridge and Malling - M20 AQMA, Tonbridge and Malling - Ditton AQMA, Tonbridge and Malling - Larkfield AQMA, Tonbridge and Malling - Aylesford AQMA, and Maidstone Borough Air Quality Management Area are all within 2000m of the option location. Construction is likely to generate air emissions from dust and construction vehicles/machinery.	Best construction practices such as use of damping.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and	0	-	0	-

							operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.				
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	The option is not anticipated to have an effect on climate resilience as it will not likely have a significant effect on water levels.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The Kent Downs AONB and the London Area Greenbelt are within 2000m. The option intersects the Wealden Greensand national landscape character area. Visual disturbance is likely during construction. The pipeline will be buried therefore operational impacts are not anticipated.	Implement screening to minimise visual disturbance and reinstate landscape to original state where possible, however residual effects likely to remain during construction.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	---	0	0	The option intersects Romano-British villa, Anglo-Saxon cemetery and associated remains at Eccles Scheduled Monument. Therefore, potential for direct effects. There are also listed buildings within close proximity. It appears to intersect a listed building, however this is likely the GIS alignment as the pipeline following the road network. The setting of these assets may be impacts during construction. The excavation for the pipeline may impact archaeology, if present.	Re-route the pipeline or utilise directional drilling to avoid direct impacts on the scheduled monument. Best practice mitigation measures to be implemented to minimise setting effects during construction. Given there is potential to impact buried archaeology, an Archaeology Watching Brief may be required during the construction phase. Further work may be required to determine the significance of the effect depending on the presence / absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The pipeline appears to intersect a school, however it is likely the GIS alignment, and there are also allotments, playing fields, play spaces and other community facilities within 500m. Temporary disturbance on the local community and users of these community facilities is possible during construction from dust, noise and vibration. The pipeline is within IMD decile 6 and 7.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	There are playing fields, allotments and play spaces within 500m therefore potential for disturbance on recreation during the construction phase. There may be diversions to public rights of way.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste, including excavation materials.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	There are major roads, a national rail and national cycle way within 2000m, however effects are not anticipated. There may be minor impacts on the local road network during construction.	Best practice mitigation measures including a Traffic Management Plan to be implemented to minimise effects during construction.	0	-	0	0
SEA Metrics		Positive 1 Negative -33				Positive 1 Negative -20					

SWS_KMW_HI-RSR_RE1_ALL_rab1					
Raising Bewl by 0.4m					

Southern Water											
The scheme involves the raising of Bewl Water, by 0.4m to increase storage and yield. The major works for raising Bewl to higher TWL levels will include: • Raise the dam crest and build new wave wall;• Raise overflow and valve chamber shafts; and • Many ancillary works around the perimeter of the reservoir.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	The option is within a SSSI risk zone. Combwell Wood SSSI and Scotney Castle SSSI / GWDTE are within 2000m therefore potential for indirect effects during construction. There are areas of ancient woodland, woodland and priority habitats surrounding Bewl Water which may be impacted directly during the works. No impacts anticipated on chalk rivers. The HRA ToLS (2020) identified no likely significant effects as no N2k sites are in the vicinity of the construction works, or connected (hydraulically or otherwise) to Bewl Water and the River Bewl (Teise catchment). Low risk of transfer of INNS as the treated source water is likely to be entirely free of INNS. Construction phase risk of INNS is considered to be low.	Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys.	0	-	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The option is located within Grade 3 agricultural land and there may be some permanent losses and/or disturbance during the construction phase. There are no historic or authorised landfills within 500.	Reinstate land where possible, however there may be some minor permanent losses around Bewl Water perimeter as a result of the works.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	Bewl Water is located within FZ2 and FZ3 and there may be some impacts to construction works as a result.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	--	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	--	The option involves work around the Bewl Water and as such there may be contamination during the construction phase. Part of the option is located within a SPZ. The WFD assessment (2020) identified further WFD assessment would be required.	Undertake further WFD assessments. Best practice mitigation measures likely to be implemented during construction.	0	--	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	The option is aiming to increase the capacity of Bewl Water which has the potential to contribute to the resilience of supplies.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	There are no AQMAs within 2000m. The construction phase will likely result in impacts on air quality.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	There is potential that the increased capacity at Bewl Water will increase the resilience to the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	-	The option is located in High Weald AONB. The construction phase has the potential to impact the landscape, and given the option is to increase the capacity at Bewl Water with works on the perimeter, there may be permanent changes to the landscape. However, as this is already an existing reservoir, impacts are not anticipated to be as significant therefore minor effects identified for operation.	Best practice measures will likely be implemented to minimise effects during construction and to reduce visual impact during operation, however minor and temporary impacts may remain. Land reinstated upon completion where possible.	0	-	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The option is within a conservation area, and there are also listed buildings on the perimeter of Bewl Water which may be impacted as well as additional listed buildings within 500m. The works may impact archaeology if present.	Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are sports facilities and play spaces within 500m of the option location. There is potential that users of these facilities and the wider community are impacts during the construction works, however this is likely to be minor and temporary. IMD deciles range from 7 to 8 around the perimeter of Bewl Water.	Best practice measures will likely be implemented to minimise disturbance during construction. However, effects are likely to still occur.	0	-	0	0

	Maintain and enhance tourism and recreation	0	-	0	0	The users of the sport facilities and play spaces have the potential to be affected during construction and there may be some diversions to public rights of way during the works. As such, the option has the potential to have a minor and temporary impact on recreation.	Best practice measures will likely be implemented to minimise disturbance during construction. However, effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials.	Opportunity to implement sustainable design measures and reuse excavated material on site where possible, to reduce impact.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	The option is not anticipated to impact major roads, railways, national trails or national cycle routes. There may be some disturbance to local roads during the construction works.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still remain.	0	-	0	0
SEA Metrics		Positive 2 Negative -30		Positive 2 Negative -24							

SWS_KMW_HI-TFR_HON_ALL_bs_hon_eastn_10										
Honor Oak (London Water Ring Main) to Near Rochester WTW 10MI/d, bidirectional										
Southern										
Bidirectional transfer of treated water from Thames Water’s Honor Oak reservoir in Lewisham London to SWS’s near Rochester Water Treatment Works, through a new bulk transfer pipeline. 10MI/d										
SEA Topic	SEA Objective	Construction Effects	Operational Effects	Comment	Mitigation	Residual Construction Effects		Residual Operational Effects		

		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	<p>The option crosses Holborough to Burham Marshes SSSI (100% favourable) / GWTDE, and is within 500m of Cobham Woods SSSI (66.63% favourable, 33.37% unfavourable - recovering), Farningham Wood SSSI (100% favourable), Halling to Trottiscliffe Escarpment SSSI (78.44% favourable, 10.36% unfavourable - declining, 7.14% unfavourable - recovering, 4.07% unfavourable - no change) / North Down Woodlands SAC, Peter's Pit SSSI (100% favourable)/SAC, Ruxley Gravel Pits SSSI (100% favourable) / GWTDE and Shorne and Ashenbank Woods SSSI (74.21% favourable, 22.64% unfavourable - recovering, 3.15% unfavourable - no change). Option crosses One Tree Hill and Scadbury Park LNRS with two other Local Nature Reserves within 500m. The option crosses Medway Estuary Zone 2 Marine Conservation Zone. The option is located within SSSI Impact Risk Zones. Option crosses at 7 areas of ancient woodland and areas of deciduous woodland, traditional orchard, coastal and floodplain grazing marsh, coastal saltmarsh, good quality semi-improved grassland and mudflats. The HRA ToLs 2020 identified Likely Significant effects from construction on the following N2K sites: Medway Estuary & Marshes Ramsar: Located approximately 8km to the north-east of the proposed pipeline; Medway Estuary & Marshes SPA: Located approximately 8km to the north-east of the proposed pipeline; Thames Estuary & Marshes Ramsar: Located approximately 4.6km to the north of the proposed pipeline; Thames Estuary & Marshes SPA: Located approximately 6.6km to the north of the proposed pipeline. The option includes the installation of a pipeline across the River Medway. It is likely that this will involve significant engineering during the construction phase, and therefore that the mobilisation of sediment and the creation of pollution in the River Medway. This is hydrologically connected to the Ramsar site, and so could have likely significant effects on the habitats and qualifying features in the site. During operation, no significant effects are predicted. Also, Likely Significant effects on Peters Pit SAC: Pipeline is located adjacent to the site- The potential for the mobilisation of sediment and pollutants during construction of the pipeline could have likely significant effects on the qualifying habitats and species on the downstream Site. Risk of spreading of INNS very low for both construction phase and operational phase.</p>	<p>Realign pipeline or use trenchless techniques to avoid direct impacts on Holborough to Burham Marshes SSSI, Medway Estuary Zone 2 Marine Conservation Zone and Local Nature Reserves. Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys.</p>	0	--	0	0

Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The option crosses grade 1-4 agricultural land with disturbance to these soils during construction. The option crosses a historic landfill site and is within 500m of several historic landfill sites and one authorised landfill site other historic landfill sites with potential to disturb contaminated material during construction.	Land reinstated upon completion. Best practice techniques to be implemented to prevent potential disturbance of contaminated material during construction. Consider realignment if possible, to avoid impacts.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	The option is predominately located within Flood Zone 1, however does cross Flood Zone 2 and Flood Zone 3. This may have an impact on construction.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	The option crosses multiple watercourses, including main rivers in multiple locations. Majority of option located within SPZ, mostly SPZ Zone 3 but crosses SPZ Zone 2 in multiple locations and SPZ Zone 1 on a few occasions. WFD assessment (2020) indicate no further assessments are required.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option will facilitate water supply once operational, from Thames Water's Honor Oak reservoir in Lewisham London to SWS's near Rochester Water Treatment Works. Capacity of 10MI/d.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	--	0	0	The option crosses six AQMAs. Therefore, construction is likely to have moderate yet temporary impact.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	The option involves keeping water within the environment, therefore unlikely to affect resilience of the local environment to climate change.	N/A	0	0	0	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option located within Kent Downs AONB and the following NCAs: North Kent Plain, Inner London, North Downs and Wealden Greensand. The option crosses areas of the London Area Greenbelt. Potential for impacts on landscape character and visual amenity during construction.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	---	0	0	The option crosses three Grade II listed buildings, one Scheduled Monument, Grove Park Cemetery Grade II Registered Park and Garden and five conservation areas. There are multiple other listed buildings, Scheduled Monuments and Registered Parks and Gardens within 500m. Construction may affect the setting of the historic assets, however this will be temporary. Potential impact on buried archaeology, if present.	Realign pipeline or use trenchless techniques to avoid direct impacts on Grade II listed buildings, Scheduled Monument and Grade II Registered Park and Garden. Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	---	0	0	The option crosses approximately 11 schools, three Important Buildings, one medical care facility with multiple others within 500m. The option crosses seven Public Parks and Gardens, two country parks, one golf course, three allotments, one sports facility, one bowling green, one playing field and play spaces. Direct impacts are anticipated on these community assets based on the current alignment. The option is within 500m of playing fields, cemeteries, sports facilities, religious grounds, golf courses, Public Parks and Gardens, tennis courts, allotments. There is likely to be temporary disturbance effects on users of these sites and the local community during construction. The option crosses two Noise Action Important Planning Areas. The option crosses areas of IMD deciles ranging from 1 to 9.	Realign pipeline or use trenchless techniques to avoid direct impacts on property and community assets and land to be reinstated. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	--	0	0	The option crosses seven Public Parks and Gardens, one golf course, three allotments, one sports facility, one bowling green, one playing field and play spaces. The option is within 500m of playing fields, cemeteries, sports facilities, religious grounds, golf courses, Public Parks and Gardens, tennis courts, allotments. The option crosses two Country Parks, National Cycle Route and the North Downs Way National Trail. There	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be	0	-	0	0

						may also be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	reinstated. However, minor and temporary effects are likely to still occur.				
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option crosses multiple major roads and railways. Option crosses National Cycle Route in one location. Likely to be moderate and temporary impacts during the construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive		1			Positive		1		
		Negative		-55			Negative		-15		

SWS_KMW_HI-TFR_HON_ALL_bs_hon_eastn_20					
Honor Oak (London Water Ring Main) to Near Rochester WTW 20MI/d, bidirectional					
Southern					
Bidirectional transfer of treated water from Thames Water’s Honor Oak reservoir in Lewisham London to SWS’s near Rochester Water Treatment Works, through a new bulk transfer pipeline. 20MI/d					

SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	<p>The option crosses Holborough to Burham Marshes SSSI (100% favourable) / GWTDE, and is within 500m of Cobham Woods SSSI (66.63% favourable, 33.37% unfavourable - recovering), Farningham Wood SSSI (100% favourable), Halling to Trottiscliffe Escarpment SSSI (78.44% favourable, 10.36% unfavourable - declining, 7.14% unfavourable - recovering, 4.07% unfavourable - no change) / North Down Woodlands SAC, Peter's Pit SSSI (100% favourable)/SAC, Ruxley Gravel Pits SSSI (100% favourable) / GWTDE and Shorne and Ashenbank Woods SSSI (74.21% favourable, 22.64% unfavourable - recovering, 3.15% unfavourable - no change). Option crosses One Tree Hill and Scadbury Park LNRS with two other Local Nature Reserves within 500m. The option crosses Medway Estuary Zone 2 Marine Conservation Zone. The option is located within SSSI Impact Risk Zones. Option crosses at 7 areas of ancient woodland and areas of deciduous woodland, traditional orchard, coastal and floodplain grazing marsh, coastal saltmarsh, good quality semi-improved grassland and mudflats. The HRA ToLs 2020 identified Likely Significant effects from construction on the following N2K sites: Medway Estuary & Marshes Ramsar: Located approximately 8km to the north-east of the proposed pipeline; Medway Estuary & Marshes SPA: Located approximately 8km to the north-east of the proposed pipeline; Thames Estuary & Marshes Ramsar: Located approximately 4.6km to the north of the proposed pipeline; Thames Estuary & Marshes SPA: Located approximately 6.6km to the north of the proposed pipeline. The option includes the installation of a pipeline across the River Medway. It is likely that this will involve significant engineering during the construction phase, and therefore that the mobilisation of sediment and the creation of pollution in the River Medway. This is hydrologically connected to the Ramsar site, and so could have likely significant effects on the habitats and qualifying features in the site.</p> <p>During operation, no significant effects are predicted. Also, Likely Significant effects on Peters Pit SAC: Pipeline is located adjacent to the site- The potential for the mobilisation of sediment and pollutants during construction of the pipeline could have likely significant effects on the qualifying habitats and species on the</p>	<p>Realign pipeline or use trenchless techniques to avoid direct impacts on Holborough to Burham Marshes SSSI, Medway Estuary Zone 2 Marine Conservation Zone and Local Nature Reserves. Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys.</p>	0	--	0	0

						downstream Site. Risk of spreading of INNS very low for both construction phase and operational phase.					
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The option crosses grade 1-4 agricultural land with disturbance to these soils during construction. The option crosses a historic landfill site and is within 500m of several historic landfill sites and one authorised landfill site other historic landfill sites with potential to disturb contaminated material during construction.	Land reinstated upon completion. Best practice techniques to be implemented to prevent potential disturbance of contaminated material during construction. Consider realignment if possible, to avoid impacts.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	The option is predominately located within Flood Zone 1, however does cross Flood Zone 2 and Flood Zone 3. This may have an impact on construction.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	The option crosses multiple watercourses, including main rivers in multiple locations. Majority of option located within SPZ, mostly SPZ Zone 3 but crosses SPZ Zone 2 in multiple locations and SPZ Zone 1 on a few occasions. WFD assessment (2020) indicate no further assessments are required.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option will facilitate water supply once operational, from Thames Water's Honor Oak reservoir in Lewisham London to SWS's near Rochester Water Treatment Works. Capacity of 20MI/d.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	--	0	0	The option crosses six AQMAs. Therefore, construction is likely to have moderate yet temporary impact.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the	0	-	0	-

							electricity grid is decarbonised, greener energy will be available.				
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	The option involves keeping water within the environment, therefore unlikely to affect resilience of the local environment to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option located within Kent Downs AONB and the following NCAs: North Kent Plain, Inner London, North Downs and Wealden Greensand. The option crosses areas of the London Area Greenbelt. Potential for impacts on landscape character and visual amenity during construction.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	---	0	0	The option crosses three Grade II listed buildings, one Scheduled Monument, Grove Park Cemetery Grade II Registered Park and Garden and five conservation areas. There are multiple other listed buildings, Scheduled Monuments and Registered Parks and Gardens within 500m. Construction may affect the setting of the historic assets, however this will be temporary. Potential impact on buried archaeology, if present.	Realign pipeline or use trenchless techniques to avoid direct impacts on Grade II listed buildings, Scheduled Monument and Grade II Registered Park and Garden. Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	---	0	0	The option crosses approximately 11 schools, three Important Buildings, one medical care facility with multiple others within 500m. The option crosses seven Public Parks and Gardens, two country parks, one golf course, three allotments, one sports facility, one bowling green, one playing field and play spaces. Direct impacts are anticipated on these community assets based on the current alignment. The option is within 500m of playing fields, cemeteries, sports facilities, religious grounds, golf courses, Public Parks and Gardens, tennis courts, allotments. There is likely to be temporary disturbance effects on users of these sites and the local community during construction. The option crosses two Noise Action Important Planning Areas. The option crosses areas of IMD deciles ranging from 1 to 9.	Realign pipeline or use trenchless techniques to avoid direct impacts on property and community assets and land to be reinstated. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, effects are likely to still occur.	0	-	0	0

	Maintain and enhance tourism and recreation	0	--	0	0	The option crosses seven Public Parks and Gardens, one golf course, three allotments, one sports facility, one bowling green, one playing field and play spaces. The option is within 500m of playing fields, cemeteries, sports facilities, religious grounds, golf courses, Public Parks and Gardens, tennis courts, allotments. The option crosses two Country Parks, National Cycle Route and the North Downs Way National Trail. There may also be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option crosses multiple major roads and railways. Option crosses National Cycle Route in one location. Likely to be moderate and temporary impacts during the construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive		1				Positive		1	
		Negative		-55				Negative		-15	

SWS_KMW_HI-TFR_HON_ALL_bs_hon_eastn_30											
Honor Oak (London Water Ring Main) to Near Rochester WTW 30MI/d, bidirectional											
Southern											
Bidirectional transfer of treated water from Thames Water’s Honor Oak reservoir in Lewisham London to SWS’s near Rochester Water Treatment Works, through a new bulk transfer pipeline. 30MI/d											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	The option crosses Holborough to Burham Marshes SSSI (100% favourable) / GWTDE, and is within 500m of Cobham Woods SSSI (66.63% favourable, 33.37% unfavourable - recovering), Farningham Wood SSSI (100% favourable), Halling to Trottscliffe Escarpment SSSI (78.44% favourable, 10.36% unfavourable - declining, 7.14% unfavourable - recovering, 4.07% unfavourable - no change) / North Down Woodlands SAC, Peter's Pit SSSI (100% favourable)/SAC, Ruxley Gravel Pits SSSI (100% favourable) / GWTDE and Shorne and Ashenbank Woods SSSI (74.21% favourable, 22.64% unfavourable - recovering, 3.15% unfavourable - no change). Option crosses One Tree Hill and Scadbury Park LNRS with two other Local Nature Reserves within 500m. The option crosses Medway Estuary Zone 2 Marine Conservation Zone. The option is located within SSSI Impact Risk Zones. Option crosses at 7 areas of ancient woodland and areas of deciduous woodland, traditional orchard, coastal and floodplain grazing marsh, coastal saltmarsh, good quality semi-improved grassland and mudflats. The HRA ToLs 2020 identified Likely Significant effects from construction on the following N2K sites: Medway Estuary & Marshes Ramsar: Located approximately 8km to the north-east of the proposed pipeline; Medway Estuary & Marshes SPA: Located approximately 8km to the north-east of the proposed pipeline; Thames Estuary & Marshes Ramsar: Located approximately 4.6km to the north of the proposed pipeline; Thames Estuary & Marshes SPA: Located approximately 6.6km to the north of the proposed pipeline. The option includes the installation of a pipeline across the River Medway. It is likely that this will involve significant engineering during the construction phase, and therefore that the mobilisation of sediment and the creation of pollution in the River Medway. This is hydrologically connected to the Ramsar site, and so could have likely significant effects on the habitats and qualifying features in the site.	Realign pipeline or use trenchless techniques to avoid direct impacts on Holborough to Burham Marshes SSSI, Medway Estuary Zone 2 Marine Conservation Zone and Local Nature Reserves. Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys.	0	--	0	0

						During operation, no significant effects are predicted. Also, Likely Significant effects on Peters Pit SAC: Pipeline is located adjacent to the site- The potential for the mobilisation of sediment and pollutants during construction of the pipeline could have likely significant effects on the qualifying habitats and species on the downstream Site. Risk of spreading of INNS very low for both construction phase and operational phase.					
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The option crosses grade 1-4 agricultural land with disturbance to these soils during construction. The option crosses a historic landfill site and is within 500m of several historic landfill sites and one authorised landfill site other historic landfill sites with potential to disturb contaminated material during construction.	Land reinstated upon completion. Best practice techniques to be implemented to prevent potential disturbance of contaminated material during construction. Consider realignment if possible, to avoid impacts.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	The option is predominately located within Flood Zone 1, however does cross Flood Zone 2 and Flood Zone 3. This may have an impact on construction.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	The option crosses multiple watercourses, including main rivers in multiple locations. Majority of option located within SPZ, mostly SPZ Zone 3 but crosses SPZ Zone 2 in multiple locations and SPZ Zone 1 on a few occasions. WFD assessment (2020) indicate no further assessments are required.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	++	0	Option will facilitate water supply once operational, from Thames Water's Honor Oak reservoir in Lewisham London to SWS's near Rochester Water Treatment Works. Capacity of 30MI/d.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	--	0	0	The option crosses six AQMAs. Therefore, construction is likely to have moderate yet temporary impact.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the	0	-	0	-

							electricity grid is decarbonised, greener energy will be available				
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	The option involves keeping water within the environment, therefore unlikely to affect resilience of the local environment to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option located within Kent Downs AONB and the following NCAs: North Kent Plain, Inner London, North Downs and Wealden Greensand. The option crosses areas of the London Area Greenbelt. Potential for impacts on landscape character and visual amenity during construction.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	---	0	0	The option crosses three Grade II listed buildings, one Scheduled Monument, Grove Park Cemetery Grade II Registered Park and Garden and five conservation areas. There are multiple other listed buildings, Scheduled Monuments and Registered Parks and Gardens within 500m. Construction may affect the setting of the historic assets, however this will be temporary. Potential impact on buried archaeology, if present.	Realign pipeline or use trenchless techniques to avoid direct impacts on Grade II listed buildings, Scheduled Monument and Grade II Registered Park and Garden. Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	---	0	0	The option crosses approximately 11 schools, three Important Buildings, one medical care facility with multiple others within 500m. The option crosses seven Public Parks and Gardens, two country parks, one golf course, three allotments, one sports facility, one bowling green, one playing field and play spaces. Direct impacts are anticipated on these community assets based on the current alignment. The option is within 500m of playing fields, cemeteries, sports facilities, religious grounds, golf courses, Public Parks and Gardens, tennis courts, allotments. There is likely to be temporary disturbance effects on users of these sites and the local community during construction. The option crosses two Noise Action Important Planning Areas. The option crosses areas of IMD deciles ranging from 1 to 9.	Realign pipeline or use trenchless techniques to avoid direct impacts on property and community assets and land to be reinstated. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, effects are likely to still occur.	0	-	0	0

	Maintain and enhance tourism and recreation	0	--	0	0	The option crosses seven Public Parks and Gardens, one golf course, three allotments, one sports facility, one bowling green, one playing field and play spaces. The option is within 500m of playing fields, cemeteries, sports facilities, religious grounds, golf courses, Public Parks and Gardens, tennis courts, allotments. The option crosses two Country Parks, National Cycle Route and the North Downs Way National Trail. There may also be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option crosses multiple major roads and railways. Option crosses National Cycle Route in one location. Likely to be moderate and temporary impacts during the construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive		4				Positive		4	
		Negative		-55				Negative		-15	

SWS_KMW_HI-TFR_HON_ALL_bs_hon_eastn_40											
Honor Oak (London Water Ring Main) to Near Rochester WTW 40MI/d, bidirectional											
Southern											
Bidirectional transfer of treated water from Thames Water’s Honor Oak reservoir in Lewisham London to SWS’s near Rochester Water Treatment Works, through a new bulk transfer pipeline. 40MI/d											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	The option crosses Holborough to Burham Marshes SSSI (100% favourable) / GWTDE, and is within 500m of Cobham Woods SSSI (66.63% favourable, 33.37% unfavourable - recovering), Farningham Wood SSSI (100% favourable), Halling to Trottscliffe Escarpment SSSI (78.44% favourable, 10.36% unfavourable - declining, 7.14% unfavourable - recovering, 4.07% unfavourable - no change) / North Down Woodlands SAC, Peter's Pit SSSI (100% favourable)/SAC, Ruxley Gravel Pits SSSI (100% favourable) / GWTDE and Shorne and Ashenbank Woods SSSI (74.21% favourable, 22.64% unfavourable - recovering, 3.15% unfavourable - no change). Option crosses One Tree Hill and Scadbury Park LNRS with two other Local Nature Reserves within 500m. The option crosses Medway Estuary Zone 2 Marine Conservation Zone. The option is located within SSSI Impact Risk Zones. Option crosses at 7 areas of ancient woodland and areas of deciduous woodland, traditional orchard, coastal and floodplain grazing marsh, coastal saltmarsh, good quality semi-improved grassland and mudflats. The HRA ToLs 2020 identified Likely Significant effects from construction on the following N2K sites: Medway Estuary & Marshes Ramsar: Located approximately 8km to the north-east of the proposed pipeline; Medway Estuary & Marshes SPA: Located approximately 8km to the north-east of the proposed pipeline; Thames Estuary & Marshes Ramsar: Located approximately 4.6km to the north of the proposed pipeline; Thames Estuary & Marshes SPA: Located approximately 6.6km to the north of the proposed pipeline. The option includes the installation of a pipeline across the River Medway. It is likely that this will involve significant engineering during the construction phase, and therefore that the mobilisation of sediment and the creation of pollution in the River Medway. This is hydrologically connected to the Ramsar site, and so could have likely significant effects on the habitats and qualifying features in the site.	Realign pipeline or use trenchless techniques to avoid direct impacts on Holborough to Burham Marshes SSSI, Medway Estuary Zone 2 Marine Conservation Zone and Local Nature Reserves. Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys.	0	--	0	0

						During operation, no significant effects are predicted. Also, Likely Significant effects on Peters Pit SAC: Pipeline is located adjacent to the site- The potential for the mobilisation of sediment and pollutants during construction of the pipeline could have likely significant effects on the qualifying habitats and species on the downstream Site. Risk of spreading of INNS very low for both construction phase and operational phase.					
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The option crosses grade 1-4 agricultural land with disturbance to these soils during construction. The option crosses a historic landfill site and is within 500m of several historic landfill sites and one authorised landfill site other historic landfill sites with potential to disturb contaminated material during construction.	Land reinstated upon completion. Best practice techniques to be implemented to prevent potential disturbance of contaminated material during construction. Consider realignment if possible, to avoid impacts.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	The option is predominately located within Flood Zone 1, however does cross Flood Zone 2 and Flood Zone 3. This may have an impact on construction.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	The option crosses multiple watercourses, including main rivers in multiple locations. Majority of option located within SPZ, mostly SPZ Zone 3 but crosses SPZ Zone 2 in multiple locations and SPZ Zone 1 on a few occasions. WFD assessment (2020) indicate no further assessments are required.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	++	0	Option will facilitate water supply once operational, from Thames Water's Honor Oak reservoir in Lewisham London to SWS's near Rochester Water Treatment Works. Capacity of 40MI/d.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	--	0	0	The option crosses six AQMAs. Therefore, construction is likely to have moderate yet temporary impact.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the	0	-	0	-

							electricity grid is decarbonised, greener energy will be available.				
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	The option involves keeping water within the environment, therefore unlikely to affect resilience of the local environment to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option located within Kent Downs AONB and the following NCAs: North Kent Plain, Inner London, North Downs and Wealden Greensand. The option crosses areas of the London Area Greenbelt. Potential for impacts on landscape character and visual amenity during construction.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	---	0	0	The option crosses three Grade II listed buildings, one Scheduled Monument, Grove Park Cemetery Grade II Registered Park and Garden and five conservation areas. There are multiple other listed buildings, Scheduled Monuments and Registered Parks and Gardens within 500m. Construction may affect the setting of the historic assets, however this will be temporary. Potential impact on buried archaeology, if present.	Realign pipeline or use trenchless techniques to avoid direct impacts on Grade II listed buildings, Scheduled Monument and Grade II Registered Park and Garden. Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	---	0	0	The option crosses approximately 11 schools, three Important Buildings, one medical care facility with multiple others within 500m. The option crosses seven Public Parks and Gardens, two country parks, one golf course, three allotments, one sports facility, one bowling green, one playing field and play spaces. Direct impacts are anticipated on these community assets based on the current alignment. The option is within 500m of playing fields, cemeteries, sports facilities, religious grounds, golf courses, Public Parks and Gardens, tennis courts, allotments. There is likely to be temporary disturbance effects on users of these sites and the local community during construction. The option crosses two Noise Action Important Planning Areas. The option crosses areas of IMD deciles ranging from 1 to 9.	Realign pipeline or use trenchless techniques to avoid direct impacts on property and community assets and land to be reinstated. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, effects are likely to still occur.	0	-	0	0

	Maintain and enhance tourism and recreation	0	--	0	0	The option crosses seven Public Parks and Gardens, one golf course, three allotments, one sports facility, one bowling green, one playing field and play spaces. The option is within 500m of playing fields, cemeteries, sports facilities, religious grounds, golf courses, Public Parks and Gardens, tennis courts, allotments. The option crosses two Country Parks, National Cycle Route and the North Downs Way National Trail. There may also be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option crosses multiple major roads and railways. Option crosses National Cycle Route in one location. Likely to be moderate and temporary impacts during the construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics			Positive Negative	4 -55				Positive Negative	4 -15		

SWS_KMW_HI-TFR_HON_ALL_bs_hon_eastn_45											
Honor Oak (London Water Ring Main) to Near Rochester WTW 45MI/d, bidirectional											
Southern											
Bidirectional transfer of treated water from Thames Water’s Honor Oak reservoir in Lewisham London to SWS’s near Rochester Water Treatment Works, through a new bulk transfer pipeline. 45MI/d											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	The option crosses Holborough to Burham Marshes SSSI (100% favourable) / GWTDE, and is within 500m of Cobham Woods SSSI (66.63% favourable, 33.37% unfavourable - recovering), Farningham Wood SSSI (100% favourable), Halling to Trottscliffe Escarpment SSSI (78.44% favourable, 10.36% unfavourable - declining, 7.14% unfavourable - recovering, 4.07% unfavourable - no change) / North Down Woodlands SAC, Peter's Pit SSSI (100% favourable)/SAC, Ruxley Gravel Pits SSSI (100% favourable) / GWTDE and Shorne and Ashenbank Woods SSSI (74.21% favourable, 22.64% unfavourable - recovering, 3.15% unfavourable - no change). Option crosses One Tree Hill and Scadbury Park LNRS with two other Local Nature Reserves within 500m. The option crosses Medway Estuary Zone 2 Marine Conservation Zone. The option is located within SSSI Impact Risk Zones. Option crosses at 7 areas of ancient woodland and areas of deciduous woodland, traditional orchard, coastal and floodplain grazing marsh, coastal saltmarsh, good quality semi-improved grassland and mudflats. The HRA ToLs 2020 identified Likely Significant effects from construction on the following N2K sites: Medway Estuary & Marshes Ramsar: Located approximately 8km to the north-east of the proposed pipeline; Medway Estuary & Marshes SPA: Located approximately 8km to the north-east of the proposed pipeline; Thames Estuary & Marshes Ramsar: Located approximately 4.6km to the north of the proposed pipeline; Thames Estuary & Marshes SPA: Located approximately 6.6km to the north of the proposed pipeline. The option includes the installation of a pipeline across the River Medway. It is likely that this will involve significant engineering during the construction phase, and therefore that the mobilisation of sediment and the creation of pollution in the River Medway. This is hydrologically connected to the Ramsar site, and so could have likely significant effects on the habitats and qualifying features in the site.	Realign pipeline or use trenchless techniques to avoid direct impacts on Holborough to Burham Marshes SSSI, Medway Estuary Zone 2 Marine Conservation Zone and Local Nature Reserves. Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys.	0	--	0	0

						During operation, no significant effects are predicted. Also, Likely Significant effects on Peters Pit SAC: Pipeline is located adjacent to the site- The potential for the mobilisation of sediment and pollutants during construction of the pipeline could have likely significant effects on the qualifying habitats and species on the downstream Site. Risk of spreading of INNS very low for both construction phase and operational phase.					
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The option crosses grade 1-4 agricultural land with disturbance to these soils during construction. The option crosses a historic landfill site and is within 500m of several historic landfill sites and one authorised landfill site other historic landfill sites with potential to disturb contaminated material during construction.	Land reinstated upon completion. Best practice techniques to be implemented to prevent potential disturbance of contaminated material during construction. Consider realignment if possible, to avoid impacts.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	The option is predominately located within Flood Zone 1, however does cross Flood Zone 2 and Flood Zone 3. This may have an impact on construction.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	The option crosses multiple watercourses, including main rivers in multiple locations. Majority of option located within SPZ, mostly SPZ Zone 3 but crosses SPZ Zone 2 in multiple locations and SPZ Zone 1 on a few occasions. WFD assessment (2020) indicate no further assessments are required.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	++	0	Option will facilitate water supply once operational, from Thames Water's Honor Oak reservoir in Lewisham London to SWS's near Rochester Water Treatment Works. Capacity of 45MI/d.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	--	0	0	The option crosses six AQMAs. Therefore, construction is likely to have moderate yet temporary impact.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the	0	-	0	-

							electricity grid is decarbonised, greener energy will be available.				
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	The option involves keeping water within the environment, therefore unlikely to affect resilience of the local environment to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option located within Kent Downs AONB and the following NCAs: North Kent Plain, Inner London, North Downs and Wealden Greensand. The option crosses areas of the London Area Greenbelt. Potential for impacts on landscape character and visual amenity during construction.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	---	0	0	The option crosses three Grade II listed buildings, one Scheduled Monument, Grove Park Cemetery Grade II Registered Park and Garden and five conservation areas. There are multiple other listed buildings, Scheduled Monuments and Registered Parks and Gardens within 500m. Construction may affect the setting of the historic assets, however this will be temporary. Potential impact on buried archaeology, if present.	Realign pipeline or use trenchless techniques to avoid direct impacts on Grade II listed buildings, Scheduled Monument and Grade II Registered Park and Garden. Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	---	0	0	The option crosses approximately 11 schools, three Important Buildings, one medical care facility with multiple others within 500m. The option crosses seven Public Parks and Gardens, two country parks, one golf course, three allotments, one sports facility, one bowling green, one playing field and play spaces. Direct impacts are anticipated on these community assets based on the current alignment. The option is within 500m of playing fields, cemeteries, sports facilities, religious grounds, golf courses, Public Parks and Gardens, tennis courts, allotments. There is likely to be temporary disturbance effects on users of these sites and the local community during construction. The option crosses two Noise Action Important Planning Areas. The option crosses areas of IMD deciles ranging from 1 to 9.	Realign pipeline or use trenchless techniques to avoid direct impacts on property and community assets and land to be reinstated. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, effects are likely to still occur.	0	-	0	0

	Maintain and enhance tourism and recreation	0	--	0	0	The option crosses seven Public Parks and Gardens, one golf course, three allotments, one sports facility, one bowling green, one playing field and play spaces. The option is within 500m of playing fields, cemeteries, sports facilities, religious grounds, golf courses, Public Parks and Gardens, tennis courts, allotments. The option crosses two Country Parks, National Cycle Route and the North Downs Way National Trail. There may also be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option crosses multiple major roads and railways. Option crosses National Cycle Route in one location. Likely to be moderate and temporary impacts during the construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive		4				Positive		4	
		Negative		-55				Negative		-15	

SWS_KMW_HI-TFR_HON_ALL_bs_hon_eastn_bd2_60											
Honor Oak (London Water Ring Main) to Near Rochester WTW BD KMW-LON 60											
Southern											
Honour Oak (London Water Ring Main) to near Rochester WTW bidirectional KMW-LON 60 MI/d											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	<p>The option crosses Holborough to Burham Marshes SSSI (100% favourable) / GWTDE, and is within 500m of Cobham Woods SSSI (66.63% favourable, 33.37% unfavourable - recovering), Farningham Wood SSSI (100% favourable), Halling to Trottiscliffe Escarpment SSSI (78.44% favourable, 10.36% unfavourable - declining, 7.14% unfavourable - recovering, 4.07% unfavourable - no change) / North Down Woodlands SAC, Peter's Pit SSSI (100% favourable)/SAC, Ruxley Gravel Pits SSSI (100% favourable) / GWTDE and Shorne and Ashenbank Woods SSSI (74.21% favourable, 22.64% unfavourable - recovering, 3.15% unfavourable - no change). Option crosses One Tree Hill and Scadbury Park LNRS with two other Local Nature Reserves within 500m. The option crosses Medway Estuary Zone 2 Marine Conservation Zone. The option is located within SSSI Impact Risk Zones. Option crosses at 7 areas of ancient woodland and areas of deciduous woodland, traditional orchard, coastal and floodplain grazing marsh, coastal saltmarsh, good quality semi-improved grassland and mudflats.</p>	<p>Realign pipeline or use trenchless techniques to avoid direct impacts on Holborough to Burham Marshes SSSI, Medway Estuary Zone 2 Marine Conservation Zone and Local Nature Reserves. Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys.</p>	0	--	0	0
						<p>The HRA ToLS identifies six Natura 2000 sites: Medway Estuary & Marshes Ramsar (8km north-east), Medway Estuary & Marshes SPA (8km north-east), Thames Estuary & Marshes Ramsar (4.6km north), Thames Estuary & Marshes SPA (6.6km north), North Downs Woodlands SAC (2.3km south-west) and Peters Pit SAC (adjacent to the site). The option includes the installation of a pipeline across the River Medway and across a number of watercourses that flow into the Thames. It is likely that this will involve significant engineering during the construction phase, and therefore that the mobilisation of sediment and the creation of pollution in the River Medway and within the smaller watercourses associated with the Thames. This option is hydrologically connected to the Medway Estuary & Marshes Ramsar, Medway Estuary & Marshes SPA, Thames Estuary & Marshes Ramsar and</p>	<p>Undertake HRA AA to address likely significant effects identified for various N2K sites. During construction of the pipeline in the location of Peters Pit SAC, the pipeline should follow existing infrastructure (New Court Road) which will not directly impact on the designated features. Construction phase works will follow best practice guidelines e.g. use of a robust CEMP detailing mitigation measures to minimise potential impacts with the use of DMPs, pollution prevention, coverage of construction stockpiles during adverse weather conditions to</p>				

						Thames Estuary & Marshes SPA sites and thus could have likely significant effects on the habitats and qualifying features in the site. In addition, the proposed pipeline route is located directly adjacent to Peters Pit SAC site. As such, construction activity could potentially have an adverse effect upon the designated features and habitats within the site. The North Downs Woodlands SAC site is of a sufficient distance away from the option pipeline route so as not to have an adverse effect upon the designated site. For all sites, during operation, no significant effects are predicted. The INNS RAG risk assessment identifies that there is a very low risk of the transfer / movement of INNS. Physical transfer of treated water (between two locations assumed currently unconnected. No INNS risk as treated water will be free from INNS. The INNS RAG risk assessment identifies that there is a very low risk of the transfer / movement of INNS. Physical transfer of treated water (between two locations assumed currently unconnected. No INNS risk as treated water will be free from INNS.	minimise potential effects of pollution and run-off. Construction dust could be mitigated through wet cutting/crushing and vacuum drilling. Upgrading plant to minimise particulate production e.g. use of particulate filters, catalytic converters to minimise NOx production and use of low sulphur fuels is likely to minimise impacts to qualifying species. Sensitive lighting with down ward facing cowling would be used to reduce light pollution and insect draw. During operation, no operational impacts predicted.				
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The option crosses grade 1-4 agricultural land with disturbance to these soils during construction. The option crosses a historic landfill site and is within 500m of several historic landfill sites and one authorised landfill site other historic landfill sites with potential to disturb contaminated material during construction.	Land reinstated upon completion. Best practice techniques to be implemented to prevent potential disturbance of contaminated material during construction. Consider realignment if possible, to avoid impacts.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	The option is predominately located within Flood Zone 1, however does cross Flood Zone 2 and Flood Zone 3. This may have an impact on construction.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	The option crosses multiple watercourses, including main rivers in multiple locations. Majority of option located within SPZ, mostly SPZ Zone 3 but crosses SPZ Zone 2 in multiple locations and SPZ Zone 1 on a few occasions. WFD assessment completed in 2021 indicates that all waterbodies have a passing WFD and none require further assessment.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+++	0	The option will facilitate water supply once operational, from Honor Oak (London Water Ring Main) to near Rochester WTW. Capacity of 60MI/d.	N/A	0	0	+++	0

Air	Reduce and minimise air emissions	0	--	0	0	The option crosses six AQMAs. Therefore, construction is likely to have moderate yet temporary impact.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	The option involves keeping water within the environment, therefore unlikely to affect resilience of the local environment to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option located within Kent Downs AONB and the following NCAs: North Kent Plain, Inner London, North Downs and Wealden Greensand. The option crosses areas of the London Area Greenbelt. Potential for impacts on landscape character and visual amenity during construction.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	---	0	0	The option crosses three Grade II listed buildings, one Scheduled Monument, Grove Park Cemetery Grade II Registered Park and Garden and five conservation areas. There are multiple other listed buildings, Scheduled Monuments and Registered Parks and Gardens within 500m. Construction may affect the setting of the historic assets, however this will be temporary. Potential impact on buried archaeology, if present.	Realign pipeline or use trenchless techniques to avoid direct impacts on Grade II listed buildings, Scheduled Monument and Grade II Registered Park and Garden. Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	---	0	0	The option crosses approximately 11 schools, three Important Buildings, one medical care facility with multiple others within 500m. The option crosses seven Public Parks and Gardens, two country parks, one golf course, three allotments, one sports facility, one bowling green, one playing field and play spaces. Direct impacts are anticipated on these community assets based on the current alignment. The option is within 500m of playing fields, cemeteries, sports facilities, religious grounds, golf courses, Public Parks and Gardens, tennis courts, allotments. There is likely to be temporary disturbance effects on users of these sites and the local community during construction. The option crosses two Noise Action Important Planning Areas. The option crosses areas of IMD deciles ranging from 1 to 9.	Realign pipeline or use trenchless techniques to avoid direct impacts on property and community assets and land to be reinstated. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	--	0	0	The option crosses seven Public Parks and Gardens, one golf course, three allotments, one sports facility, one bowling green, one playing field and play spaces. The option is within 500m of playing fields, cemeteries, sports facilities, religious grounds, golf courses, Public Parks and Gardens, tennis courts, allotments. The option crosses two Country Parks, National Cycle Route and the North Downs Way National Trail. There may also be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option crosses multiple major roads and railways. Option crosses National Cycle Route in one location. Likely to be moderate and temporary impacts during the construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics			Positive Negative	8 -55				Positive Negative	8 -15		

SWS_KMW_HI-TFR_HON_ALL_bs_hon_eastn_bd2_120											
Honor Oak (London Water Ring Main) to Near Rochester WTW BD KMW-LON 120											
Southern											
Honour Oak (London Water Ring Main) to near Rochester WTW bidirectional KMW-LON 120 MI/d											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	The option crosses Holborough to Burham Marshes SSSI (100% favourable) / GWTDE, and is within 500m of Cobham Woods SSSI (66.63% favourable, 33.37% unfavourable - recovering), Farningham Wood SSSI (100% favourable), Halling to Trottiscliffe Escarpment SSSI (78.44% favourable, 10.36% unfavourable - declining, 7.14% unfavourable - recovering, 4.07% unfavourable - no change) / North Down Woodlands SAC, Peter's Pit SSSI (100% favourable)/SAC, Ruxley Gravel Pits SSSI (100% favourable) / GWTDE and Shorne and Ashenbank Woods SSSI (74.21% favourable, 22.64% unfavourable - recovering, 3.15% unfavourable - no change). Option crosses One Tree Hill and Scadbury Park LNRS with two other Local Nature Reserves within 500m. The option crosses Medway Estuary Zone 2 Marine Conservation Zone. The option is located within SSSI Impact Risk Zones. Option crosses at 7 areas of ancient woodland and areas of deciduous woodland, traditional orchard, coastal and floodplain grazing marsh, coastal saltmarsh, good quality semi-improved grassland and mudflats.	Realign pipeline or use trenchless techniques to avoid direct impacts on Holborough to Burham Marshes SSSI, Medway Estuary Zone 2 Marine Conservation Zone and Local Nature Reserves. Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys.	0	--	0	0
						The HRA ToLS identifies six Natura 2000 sites: Medway Estuary & Marshes Ramsar (8km north-east), Medway Estuary & Marshes SPA (8km north-east), Thames Estuary & Marshes Ramsar (4.6km north), Thames Estuary & Marshes SPA (6.6km north), North Downs Woodlands SAC (2.3km south-west) and Peters Pit SAC (adjacent to the site). The option includes the installation of a pipeline across the River Medway and across a number of watercourses that flow into the Thames. It is likely that this will involve significant engineering during the construction phase, and therefore that the mobilisation of sediment and the creation of pollution in the River Medway and within the smaller watercourses associated with the Thames. This option is hydrologically connected to the Medway Estuary & Marshes	Undertake HRA AA to address likely significant effects identified for various N2K sites. During construction of the pipeline in the location of Peters Pit SAC, the pipeline should follow existing infrastructure (New Court Road) which will not directly impact on the designated features. Construction phase works will follow best practice guidelines e.g. use of a robust CEMP detailing mitigation measures to minimise potential impacts with the use of DMPs, pollution prevention, coverage of construction stockpiles during adverse weather conditions to minimise potential effects of pollution and run-off. Construction dust could be				

						<p>Ramsar, Medway Estuary & Marshes SPA, Thames Estuary & Marshes Ramsar and Thames Estuary & Marshes SPA sites and thus could have likely significant effects on the habitats and qualifying features in the site. In addition, the proposed pipeline route is located directly adjacent to Peters Pit SAC site. As such, construction activity could potentially have an adverse effect upon the designated features and habitats within the site. The North Downs Woodlands SAC site is of a sufficient distance away from the option pipeline route so as not to have an adverse effect upon the designated site. For all sites, during operation, no significant effects are predicted.</p> <p>The INNS RAG risk assessment identifies that there is a very low risk of the transfer / movement of INNS. Physical transfer of treated water (between two locations assumed currently unconnected. No INNS risk as treated water will be free from INNS.</p>	<p>mitigated through wet cutting/crushing and vacuum drilling. Upgrading plant to minimise particulate production e.g. use of particulate filters, catalytic converters to minimise NOx production and use of low sulphur fuels is likely to minimise impacts to qualifying species. Sensitive lighting with down ward facing cowling would be used to reduce light pollution and insect draw. During operation, no operational impacts predicted.</p>				
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	<p>The option crosses grade 1-4 agricultural land with disturbance to these soils during construction. The option crosses a historic landfill site and is within 500m of several historic landfill sites and one authorised landfill site other historic landfill sites with potential to disturb contaminated material during construction.</p>	<p>Land reinstated upon completion. Best practice techniques to be implemented to prevent potential disturbance of contaminated material during construction. Consider realignment if possible, to avoid impacts.</p>	0	0	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	<p>The option is predominately located within Flood Zone 1, however does cross Flood Zone 2 and Flood Zone 3. This may have an impact on construction.</p>	<p>Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.</p>	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	<p>The option crosses multiple watercourses, including main rivers in multiple locations. Majority of option located within SPZ, mostly SPZ Zone 3 but crosses SPZ Zone 2 in multiple locations and SPZ Zone 1 on a few occasions.</p> <p>WFD assessment completed in 2021 indicates that all waterbodies have a passing WFD and none require further assessment.</p>	<p>Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain.</p>	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+++	0	<p>The option will facilitate water supply once operational, from Honor Oak (London Water Ring Main) to near Rochester WTW. Capacity of 120Ml/d.</p>	N/A	0	0	+++	0

Air	Reduce and minimise air emissions	0	--	0	0	The option crosses six AQMAs. Therefore, construction is likely to have moderate yet temporary impact.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	The option involves keeping water within the environment, therefore unlikely to affect resilience of the local environment to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option located within Kent Downs AONB and the following NCAs: North Kent Plain, Inner London, North Downs and Wealden Greensand. The option crosses areas of the London Area Greenbelt. Potential for impacts on landscape character and visual amenity during construction.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	---	0	0	The option crosses three Grade II listed buildings, one Scheduled Monument, Grove Park Cemetery Grade II Registered Park and Garden and five conservation areas. There are multiple other listed buildings, Scheduled Monuments and Registered Parks and Gardens within 500m. Construction may affect the setting of the historic assets, however this will be temporary. Potential impact on buried archaeology, if present.	Realign pipeline or use trenchless techniques to avoid direct impacts on Grade II listed buildings, Scheduled Monument and Grade II Registered Park and Garden. Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	---	0	0	The option crosses approximately 11 schools, three Important Buildings, one medical care facility with multiple others within 500m. The option crosses seven Public Parks and Gardens, two country parks, one golf course, three allotments, one sports facility, one bowling green, one playing field and play spaces. Direct impacts are anticipated on these community assets based on the current alignment. The option is within 500m of playing fields, cemeteries, sports facilities, religious grounds, golf courses, Public Parks and Gardens, tennis courts, allotments. There is likely to be temporary disturbance effects on users of these sites and the local community during construction. The option crosses two Noise Action Important Planning Areas. The option crosses areas of IMD deciles ranging from 1 to 9.	Realign pipeline or use trenchless techniques to avoid direct impacts on property and community assets and land to be reinstated. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	--	0	0	The option crosses seven Public Parks and Gardens, one golf course, three allotments, one sports facility, one bowling green, one playing field and play spaces. The option is within 500m of playing fields, cemeteries, sports facilities, religious grounds, golf courses, Public Parks and Gardens, tennis courts, allotments. The option crosses two Country Parks, National Cycle Route and the North Downs Way National Trail. There may also be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option crosses multiple major roads and railways. Option crosses National Cycle Route in one location. Likely to be moderate and temporary impacts during the construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics			Positive Negative	8 -55				Positive Negative	8 -15		

SWS_KMW_RE-DRO_ALL_ALL_di-kmw											
TUBS and NEU Ban - KMW WRZ											
Southern water											
Temporary use bans and Non-essential use bans											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Temporary use bans and non-essential use bans in Kent Medway West may help protect GWDTE and priority habitat by conserving water in the environment. The HRA Tols (2021) indicated the following Natura sites that may be affected: North Downs Woodlands SAC; Queendown Warren SAC; The Swale Ramsar; The Swale SPA; Thames Estuary and Marshes Ramsar; Thames Estuary and Marshes SPA; Medway Estuary & Marshes Ramsar; Medway Estuary & Marshes SPA. The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to sites which ecosystems are dependent upon ground and surface water. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	A temporary use ban and non-essential use ban may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of three water bodies. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	By reducing demand through temporary use band and non-essential use ban, option maintains resilience of water for essential services.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The option is for a temporary use ban and non-essential use ban. By reducing demand and potentially reducing abstraction the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented in drought conditions, it will not result in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of private gardens, and use of ornamental fountains etc will be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to have a significant effect on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Temporary use ban and non-essential use ban is likely to have minor negative effects on the community and social well-being as there will be restrictions on irrigation of gardens and allotments and use of water for recreational purposes. There may also be a small increased risk of fires in allotments as vegetation dries out.	Allowing allotments limited supplies of water. Ensuring high levels of communication before, during and following the implementation of these measures.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Assuming commercial properties including gardens are exempt from bans and restrictions there is likely to be only a minor effect on tourism and recreation. Non-commercial tourism sites may be affected.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effect on waste production or resource use.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effects on built assets and infrastructure.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -3				Positive 4 Negative -3					

SWS_KMW_RE-DRO_ALL_ALL_do_di_eme_regi											
Emergency restrictions: Kent Medway West											
Southern water											
<p>Drought Option: Emergency Drought Orders allow water companies to restrict supplies to customers through the imposition of rota cuts and/or the introduction of standpipes. These measures exist to deal with the very remote possibility of a drought much worse than any seen in the last century or more in the UK. Emergency Drought Orders have not been put in place in the UK since 1976. Ministers have made it clear that such measures should be avoided at all costs and introduced only as a last resort. The Company will make full use of all other measures before considering whether the severity of drought conditions mean that Emergency Drought Orders might be required. The full range of measures available under Emergency Drought Order include powers: To limit the use of water for such purposes as it considers necessary (i.e. further measures not specified in the Drought Direction 2011); To introduce rota cuts; and To set up, and supply water by means of, stand-pipes or water tanks. Level of intervention for this option: Unprecedented drought conditions. We intend the need for these to only arise in conditions of civil emergency and as such our emergency plan covers this in more detail.</p>											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) indicated the following Natura sites that may be affected: North Downs Woodlands SAC; Thames Estuary and Marshes Ramsar and SPA. The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to sites as they contain GWDTEs. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Emergency restrictions may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is only to be used in severe drought circumstances so is therefore not likely to affect flood risk or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0

	Deliver reliable and resilient water supplies	0	0	++	0	Option maintains resilience of water for essential services.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have temporary effects on visual amenity as restricted water use may impact parks and gardens reliant on public water supply.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	---	Emergency restrictions such as rota cuts and imposition of standpipes may have major negative effects on social well-being, with the potential for breakdown of social cohesion and impacts on public health. Imposition of standpipes will particularly effect people with limited mobility or other disabilities. Businesses that use water and do not have access to private water supply will be largely affected with the potential for substantial economic losses. There may also be an increased risk of fires as public access to water is restricted.	Ensure high level of communication with customers before, during and after the restrictions have been imposed.	0	0	0	---
	Maintain and enhance tourism and recreation	0	0	0	--	Tourism and recreation is likely to be affected as water restrictions may force some tourist attractions and recreational activities to temporarily close.	N/A	0	0	0	--
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 7 Negative -13				Positive 7 Negative -13					

SWS_KMW_RE-DRO_ALL_ALL_si_bew2											
Bewl Water / River Medway Scheme (stages 1 to 4) Drought Permit/Order (2025 onwards)											
Southern water											
Bewl Water increased filling. Drought option: There are four sub-options involving a change in MRF and the release factor from the reservoir: (1) 2nd Dry Winter, MRF 150MI/d, RF 1:1 (2) 3rd Dry Winter, MRF 150MI/d RF, 1:0 (3) The following Summer, MRF 275MI/d RF, 1:0 (4) The following Autumn MRF None, RF 0:0, Springfield abstracts without releases from Bewl Water. Normal compensation releases continue. Bewl Water is a pumped storage reservoir with abstractions from the River Teise at Smallbridge and the River Medway near Maidstone. The Permit may take the form of authorisations to allow increased re-filling and conservation of existing storage of Bewl. The precise conditions applied for will depend upon the severity and timing of each drought.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	Potential impacts on Holborough to Burham Marshes SSSI (100% favourable) upstream. Potential impacts on aquatic habitats and fish downstream of the abstraction points, it is not known how far the effects a change in downstream flow rate will be seen therefore minor operational effects have been identified. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress. The HRA ToLS (2021) identified no likely significant effects. There is not anticipated to be any additional risk for the transfer / spread of INNS as a result of this option.	Undertake fisheries and biodiversity monitoring as set out in the Drought Permit Order, including water level monitoring at Holborough to Burham Marshes SSSI and INNS monitoring.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No new infrastructure required. Option unlikely to have effect on the soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No new infrastructure required. The option is not likely to affect flood risk or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	--	The option may have negative impacts on river levels and quality downstream of the abstraction points. WFD assessment (2021) indicates further assessments required to assess impacts on the following waterbodies: Teise and Lesser Teise; Medway at Maidstone.	Monitor river flows and quality as set out in the Drought Permit Order. Further WFD assessment required.	0	0	0	-
	Deliver reliable and resilient water supplies	0	0	+++	0	Option will increase storage of water during drought conditions with an assumed drought action duration.	N/A	0	0	+++	0

Air	Reduce and minimise air emissions	0	0	0	0	No new infrastructure required. There may be some negative effects from an increase in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No new infrastructure required. There may be some negative effects from an increase in carbon emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	-	Reduced flow downstream of reservoir during period of drought may reduce the ability of the water environment to recover in the future.	Monitor river flows and quality as set out in the Drought Permit Order.	0	0	0	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No new infrastructure required. Option unlikely to have effect on landscape, townscape and seascape character and visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No new infrastructure required. Option unlikely to have effect on the historic environment	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	No new infrastructure required. Option not likely to have a significant effect on the local community.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	-	Drought permit option could temporarily affect recreation, angling and other water based activities, including navigation along the River Medway.	Ensure no detrimental impact on water levels for navigation in accordance with drought permit.	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	No new infrastructure required. There may be some negative effects from increased resources required and waste produced from increased water treatment, however since this is a temporary operational change to the abstraction licence, this is not anticipated to be significant.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	No new infrastructure required. Option unlikely to have effect on built assets and infrastructure.	N/A	0	0	0	0
SEA Metrics		Positive 8 Negative -7				Positive 8 Negative -3					

SWS_KMW_RE-OTH_REP_ALL_bs_kmt_resil											
Reduce transfer to other commercial customers: Kent Medway West											
Southern Water											
Drought Option: In the event of a drought the Company would hold discussions with a commercial customer with regards to the resources position and their supply.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option may reduce the amount of water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during drought conditions and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) indicated no likely significant effect on Natura 2000 sites.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	There is not anticipated to be any effects on soil quality as a result of this option.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is not likely to be affected by flooding or lead to the exacerbation of flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and is only to be implemented in drought conditions. Option aims to reduce the water required for supply to other commercial customers, therefore potentially resulting in a reduction in abstraction. WFD assessment (2020) states no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to commercial companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the resilience of supply for these commercial customers.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	No effect on air emissions is anticipated from this option.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data has been provided for this option. Neutral effects have been identified at this stage.	N/A	0	0	0	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to commercial companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water within the natural environment. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0		
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0		
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0		
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	-	The reduction in the amount of water supplied to commercial customers may have an impact on the local economy if they are not able to carry out their business activity or have to operate at a reduced capacity. However, there is potential that the wider population will benefit from this option.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	+	-		
	Maintain and enhance tourism and recreation	0	0	0	-	Given the option is to reduce the transfer of water for commercial customers, tourism and recreation could be affected if these customers rely on water to support these activities.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	0	-		
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0		
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0		
SEA Metrics			Positive Negative	5 -3								Positive Negative	5 -3

SWS_KMW_RE-OTH_REP_ALL_bs_vws_resil											
Reduce transfer to other water companies: Kent Medway West											
Southern Water											
Drought Option: In the event of a drought the Company would hold discussions with neighbouring Companies with regards to their resources position and their supply. There are three main bulk transfers to the South East: its entitlement to 25% of the yield of the River Medway Scheme, the Sheldwich Scheme, and the Bewl-Darwell transfer. This option considers reduction of the transfer from Veolia Water Southeast to SWS Kent Thanet. The trigger for this would be when rainfall and groundwater level trigger is exceeded and/or if veolia Water Southeast is not affected as much as Kent Thanet WRZ.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Given the option reduces the transfer of water to other companies in the event of a drought, there is potential that water will be retained within the natural environment. Ecosystems may already be under severe stress therefore additional water retained in the natural environment will be beneficial. The HRA ToLS (2021) identified that the option unlikely to impact Kent Medway West WRZ N2K sites (North Downs Woodlands SAC, Thames Estuary and Marshes Ramsar and SPA), as scheme is geographically separated from WRZ. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The option may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	It is not likely the option will affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply to other water companies, therefore may result in a reduction in abstraction. WFD assessment (2020) identified no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to other water companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the other water companies.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available for this option. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to other companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	The reduction in the amount transferred to other water companies may have some effects on the wider population outside of Southern Water's boundary. However, this will only occur where groundwater levels are exceeded and if the Veolia Water Southeast is not affected as much as SWS Kent Thanet WRZ.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation has the potential to be affected if the reduction in water to other companies results in restrictions for water based activities.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -3				Positive 4 Negative -3					

SWS_KMW_RE-TFR_IKT_ALL_do_si_tan_resil											
Tankering: Kent Medway West											
Southern											
Tankering water from adjacent WRZs or other water companies would be considered in severe droughts. Can be applied on a WRZ basis.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	Depending on the number of vehicles required for the operation, an increase in emissions may have negative impacts on nearby habitat.	Can be mitigated by using electric vehicles and strategic timing of transport of tankers e.g. avoiding driving tankers during rush hour.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option will supply water to Medway West in an emergency circumstance of severe drought.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	--	Option will cause an increase in emissions during transportation of water. This option is only to be implemented in severe circumstances therefore an increase in emissions will only be temporary.	Emission levels can be mitigated by using low emission vehicles (including electric vehicles) and strategic timing of transport e.g. avoiding driving lorries during rush hour.	0	0	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	-	There is no carbon data available for this option. There may be some negative effects from an increase in carbon emissions associated with tankering, however these are anticipated to be minor due to the temporary nature of the option.	Option only to be implemented in severe drought, emissions can be mitigated for by using low emission vehicles.	0	0	0	-

	Reduce vulnerability to climate change risks and hazards	0	0	0	0	This option is to be used only in severe drought and not a long term option. It will not affect resilience to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Visual amenity may be affected by an increase in lorries on the roads. This option is only to be implemented in severe circumstances therefore effects on visual amenity will be temporary.	Can be mitigated by strategic timing of transport of tankers.	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	-	Increased traffic may impact on built heritage e.g. conservation areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	Can be mitigated by strategic timing of transport of tankers.	0	0	0	-
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Noise from vehicles and increase in air pollution can cause disturbance in populated areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	Can be mitigated by using electric vehicles and strategic timing of transport of tankers e.g. avoiding driving tankers during rush hour.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Increase in congestion on roads from tankers and effects on visual amenity may have an effect on recreation and tourism in Medway West. This option is only to be implemented in severe circumstances therefore effects on recreation and tourism will be temporary.	Best practice mitigation techniques to reduce impacts.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	--	Use of fuel resources.	Fuel utilisation may be reduced by strategic timing of transport vehicles e.g. avoid driving tankers in rush hour.	0	0	0	-
	Avoid negative effects on built assets and infrastructure	0	0	0	-	Depending on the number of tankers required for the operation, there may be an increase in congestion on roads. This option is only to be implemented in severe circumstances therefore negative effects will only be temporary.	Can be mitigated by strategic timing of transport of tankers e.g. avoiding driving tankers in rush hour.	0	0	0	-
SEA Metrics		Positive 1 Negative -15				Positive 1 Negative -9					

SWS_KTZ_EF-CRE_ALL_ALL_do_di_res_regi											
Restriction to non-essential use; Kent Thanet											
Southern Water											
Drought Option: The Company has recourse to a range of restrictions to Non-Essential Use. However, it can take a significant time to apply for and then implement a Drought Order. The Company might decide not to exercise all its powers until severe drought conditions are reached. Can be applied on a WRZ basis. Level of intervention for this option: Severe drought conditions.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) identified no likely significant effects for the following N2K sites within the Kent Thanet WRZ: Thanet Coast & Sandwich Bay SPA and Ramsar Site; Thanet Coast SAC; Stodmarsh SPA, SAC and Ramsar. The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to sites which ecosystems are dependent upon ground and surface water. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Non-essential use restrictions may marginally impact soil quality, however the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Non-essential use restrictions are not anticipated to affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicates short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	By reducing the amount of water required for supply through restrictions to non-essential use, the option maintains resilience of water for essential services.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of gardens, and use of ornamental fountains for example, may be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	--	Restrictions on non-essential use is likely to have moderate negative effects on the community and social well-being as there may be imposed restrictions on irrigation of gardens and allotments and outdoor plants, restrictions of use of water for swimming pools, restriction of washing vehicles and non-domestic property exteriors. Restrictions may apply to all customers, domestic and commercial so potential for economic impacts.	Ensuring high level of communication with customers before, during and following the implementation of the measure.	0	0	0	--
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation sites dependant on public water supply may be affected due to non-essential restrictions.		0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics											
				Positive	4					Positive	4
				Negative	-6					Negative	-6

SWS_HAZ_EF-LKR_ALL_ALL_dmp ktz high											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
	Deliver reliable and resilient water supplies	0	0	+++	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Minor positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive 28 Negative -3		Positive 28 Negative -2							

SWS_KTZ_HI-DES_ALL_ALL_tha10											
Desalination on East Thanet coast & transfer to Fleete Manston1 WSR (10MI/d)											
Southern Water											
This option would see a desalination plant constructed near to the North Thanet Coast, and would supply potable desalinated water to the Kent Thanet WRZ.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	--	<p>Option located within SSSI risk zone and adjacent to area of woodland. Low risk of transfer of INNS as the water will be treated by desalination after abstraction and is likely to be entirely free of INNS. Construction phase risk of INNS is considered to be low.</p> <p>The HRA ToLS (2021) screening identifies uncertain significant effects for the Thanet Coast SAC (3.0km north of proposed option), Thanet Coast and Sandwich Bay Ramsar (3.0km north of proposed option), the Thanet Coast and Sandwich Bay SPA (3.0km north of proposed option) and the Sandwich Bay SAC sites during operations.</p> <p>The route of the outfall pipeline is unclear and depending on the direction (north or south) there are several possible implications: To the north It is possible that the Thanet Coast SAC could be affected by hypersaline discharge with unknown impacts on local species (notably local algal and lichen communities). Thanet Coast and Sandwich Bay Ramsar site and Thanet Coast and Sandwich Bay SPA may also be impacted by hypersaline discharge which would impact the Plumpudding Ditch, Plumpudding Lagoon and Shingle. If the hypersaline discharge is south into the Stour catchment, then Thanet Coast and Sandwich Bay Ramsar site and the Thanet Coast and Sandwich Bay SPA site may be affected by changes in salinity levels within Sandwich Bay to Hacklinge Marshes SSSI, potentially impacting qualifying invertebrate species and bird assemblages.</p> <p>During construction phase the HRA screening identified uncertain effects that may impact qualifying breeding bird species and habitat destruction and disturbance at Thanet Coast and Sandwich Bar Ramsar (3.0km north of proposed option) and Thanet Coast and Sandwich Bay SPA (3.0km north of proposed option). Construction phase may also impact Sandwich Bay SAC (7.7km southeast of proposed option) via damage to dune system and associated flora via habitat destruction, dust and air pollution due to construction traffic.</p>	<p>Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat.</p> <p>Uncertain effects identified for Thanet Coast SAC, Thanet Coast and Sandwich Bay Ramsar, Thanet Coast and Sandwich Bay SPA and Sandwich Bay SAC sites, relating to the introduction of hypersaline discharge, are not considered to be mitigatable. HRA additional assessment required to investigate the potential impacts this would have on qualifying features. Dispersion modelling may be able to identify a potential impact zone of the hypersaline discharge.</p>	0	--	0	--

Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	Option located on grade 1 agricultural land, therefore likely disturbance to these soils during construction. There is likely to be a permanent loss as the plant will be constructed within Grade 1.	Land reinstated upon completion where possible. Best practice construction measures to be implemented, however residual construction effects likely.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	Option located within Flood Zone 1 therefore low risk of flooding. There is potential that the plant may contribute to risk of flooding by increasing hardstanding.	Implement measures to minimise exacerbation of flood risk or shift the flood risk through appropriate design.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	Option does not cross any watercourses. Option partially located within SPZ Zone III. Option will involve pumping out brine, which may affect water quality, particularly if pumped out to sea (Thanet coasts is a Marine Conservation Zone). WFD screening identified no further assessment required.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option will facilitate water supply once operational, by supplying potable desalinated water to the Kent Thanet WRZ. Capacity of 10MI/d.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Option does not pass through any AQMAs, nor any within 500m or 2000m. However, construction is likely to have minor and temporary impact. There may be impacts on air quality as a result of the operation of the desalination plant.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain. Ensure appropriate mitigation to minimise effects on air quality during operation.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	--	0	--	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has moderate construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	--	0	--
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Water levels not predicted to be significantly affected therefore, unlikely to affect resilience of the local environment to climate change.	N/A	0	0	0	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	-	Option located within North Kent Plain National Character Area. Option involves construction of desalination plant. Potential for impacts on landscape character and visual amenity during construction and upon operational.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Impact on landscape during operation should be considered with desalination plant design.	0	-	0	0	
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	Option not within 2000m of heritage assets. There is potential that archaeology may be impacted during the construction phase if present.	Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0	
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	Option located within area of 6 IMD decile. Option not located in a highly urban area. Therefore, disturbance to the local community will be minimal and temporary in nature.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0	
	Maintain and enhance tourism and recreation	0	0	0	0	Option not located within 2000m of tourist attractions or recreation site. There are no national trails or cycle routes which are likely to be impacted. There may be diversions to public rights of way during the construction phase.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	0	0	0	
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for option which will use materials and generate waste. Waste upon operation will include brine pumped out.	Opportunity to implement sustainable design measures and reuse excavated material on site, to reduce impact. Minor negative construction and operational effects will likely remain.	0	-	0	-	
	Avoid negative effects on built assets and infrastructure	0	-	0	0	Option does not cross any major roads, however adjacent to Seamark Road, which may cause minor yet temporary impacts during construction.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0	
SEA Metrics			Positive Negative	1 -36					Positive Negative	1 -26		

SWS_KTZ_HI-IMP_AZ7_ALL_nap											
Import from Affinity Water at Napchester											
Southern Water											
Import from Affinity Water at Napchester											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	The option is for an existing transfer. No new infrastructure likely to be required therefore no impacts identified. HRA ToLS (2021) identified no likely significant effects given there is no new infrastructure. No additional risk for the transfer of INNS.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No new infrastructure as existing transfer therefore neutral effects identified for soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No new infrastructure therefore no additional flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No new infrastructure therefore neutral effects identified for water resources. WFD Screening Assessment (2020) identified no impact as it is an existing transfer and further WFD assessment is therefore not required.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	0	0	The option transfers water which leads to more resilient supplies, however as this is an existing transfer, additional positive effects have not been identified.	N/A	0	0	0	0
Air	Reduce and minimise air emissions	0	0	0	0	No new infrastructure therefore no additional impacts on air quality.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data. No new infrastructure therefore neutral effects identified.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	No new infrastructure, utilising existing transfer and water levels are not likely to be significantly affected, therefore no additional impacts on the climate resilience of the local environment.	N/A	0	0	0	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No new infrastructure therefore no additional impacts on landscape.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No new infrastructure therefore no additional impacts on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	No new infrastructure therefore no additional impacts on the local community.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	No new infrastructure therefore no additional impacts on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	No new infrastructure therefore no additional impact on resources and waste.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	No new infrastructure therefore no additional impacts on built assets and the built environment.	N/A	0	0	0	0
SEA Metrics		Positive 0 Negative 0				Positive 0 Negative 0					

SWS_KTZ_HI-DES_ALL_ALL_tha20											
Desalination on East Thanet coast & transfer to Fleete Manston1 WSR (20MI/d)											
Southern Water											
This option would see a desalination plant constructed near to the North Thanet Coast, and would supply potable desalinated water to the Kent Thanet WRZ.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	--	Option located within SSSI risk zone and adjacent to area of woodland. Low risk of transfer of INNS as the water will be treated by desalination after abstraction and is likely to be entirely free of INNS. Construction phase risk of INNS is considered to be low. The HRA ToLS (2021) screening identifies uncertain significant effects for the Thanet Coast SAC (3.0km north of proposed option), Thanet Coast and Sandwich Bay Ramsar (3.0km north of proposed option), the Thanet Coast and Sandwich Bay SPA (3.0km north of proposed option) and the Sandwich Bay SAC sites during operations. The route of the outfall pipeline is unclear and depending on the direction (north or south) there are several possible implications: To the north It is possible that the Thanet Coast SAC could be affected by hypersaline discharge with unknown impacts on local species (notably local algal and lichen communities). Thanet Coast and Sandwich Bay Ramsar site and Thanet Coast and Sandwich Bay SPA may also be impacted by hypersaline discharge which would impact the Plumpudding Ditch, Plumpudding Lagoon and Shingle. If the hypersaline discharge is south into the Stour catchment, then Thanet Coast and Sandwich Bay Ramsar site and the Thanet Coast and Sandwich Bay SPA site may be affected by changes in salinity levels within Sandwich Bay to Hacklinge Marshes SSSI, potentially impacting qualifying invertebrate species and bird assemblages. During construction phase the HRA screening identified uncertain effects that may impact qualifying breeding bird species and habitat destruction and disturbance at Thanet Coast and Sandwich Bar Ramsar (3.0km north of proposed option) and Thanet Coast and Sandwich Bay SPA (3.0km north of proposed option). Construction phase may also impact Sandwich Bay SAC (7.7km southeast of proposed option) via damage to dune system and associated flora via habitat destruction, dust and air pollution due to construction traffic.	Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Uncertain effects identified for Thanet Coast SAC, Thanet Coast and Sandwich Bay Ramsar, Thanet Coast and Sandwich Bay SPA and Sandwich Bay SAC sites, relating to the introduction of hypersaline discharge, are not considered to be mitigatable. HRA additional assessment required to investigate the potential impacts this would have on qualifying features. Dispersion modelling may be able to identify a potential impact zone of the hypersaline discharge.	0	--	0	--

Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	Option located on grade 1 agricultural land, therefore likely disturbance to these soils during construction. There is likely to be a permanent loss as the plant will be constructed within Grade 1.	Land reinstated upon completion where possible. Best practice construction measures to be implemented, however residual construction effects likely.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	Option located within Flood Zone 1 therefore low risk of flooding. There is potential that the plant may contribute to risk of flooding by increasing hardstanding.	Implement measures to minimise exacerbation of flood risk or shift the flood risk through appropriate design.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	Option does not cross any watercourses. Option partially located within SPZ Zone III. Option will involve pumping out brine, which may affect water quality, particularly if pumped out to sea (Thanet coasts is a Marine Conservation Zone). WFD screening identified no further assessment required.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option will facilitate water supply once operational, by supplying potable desalinated water to the Kent Thanet WRZ. Capacity of 20MI/d.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Option does not pass through any AQMAs, nor any within 500m or 2000m. However, construction is likely to have minor and temporary impact. There may be impacts on air quality as a result of the operation of the desalination plant.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain. Ensure appropriate mitigation to minimise effects on air quality during operation.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	--	0	--	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has moderate construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	--	0	--
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Water levels not predicted to be significantly affected therefore, unlikely to affect resilience of the local environment to climate change.	N/A	0	0	0	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	-	Option located within North Kent Plain National Character Area. Option involves construction of desalination plant. Potential for impacts on landscape character and visual amenity during construction and upon operational.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Impact on landscape during operation should be considered with desalination plant design.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	Option not within 2000m of heritage assets. There is potential that archaeology may be impacted during the construction phase if present.	Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	Option located within area of 6 IMD decile. Option not located in a highly urban area. Therefore, disturbance to the local community will be minimal and temporary in nature.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	Option not located within 2000m of tourist attractions or recreation site. There are no national trails or cycle routes which are likely to be impacted. There may be diversions to public rights of way during the construction phase.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for option which will use materials and generate waste. Waste upon operation will include brine pumped out.	Opportunity to implement sustainable design measures and reuse excavated material on site, to reduce impact. Minor negative construction and operational effects will likely remain.	0	-	0	-
	Avoid negative effects on built assets and infrastructure	0	-	0	0	Option does not cross any major roads, however adjacent to Seamark Road, which may cause minor yet temporary impacts during construction.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics		Positive 1 Negative -36				Positive 1 Negative -26					

SWS_KTZ_HI-REU_RE1_ALL_plu10											
Sandwich WTW (7.5MI/d discharge at Ferry Grove) allowing 10MI/d at Stourmouth											
Southern Water											
This scheme proposes the transfer of treated effluent from Weatherlees WwTW to a new discharge point to the Great Stour at Ferry Grove. The additional water would be abstracted downstream from an existing abstraction point at Stourmouth. There is an existing 10MI/d capacity WSW at Stourmouth which is constrained by an MRF in the summer. It was constructed in the 1970s as a temporary measure and in AMP5 was reported to be in disrepair but may be operable if required in a drought. The last recorded use was during 2006. This scheme proposes that the existing WSW at Stourmouth be relocated out of the 1 in 100 year flood plain approx. 2.5 km north of its current location. Raw water storage would also be constructed to provide 2 days storage. As the works would be on the flight path of Kent International Airport the reservoir would need to be covered to mitigate the risk of bird strikes. There are two sub-options: (1) 11MI/d treated effluent discharge to support 10MI/d capacity WSW at Stourmouth, with 20MI of covered raw water storage.(2) 18MI/d treated effluent discharge to support 20MI/d capacity WSW at Stourmouth (reducing to 16.2MI/d when the MRF is reached), with 40MI of covered raw water storage.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	--	The Stodmarsh SSSI /GWDTE (60.86% favourable, 21.49% unfavourable - recovering, 17.66% unfavourable - no change), SAC and NNR is within close proximity to the new discharge point at Ferry Grove. Stodmarsh SPA and Ramsar is located further away from the discharge point but is within 2000m. Sandwich Bay to Hacklinge Marshes SSSI (67.85% favourable, 28.46% unfavourable - recovering, 3.48% unfavourable - no change, 0.42% unfavourable - declining) / GWDTE is within 500m and Sandwich Bay SAC, Thanet Coast & Sandwich Bay SPA and Ramsar, and Sandwich & Pegwell Bay NNR are within 2000m. These sites are also GWDTE. The sites may be affected by construction phase or during operation from changes in water flows, level and quality as a result of the discharge. No impacts on chalk rivers anticipated. There is likely to be direct impacts on woodlands, however no direct effects anticipated for Priority Habitats or Ancient Woodland. The storage area will be covered to prevent bird strike given the proximity to Kent Airport. The HRA ToLS (2020) identified uncertain effects for Stodmarsh SAC, SPA and Ramsar, Thanet Coast SAC and Thanet Coast & Sandwich Bay SPA and Ramsar for the construction and operational phases. Physical transfer of treated water so no INNS risk as treated water will be free from INNS. Construction is likely to be a low risk.	Ensure best practicable means, including route realignment or trenchless techniques, to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Uncertain effects identified for Stodmarsh SAC and Thanet Coast SAC are considered mitigatable through use of best practice measures (e.g. CEMP). Uncertain effects for Stodmarsh SPA, Ramsar, Thanet Coast & Sandwich Bay SPA and Ramsar as not considered mitigatable due to proximity of construction of option to site. Undertake HRA AA to address uncertain effects identified for the various N2K sites.	0	--	0	--
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The pipeline passes through Grade 1, 2, 3 and 4 agricultural land. There is likely to be disturbance to these soils during the construction phase. The option is within close proximity to historic	Land reinstated upon completion. Best practice methods for working adjacent to or within landfills.	0	0	0	0

						landfills therefore potential to disturb contaminants during construction phase.					
Water	Increase resilience and reduce flood risk	0	--	0	0	The pipeline crosses areas of Flood Zones 2 and 3. This may have an impact on construction.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	--	There is potential for the construction phase to impact water quality given the option is within close proximity to water bodies, including main rivers. The option is within SPZs. There is potential for operational effects on water quality, flows and levels as the option is discharging effluent into the Great Stour. The option will provide additional flows to support abstraction therefore reducing the amount of fresh water resources being removed from the environment, positive effects identified. The WFD assessment identified further WFD assessment is required.	Best practice mitigation measures likely to be implemented during construction.	0	--	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	The option will provide additional flows to support abstraction by utilising treated effluent. This may contribute to an increased resilience in supplies.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	The option is not within an AQMA, however Thanet Urban AQMA is within 2000m of the option location. The construction phase may impact air quality.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	--	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has moderate construction and minor operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	--	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	+		The option is utilising treated effluent to support abstraction which may help to reduce the overall amount of fresh water abstraction. This may help to increase the resilience of the local environment to climate change.	N/A	0	0	+	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option is within the North Kent Plain NCA. The option is not within any landscape designations, however the construction phase may lead to minor and temporary impacts on the landscape.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
	Historic Environment	0	-	0	0	There are listed buildings, scheduled monuments and a conservation area within 500m of the pipeline route. There is potential for minor and temporary effects on the setting of these historic assets during the construction phase. The pipeline excavation may impact buried archaeology.	Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The pipeline is within 500m of schools, play spaces, playing fields, churches and religious grounds. There is potential for the wider community and users of these facilities to be disturbed during the construction phase, however impacts will likely be minor and temporary. IMD deciles range from 4 to 6 along the pipeline route.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The construction phase has the potential to result in the diversion of public rights of way and may also impact recreational facilities including the playing fields and play spaces that are within 500m.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	The pipeline intersects major roads and railways. There are likely to be moderate and temporary impacts during construction. Kent International Airport is also within 500m.	Best practice measures including a Traffic Management Plan to be implemented to minimise	0	-	0	0

						The option states that there is potential for bird strike as a result of the storage reservoir, however this will be covered to prevent this so no impacts are anticipated.	disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.				
SEA Metrics		Positive 2		Negative -39				Positive 2		Negative -29	

SWS_KTZ_HI-REU_RE1_ALL_plu20											
Sandwich WTW (15MI/d discharge at Ferry Grove) allowing 20MI/d at Stourmouth											
Southern Water											
<p>This scheme proposes the transfer of treated effluent from Weatherlees WwTW to a new discharge point to the Great Stour at Ferry Grove. The additional water would be abstracted downstream from an existing abstraction point at Stourmouth. There is an existing 10MI/d capacity WSW at Stourmouth which is constrained by an MRF in the summer. It was constructed in the 1970s as a temporary measure and in AMP5 was reported to be in disrepair but may be operable if required in a drought. The last recorded use was during 2006. This scheme proposes that the existing WSW at Stourmouth be relocated out of the 1 in 100 year flood plain approx. 2.5 km north of its current location. Raw water storage would also be constructed to provide 2 days storage. As the works would be on the flight path of Kent International Airport the reservoir would need to be covered to mitigate the risk of bird strikes. There are two sub-options: (1) 11MI/d treated effluent discharge to support 10MI/d capacity WSW at Stourmouth, with 20MI of covered raw water storage.(2) 18MI/d treated effluent discharge to support 20MI/d capacity WSW at Stourmouth (reducing to 16.2MI/d when the MRF is reached), with 40MI of covered raw water storage.</p>											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	--	<p>The Stodmarsh SSSI /GWDTE (60.86% favourable, 21.49% unfavourable - recovering, 17.66% unfavourable - no change), SAC and NNR is within close proximity to the new discharge point at Ferry Grove. Stodmarsh SPA and Ramsar is located further away from the discharge point but is within 2000m. Sandwich Bay to Hacklinge Marshes SSSI (67.85% favourable, 28.46% unfavourable - recovering, 3.48% unfavourable - no change, 0.42% unfavourable - declining) / GWDTE is within 500m and Sandwich Bay SAC, Thanet Coast & Sandwich Bay SPA and Ramsar, and Sandwich & Pegwell Bay NNR are within 2000m. These sites are also GWDTE. The sites may be affected by construction phase or during operation from changes in water flows, level and quality as a result of the discharge. No impacts on chalk rivers anticipated. There is likely to be direct impacts on woodlands, however no direct effects anticipated for Priority Habitats or Ancient Woodland. The storage area will be covered to prevent bird strike given the proximity to Kent Airport. The HRA ToLS (2020) identified uncertain effects for Stodmarsh SAC, SPA and Ramsar, Thanet Coast SAC and Thanet Coast & Sandwich Bay SPA and Ramsar for the construction and operational phases. Physical transfer of treated water so no INNS risk as treated water will be free from INNS. Construction is likely to be a low risk.</p>	<p>Ensure best practicable means, including route realignment or trenchless techniques, to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Uncertain effects identified for Stodmarsh SAC and Thanet Coast SAC are considered mitigatable through use of best practice measures such as a robust CEMP. Uncertain effects remain for Stodmarsh SPA and Ramsar and Thanet Coast & Sandwich Bay SPA and Ramsar as not considered mitigatable due to proximity of option construction to site. Undertake HRA AA to address uncertain effects identified for the various N2K sites.</p>	0	--	0	--

Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The pipeline passes through Grade 1, 2, 3 and 4 agricultural land. There is likely to be disturbance to these soils during the construction phase. The option is within close proximity to historic landfills therefore potential to disturb contaminants during construction phase.	Land reinstated upon completion. Best practice methods for working adjacent to or within landfills.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	The pipeline crosses areas of Flood Zones 2 and 3. This may have an impact on construction.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	+	--	There is potential for the construction phase to impact water quality given the option is within close proximity to water bodies, including main rivers. The option is within SPZs. There is potential for operational effects on water quality, flows and levels as the option is discharging effluent into the Great Stour. The option will provide additional flows to support abstraction therefore reducing the amount of fresh water resources being removed from the environment, positive effects identified. The WFD assessment identified further WFD assessment is required.	Best practice mitigation measures likely to be implemented during construction.	0	--	+	--
	Deliver reliable and resilient water supplies	0	0	+	0	The option will provide additional flows to support abstraction by utilising treated effluent. This may contribute to an increased resilience in supplies.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	The option is not within an AQMA, however Thanet Urban AQMA is within 2000m of the option location. The construction phase may impact air quality.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	--	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has moderate construction and minor operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	--	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	+		The option is utilising treated effluent to support abstraction which may help to reduce the overall amount of fresh water abstraction. This may help to increase the resilience of the local environment to climate change.	N/A	0	0	+	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option is within the North Kent Plain NCA. The option is not within any landscape designations, however the construction phase may lead to minor and temporary impacts on the landscape.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0	
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are listed buildings, scheduled monuments and a conservation area within 500m of the pipeline route. There is potential for minor and temporary effects on the setting of these historic assets during the construction phase. The pipeline excavation may impact buried archaeology.	Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0	
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The pipeline is within 500m of schools, play spaces, playing fields, churches and religious grounds. There is potential for the wider community and users of these facilities to be disturbed during the construction phase, however impacts will likely be minor and temporary. IMD deciles range from 4 to 6 along the pipeline route.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0	
	Maintain and enhance tourism and recreation	0	-	0	0	The construction phase has the potential to result in the diversion of public rights of way and may also impact recreational facilities including the playing fields and play spaces that are within 500m.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0	
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0	
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The pipeline intersects major roads and railways. There are likely to be moderate and temporary impacts during construction. Kent International Airport is also within 500m. The option states that there is potential for bird strike as a result of the storage reservoir, however this will be covered to prevent this so no impacts are anticipated.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0	
SEA Metrics			Positive Negative	3 -39	Positive Negative							3 -29

SWS_KTZ_HI-TFR_AZ7_ALL_win											
SEW Kingston to SWS KT (Near Canterbury)											
Southern											
2 MI/d import from SEW Kingston to SWS Near Canterbury WSW											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	Proposed pipeline lies within 500m of Ileden and Oxenden Woods SSSI (85.35% favourable, 14.65% unfavourable recovering) and also parcels of deciduous woodland priority habitat. The option lies within a SSSI risk zone. No direct impacts but there may be significant disturbance effects from noise and dust on important species during construction. Option involves the transfer of treated water so there is a very low risk of spreading INNS during both operation and construction phases. The HRA ToLS (2021) identified no likely significant effects for Stodmarsh Ramsar, SPA and SAC (6km north of proposed option), Thanet Coast and Sandwich Bay SPA and Ramsar (6.0km east of proposed option), and Thanet Coast SAC (6.0km east of proposed option).	Best practice mitigation to minimise impacts and reinstatement /compensation of habitats, but potential for residual effects to remain as removal of priority species likely. Future design will need to undertake ecological surveys.	0	--	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	Option passes through grade 1,2, and 3 agricultural land. Construction of pipeline will require excavation. There may be a temporary effects on soil quality during construction.	Ground will be reinstated so effects on soil only temporary. Best practice construction techniques to be implemented.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The option passes through flood zones 2 and 3 in the Kingston area which may have impacts on construction. Pipeline infrastructure will be buried so unlikely for there to be any effect on flooding after construction.	Measures to reduce the impact on flooding during the construction phase are likely to be implemented, however potential residual flood risk likely to remain.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	The option cross SPZ1s and SPZ2s and also East Kent Chalk WFDGW. It is assumed from the option description that there will not be increased abstraction. There may be impacts on WFD groundwater or surface water quality during construction phase. The WFD Screening Assessment (2021) identified no further WFD assessment is required.	Best practice construction measures to be implemented.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Upon completion, the option will provide 2 MI/d import from SEW Kingston to SWS Near Canterbury WSW	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	-	0	0	The option is not within an AQMA. Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	No effect anticipated. The option is not anticipated to have a significant effect on water levels as such is not likely to affect the resilience to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	Pipeline intersects Kent downs AONB and North Down NLCA. It is likely that there will be effects on visual amenity during construction as excavation will be required for pipeline construction.	Construction management plan and temporary screening during construction. Restoration to original landscape character where possible once construction is complete. Possibility for landscaping to restore/enhance visual amenity. However, minor and temporary impacts are likely to occur.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	Pipeline intersects conservation areas and there are numerous listed buildings and scheduled monuments in proximity to the proposed pipeline. Excavation will be required during construction, there may be impacts on archaeological artifacts.	Best practice mitigation measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There is one school, three religious buildings and two playing fields within 500m of the pipeline route. No direct land take but there is likely to be disturbance effects during construction of pipeline. IMD deciles vary along the option from 4 to 8.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction and land will be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	There may be minor effects on tourism as the option intersects a national cycle route and a national trail. Diversions may be necessary. Pipeline will be buried to effects will only be temporary.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials. Waste will be produced during excavation for pipeline.	Seek opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	Option intersects a railway track and an A-road. It is likely that there will be disturbance effects e.g. diversions during construction.	Best practice mitigation measures including a Traffic Management Plan will likely be implemented to minimise effects during construction and roads will be reinstated above the pipeline. However, minor and temporary effects are likely to still occur. Directional drilling under the railway likely to be required.	0	-	0	0
SEA Metrics		Positive 1 Negative -25				Positive 1 Negative -14					

SWS_KTZ_HI-TFR_KME_ALL_sel3											
Utilise full existing transfer capacity											
Southern Water											
(1) Conditioning of existing Faversham4-Fleete main to enable bi-directional transfers (and specifically from Kent Thanet to Kent Medway). It is not thought that any additional pipeline would be required, although this is dependent on the existing main being structurally sound. A new 25 MI/d pumping station is required at Fleete WSR along with a possible booster pumping station to reduce the pressure head along the main. (Option TT3 in AMP 5). Minimum engineering requirements: new 25 MI/d pumping station at Fleete Reservoir, modifications to pipework at Near Test Valley Bypass Break Pressure Tank or alterations to pipework and construction of a new Near Test Valley Bypass Break Pressure Tank, installation of energy dissipation measures at Faversham4.											
(2) The Kent Medway to Kent Thanet transfer scheme option proposes to increase the existing transfer capacity by 10 MI/d between the Sheldwich boreholes and Fleete service reservoir. This would be achieved by duplicating the existing transfer main and a new pumping station at Faversham4. (Option TT1 in AMP 5). Main elements of scheme are: modification of borehole pumps at Sheldwich to allow additional 10 MI/d to be pumped to Faversham4 through the new main, pumping main from Sheldwich to Faversham4 (approx. 6.5km), booster PS at Faversham4 and a disinfection unit, break pressure tank at Near Test Valley Bypass, gravity main from Near Test Valley Bypass to Fleete reservoir - 31.5km of main and phosphate dosing at Fleete reservoir for 10 MI/d(3) The operational transfer is limited to the output from Faversham4. This option enables flows from the Faversham3 source to be directed, via an existing main, towards Faversham4 WSW. A soakaway is installed at Faversham4 to allow for reconditioning of the existing main and the addition of UV treatment at Faversham4 permits disinfection of the Faversham3 flows. (Option TT1a in AMP 5). Main scheme components are: 13 MI/d soakaway at Faversham4, increased pumping capacity at Faversham4, new UV treatment at Faversham4 WSW.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	-	0	-	The option does not pass through any area that is classified as a statutory or non-statutory designated area. There are areas of ancient woodland close to the option (<500m), but the option does not pass through these. The option however does pass through woodland areas and section (2) of the option description outlines that pipeline construction is involved. It is assumed that this would be constructed via direction drilling under the woodland, but it is likely that there would still be disturbance to biodiversity features of the area during construction due to the presence of the construction site and machinery. There are no watercourses within 2000m of the option, meaning the likelihood of spread of INNS during construction and operation is negligible. The HRA Screening concluded no LSE due to the lack of hydrological connectivity between the option and the nearest European designated site (The Swale Ramsar - 4.77km north of the option). The nearest SSSI (the Swale) is >2000m north of the option (Favourable 97.83% / Unfavourable - no change 2.17%) and due to its distance it is not anticipated for the option to result in effects. During the operational phase there will be new permanent above ground infrastructure including a new pumping station, tanks and associated infrastructure. This means there will likely be an	Construction best practice mitigation to be followed to reduce disturbance to biodiversity in the area and to avoid pollution spills. Ground to be reinstated following works. Due to the presence of the construction sites, residual effects likely to remain but to be minor. During operation there will be an increased level of disturbance above the baselined due to additional above ground infrastructure, likely resulting in minor adverse effects.	0	-	0	-

						increased level of disturbance above the baseline during the operational phase, resulting in adverse effects. It is assumed that the pipeline will be buried below ground and ground reinstated.					
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	-	The option results in the construction of a pipeline within Grades 1, 2 & 3 agricultural land, resulting in an adverse effect on soils. There is one historic landfill within 2000m of the option - due to the distance no effect is anticipated. There are no authorised landfills.	Ground to be reinstated following the works. Best practice techniques to be followed to avoid contamination of ground during construction. Some permanent land take of agricultural land will remain into the operational phase due to the new permanent infrastructure (pumping station, tanks, etc.)	0	-	0	-
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is not located in a flood zone. Flood zone 2 + 3 are present within 2000m of the option. Therefore, there is no impact to the assets from flood risk and resilience is high.	Ensure that site compounds etc. are situated away from the nearest area of flood zone.	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	This option does not involve the increased abstraction of water, but instead increases the capacity of the pipeline to convey more water instead. Therefore, quality of water resources will not be impacted. The WFD assessment identified further WFD assessment is not required.	Best practice construction methods to be followed (as outlined in the WFD screening).	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	++	0	This option conveys water along a new pipeline, therefore there will be a transfer of water to areas of deficit (bi-directional) without requiring abstraction - therefore a moderate positive effect is anticipated in the operational phase due to the ability to deliver more water to multiple regions.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	The option is not located in an AQMA or within 2000m from a AQM site. There will likely be minor adverse effects in the construction phase from emissions associated with plant and machinery. There will likely be emissions generated in the construction phase due to the increased operational infrastructure although these levels will be so low it is considered negligible.	Construction best practice to be followed to reduce emissions.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and	Investigate use of renewables during construction and operation for energy supply and use of materials with lower	0	-	0	-

						operation carbon emissions (relative to other WRSE Regional Plan options).	embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.				
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Option results in the conveyance of water - no new abstraction will take place as a result of this option so there are not considered to be any changes to vulnerability or risk.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	-	The option is located within an AONB and is located in the North Kent Plain and North Downs national character areas. As a result, there is likely to be adverse effects during construction due to the presence of the construction site and associated excavations required for the pipeline. During the operational phase there may be adverse effects due to the presence of new pumping houses etc, but this is likely to be very minor. It is assumed the new pipeline will be buried below ground.	Construction best practice to be followed to reduce visual impacts from the works area. Ground to be reinstated following works. Operational phase infrastructure should be in keeping with local architecture and could implement screening to mitigate effects.	0	-	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	Part of the option passes through a conservation area. There are no scheduled monuments within 2000m of the works. There are two registered parks/gardens within 2000m but these are not anticipated to be impacted due to their distance from the site. The option is within close proximity to (<500m) a number of listed buildings. It is assumed that the pipeline installation would take place via directional drilling that could avoid any impact on the curtilage of these buildings. The excavation for the pipeline could impact archaeology if present.	Construction best practice should be followed to reduce visual impacts. The design of the above ground permanent infrastructure should be in keeping with the local historic setting. All ground should be reinstated following the works. Pipeline pathway realignment should be investigated to avoid the conservation area. An archaeological watching brief may be required depending on the presence or absence of archaeology.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The option will involve construction of a pipeline underneath a golf course (assumed via directional drilling). The option is within IMD deciles 5 and 6. There are no schools or hospitals close to the option and so disturbance is considered low and unlikely to impact on the local community or wellbeing (only in the construction phase due to the presence of the construction site and works).	Construction best practice to be followed to reduce disturbance to local residents. Ground to be reinstated following the works. Stakeholder consultation with the community recommended ahead of the design and construction.	0	-	0	0

	Maintain and enhance tourism and recreation	0	-	0	0	There are no national trails or cycle paths near to the option. The only element considered to generate tourism would be the golf course under which the pipeline is being installed and there is also potential for diversions to public rights of way during the construction works. As a result, it is considered for very minor effects to be present in the construction phase with no effect at operation.	Construction best practice to be followed to reduce disturbance to golf course. Ground to be reinstated following the works.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Pipeline to be installed requires excavation and generation of excavated material. Resource use needed for construction of pipeline.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	The option crosses one major road, which has the potential to be impacted during the construction phase. It is not considered for any impact to take place during operation. There are no important buildings located within 2000m of the option. There are a number of small schools located within 2000m but these are not considered to be effected due to their distance from the option and associated works.	Directional drilling to take place for pipeline installation under the main road. Consultation with utility owners in the area to take place. Ground to be reinstated following the works.	0	-	0	0
SEA Metrics		Positive		4				Positive		4	
		Negative		-20				Negative		-14	

SWS_KTZ_HI-TFR_KME_ALL_sfl											
Faversham4 WSR to Fleete Manston1 WSR											
Southern Water											
Faversham4 WSR to Fleete Manston1 WSR											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	The option is for an existing transfer. No new infrastructure likely to be required therefore no impacts identified. HRA ToLS (2021) identified no likely significant effects given there is no new infrastructure. No additional risk for the transfer of INNS.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No new infrastructure as existing transfer therefore neutral effects identified for soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No new infrastructure therefore no additional flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No new infrastructure therefore neutral effects identified for water resources. WFD Screening Assessment (2020) identified no impact as it is an existing transfer and further WFD assessment is therefore not required.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	0	0	The option transfers water which leads to more resilient supplies, however as this is an existing transfer, additional positive effects have not been identified.	N/A	0	0	0	0
Air	Reduce and minimise air emissions	0	0	0	0	No new infrastructure therefore no additional impacts on air quality.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data. However, estimated to have neutral carbon emissions.	N/A	0	0	0	0

	Reduce vulnerability to climate change risks and hazards	0	0	0	0	No new infrastructure, utilising existing transfer and water levels are not likely to be significantly affected, therefore no additional impacts on the climate resilience of the local environment.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No new infrastructure therefore no additional impacts on landscape.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No new infrastructure therefore no additional impacts on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	No new infrastructure therefore no additional impacts on the local community.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	No new infrastructure therefore no additional impacts on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	No new infrastructure therefore no additional impact on resources and waste.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	No new infrastructure therefore no additional impacts on built assets and the built environment.	N/A	0	0	0	0
SEA Metrics		Positive 0 Negative 0				Positive 0 Negative 0					

Canterbury (Broad Oak) to Near Canterbury: 20Ml/d											
Canterbury (Broad Oak) to Near Canterbury: 20Ml/d											
Southern Water											
A bidirectional pipe from Broad Oak to Near Canterbury.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	-	<p>Stodmarsh SSSI (60.86% favourable, 21.49% unfavourable - recovering, 17.66% unfavourable - no change), RAMSAR, SAC, and SPA (and GWDTE) and Chequer's Wood and Old Park SSSI / GWDTE (68.32% favourable, 31.68% unfavourable - recovering) are located within 500m. No direct effects but there may be disturbance effects during the construction phase and potential effects on protected species. Other designated sites within 2km which may be indirectly affected. The option lies within SSSI Impact Risk Zones. The option intersects three Ancient Woodlands although is aligned along existing roads in these sections so the impacts could be limited. The option intersects other areas of woodland in including deciduous Priority Habitat and other Priority Habitat. The option crosses chalk rivers.</p> <p>The HRA ToLS (2021) identified likely significant effects for Stodmarsh SPA, SAC and Ramsar (located 445m east of proposed option). Due to the close proximity, likely significant effects from construction activities including noise and air pollution, and visual disturbance. The pipeline will also cross a watercourse, Great Stour, which has a direct hydrological connection to the Stodmarsh SPA, SAC and Ramsar downstream. Direct pollution events, excess sediment release into the watercourse and changes to habitats for the designated feature from the aforementioned impacts. Uncertain effects were identified for Thanet Coast & Sandwich Bay Ramsar and SPA (located 16.3km downstream from pipeline crossing) and Sandwich Bay SAC (16km downstream). The designated species and habitats may be adversely effected in the event of a major pollution event, however due to the distance between the option and the designated site, uncertain effects are predicted. No likely significant effects were identified for Blean Complex SAC (2.4km north-east of proposed option).</p> <p>During operation, treated water is proposed to be transferred by the bi-directional pipeline, therefore the risk of INNS transfer is very low. Construction has a low risk of transferring INNS.</p>	<p>Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Undertaken HRA AA to address likely significant and uncertain effects identified for the various N2K sites.</p>	0	---	0	0

Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	<p>The option intersects the Sturry Pit SSSI (100% unfavourable - recovering) although it is aligned along an existing road in this section, which may limit the impact.</p> <p>The option intersects two historic landfills and is within 500m of other historic landfills. Land is classed as Grade 1-3 agricultural land with areas of non-agricultural land. Potential for soil contamination during construction.</p>	<p>Land reinstated upon completion. Best practicable means to prevent potential disturbance of contaminated material during construction. Consider realignment if possible, to avoid impacts on SSSI and disturbing historic landfills.</p>	0	0	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	<p>The majority of the option is within Flood Zone 1 with the exception of one section, which passes through Flood Zones 2 and 3 and flood defences, and may have an impact on construction. Impacts on operation unlikely given the pipeline is buried. The pipeline is unlikely to increase the risk of flooding.</p>	<p>Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.</p>	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	<p>The option lies within SPZ1-3, lies within nitrate vulnerable zones and intersects two WFD groundwater bodies. The option also intersects two WFD river waterbodies, crossing watercourses including main rivers. The WFD Screening Assessment (2020) identified further WFD assessment is not required.</p>	<p>Implement pollution prevention and control measures. Use of appropriate bedding materials and directional drilling where applicable to minimise disturbance.</p>	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	<p>The option will improve water resources transfer, improving resilience by transferring water from an area of surplus to one of deficit.</p>	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	<p>Option is not within an AQMA. AQMA Canterbury No 3 is located within 2km. Construction likely to have minor and temporary impact on air quality.</p>	<p>Best practice mitigation measures to be implemented during construction, however minor and temporary impacts on air quality may remain.</p>	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	<p>Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).</p>	<p>Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.</p>	0	-	0	-

	Reduce vulnerability to climate change risks and hazards	0	0	0	0	There is not anticipated to be any effects on the resilience of the natural environment as water levels are not likely to be significantly affected as a result of this option.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option lies within the North Downs and North Kent Plain National Landscape Character Areas. Minor negative effects during construction likely as excavation will be required for the transfer pipeline.	Best practice measures to be implemented to minimise effects during construction although temporary effects during construction may remain. Land reinstated upon completion so no residual effects likely to remain during operation.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	The option lies within four conservation areas and potentially intersects three Grade II listed buildings, although is aligned along an existing road at these locations. There are additional conservation areas and listed buildings within 500m. Construction may affect the setting of these historic assets, however this is likely to be temporary as the pipeline will be buried. There is potential for the excavation of the pipeline to impact buried archaeology if present.	Best practice measures to be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The option crosses a sports facility and playing field. The option is within 500m of schools, churches, allotments, a cemetery and other community areas. There is no direct land take from these areas. There is likely to be minimal and temporary disturbance effects on users of these sites and the local community during construction. The option lies within a noise action important area. IMD deciles range from 5 to 8 along the pipeline route.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of community greenspaces to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The option intersects a sports facility and playing field, and cycle route. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be some minor and temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance to users of the National Cycle Network route, footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational areas to be avoided where possible and land to be reinstated. However, minor and temporary	0	-	0	0

							effects are likely to still occur.					
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0	
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option is aligned along major roads for some of its length and crosses a railway and National Cycle Network route. Likely to be temporary impacts during the construction from disruption for users.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway is likely to be required.	0	-	0	0	
SEA Metrics			Positive Negative	1 -33					Positive Negative	1 -19		

Canterbury (Broad Oak) to near Canterbury GW											
Canterbury (Broad Oak) to Near Canterbury: 40Ml/d											
Southern Water											
A bidirectional pipe from Broad Oak to Near Canterbury.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	-	<p>Stodmarsh SSSI (60.86% favourable, 21.49% unfavourable - recovering, 17.66% unfavourable - no change), RAMSAR, SAC, and SPA (and GWDTE) and Chequer's Wood and Old Park SSSI / GWDTE (68.32% favourable, 31.68% unfavourable - recovering) are located within 500m. No direct effects but there may be disturbance effects during the construction phase and potential effects on protected species. Other designated sites within 2km which may be indirectly affected. The option lies within SSSI Impact Risk Zones. The option intersects three Ancient Woodlands although is aligned along existing roads in these sections so the impacts could be limited. The option intersects other areas of woodland in including deciduous Priority Habitat and other Priority Habitat. The option crosses chalk rivers.</p> <p>The HRA ToLS (2021) identified likely significant effects for Stodmarsh SPA, SAC and Ramsar (located 445m east of proposed option). Due to the close proximity, likely significant effects from construction activities including noise and air pollution, and visual disturbance. The pipeline will also cross a watercourse, Great Stour, which has a direct hydrological connection to the Stodmarsh SPA, SAC and Ramsar downstream. Direct pollution events, excess sediment release into the watercourse and changes to habitats for the designated feature from the aforementioned impacts. Uncertain effects were identified for Thanet Coast & Sandwich Bay Ramsar and SPA (located 16.3km downstream from pipeline crossing) and Sandwich Bay SAC (16km downstream). The designated species and habitats may be adversely effected in the event of a major pollution event, however due to the distance between the option and the designated site, uncertain effects are predicted. No likely significant effects were identified for Blean Complex SAC (2.4km north-east of proposed option).</p> <p>During operation, treated water is proposed to be transferred by the bi-directional pipeline, therefore the risk of INNS transfer is very low. Construction has a low risk of transferring INNS.</p>	Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Undertaken HRA AA to address likely significant and uncertain effects identified for the various N2K sites.	0	---	0	0

Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	<p>The option intersects the Sturry Pit SSSI (100% unfavourable - recovering) although it is aligned along an existing road in this section, which may limit the impact.</p> <p>The option intersects two historic landfills and is within 500m of other historic landfills. Land is classed as Grade 1-3 agricultural land with areas of non-agricultural land. Potential for soil contamination during construction.</p>	<p>Land reinstated upon completion. Best practicable means to prevent potential disturbance of contaminated material during construction. Consider realignment if possible, to avoid impacts on SSSI and disturbing historic landfills.</p>	0	0	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	<p>The majority of the option is within Flood Zone 1 with the exception of one section, which passes through Flood Zones 2 and 3 and flood defences, and may have an impact on construction. Impacts on operation unlikely given the pipeline is buried. The pipeline is unlikely to increase the risk of flooding.</p>	<p>Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.</p>	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	<p>The option lies within SPZ1-3, lies within nitrate vulnerable zones and intersects two WFD groundwater bodies. The option also intersects two WFD river waterbodies, crossing watercourses including main rivers. The WFD Screening Assessment (2020) identified further WFD assessment is not required.</p>	<p>Implement pollution prevention and control measures. Use of appropriate bedding materials and directional drilling where applicable to minimise disturbance.</p>	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	++	0	<p>The option will improve water resources transfer, improving resilience by transferring water from an area of surplus to one of deficit.</p>	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	<p>Option is not within an AQMA. AQMA Canterbury No 3 is located within 2km. Construction likely to have minor and temporary impact on air quality.</p>	<p>Best practice mitigation measures to be implemented during construction, however minor and temporary impacts on air quality may remain.</p>	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	<p>Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).</p>	<p>Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.</p>	0	-	0	-

	Reduce vulnerability to climate change risks and hazards	0	0	0	0	There is not anticipated to be any effects on the resilience of the natural environment as water levels are not likely to be significantly affected as a result of this option.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option lies within the North Downs and North Kent Plain National Landscape Character Areas. Minor negative effects during construction likely as excavation will be required for the transfer pipeline.	Best practice measures to be implemented to minimise effects during construction although temporary effects during construction may remain. Land reinstated upon completion so no residual effects likely to remain during operation.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	The option lies within four conservation areas and potentially intersects three Grade II listed buildings, although is aligned along an existing road at these locations. There are additional conservation areas and listed buildings within 500m. Construction may affect the setting of these historic assets, however this is likely to be temporary as the pipeline will be buried. There is potential for the excavation of the pipeline to impact buried archaeology if present.	Best practice measures to be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The option crosses a sports facility and playing field. The option is within 500m of schools, churches, allotments, a cemetery and other community areas. There is no direct land take from these areas. There is likely to be minimal and temporary disturbance effects on users of these sites and the local community during construction. The option lies within a noise action important area. IMD deciles range from 5 to 8 along the pipeline route.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of community greenspaces to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The option intersects a sports facility and playing field, and cycle route. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be some minor and temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance to users of the National Cycle Network route, footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational areas to be avoided where possible and land to be reinstated. However, minor and temporary	0	-	0	0

							effects are likely to still occur.					
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0	
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option is aligned along major roads for some of its length and crosses a railway and National Cycle Network route. Likely to be temporary impacts during the construction from disruption for users.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway is likely to be required.	0	-	0	0	
SEA Metrics			Positive Negative	4 -33	Positive Negative							4 -19

Canterbury (Broad Oak) to near Canterbury GW											
Canterbury (Broad Oak) to Near Canterbury: 60Ml/d											
Southern Water											
A bidirectional pipe from Broad Oak to Near Canterbury.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	-	<p>Stodmarsh SSSI (60.86% favourable, 21.49% unfavourable - recovering, 17.66% unfavourable - no change), RAMSAR, SAC, and SPA (and GWDTE) and Chequer's Wood and Old Park SSSI / GWDTE (68.32% favourable, 31.68% unfavourable - recovering) are located within 500m. No direct effects but there may be disturbance effects during the construction phase and potential effects on protected species. Other designated sites within 2km which may be indirectly affected. The option lies within SSSI Impact Risk Zones. The option intersects three Ancient Woodlands although is aligned along existing roads in these sections so the impacts could be limited. The option intersects other areas of woodland in including deciduous Priority Habitat and other Priority Habitat. The option crosses chalk rivers.</p> <p>The HRA ToLS (2021) identified likely significant effects for Stodmarsh SPA, SAC and Ramsar (located 445m east of proposed option). Due to the close proximity, likely significant effects from construction activities including noise and air pollution, and visual disturbance. The pipeline will also cross a watercourse, Great Stour, which has a direct hydrological connection to the Stodmarsh SPA, SAC and Ramsar downstream. Direct pollution events, excess sediment release into the watercourse and changes to habitats for the designated feature from the aforementioned impacts. Uncertain effects were identified for Thanet Coast & Sandwich Bay Ramsar and SPA (located 16.3km downstream from pipeline crossing) and Sandwich Bay SAC (16km downstream). The designated species and habitats may be adversely effected in the event of a major pollution event, however due to the distance between the option and the designated site, uncertain effects are predicted. No likely significant effects were identified for Blean Complex SAC (2.4km north-east of proposed option).</p> <p>During operation, treated water is proposed to be transferred by the bi-directional pipeline, therefore the risk of INNS transfer is very low. Construction has a low risk of transferring INNS.</p>	<p>Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Undertaken HRA AA to address likely significant and uncertain effects identified for the various N2K sites.</p>	0	---	0	0

Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	<p>The option intersects the Sturry Pit SSSI (100% unfavourable - recovering) although it is aligned along an existing road in this section, which may limit the impact.</p> <p>The option intersects two historic landfills and is within 500m of other historic landfills. Land is classed as Grade 1-3 agricultural land with areas of non-agricultural land. Potential for soil contamination during construction.</p>	<p>Land reinstated upon completion. Best practicable means to prevent potential disturbance of contaminated material during construction. Consider realignment if possible, to avoid impacts on SSSI and disturbing historic landfills.</p>	0	0	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	<p>The majority of the option is within Flood Zone 1 with the exception of one section, which passes through Flood Zones 2 and 3 and flood defences, and may have an impact on construction. Impacts on operation unlikely given the pipeline is buried. The pipeline is unlikely to increase the risk of flooding.</p>	<p>Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.</p>	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	<p>The option lies within SPZ1-3, lies within nitrate vulnerable zones and intersects two WFD groundwater bodies. The option also intersects two WFD river waterbodies, crossing watercourses including main rivers. The WFD Screening Assessment (2020) identified further WFD assessment is not required.</p>	<p>Implement pollution prevention and control measures. Use of appropriate bedding materials and directional drilling where applicable to minimise disturbance.</p>	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+++	0	<p>The option will improve water resources transfer, improving resilience by transferring water from an area of surplus to one of deficit.</p>	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	<p>Option is not within an AQMA. AQMA Canterbury No 3 is located within 2km. Construction likely to have minor and temporary impact on air quality.</p>	<p>Best practice mitigation measures to be implemented during construction, however minor and temporary impacts on air quality may remain.</p>	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	<p>Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).</p>	<p>Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.</p>	0	-	0	-

	Reduce vulnerability to climate change risks and hazards	0	0	0	0	There is not anticipated to be any effects on the resilience of the natural environment as water levels are not likely to be significantly affected as a result of this option.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option lies within the North Downs and North Kent Plain National Landscape Character Areas. Minor negative effects during construction likely as excavation will be required for the transfer pipeline.	Best practice measures to be implemented to minimise effects during construction although temporary effects during construction may remain. Land reinstated upon completion so no residual effects likely to remain during operation.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	The option lies within four conservation areas and potentially intersects three Grade II listed buildings, although is aligned along an existing road at these locations. There are additional conservation areas and listed buildings within 500m. Construction may affect the setting of these historic assets, however this is likely to be temporary as the pipeline will be buried. There is potential for the excavation of the pipeline to impact buried archaeology if present.	Best practice measures to be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The option crosses a sports facility and playing field. The option is within 500m of schools, churches, allotments, a cemetery and other community areas. There is no direct land take from these areas. There is likely to be minimal and temporary disturbance effects on users of these sites and the local community during construction. The option lies within a noise action important area. IMD deciles range from 5 to 8 along the pipeline route.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of community greenspaces to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The option intersects a sports facility and playing field, and cycle route. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be some minor and temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance to users of the National Cycle Network route, footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational areas to be avoided where possible and land to be reinstated. However, minor and temporary	0	-	0	0

							effects are likely to still occur.					
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0	
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option is aligned along major roads for some of its length and crosses a railway and National Cycle Network route. Likely to be temporary impacts during the construction from disruption for users.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway is likely to be required.	0	-	0	0	
SEA Metrics			Positive Negative	8 -33	Positive Negative							8 -19

SWS_KTZ_RE-DRO_ALL_ALL_di-kt											
TUBS and NEU Ban - KT WRZ											
Southern water											
Temporary use bans and Non-essential use bans											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Temporary use bans and non-essential use bans in Kent Thanet may help protect GWDTE and priority habitat by conserving water in the environment. The HRA Tols (2021) indicated the following Natura sites that may be affected: Thanet Coast & Sandwich Bay SPA; Thanet Coast & Sandwich Bay Ramsar Site; Thanet Coast SAC; Stodmarsh SPA; Stodmarsh SAC; Stodmarsh Ramsar. The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to sites which ecosystems are dependent upon ground and surface water. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	A temporary use ban and non-essential use ban may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of several water bodies. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	By reducing demand through temporary use bans and non-essential use ban, option maintains resilience of water for essential services.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The option is for a temporary use ban and non-essential use ban. By reducing demand and potentially reducing abstraction the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented in drought conditions, it will not result in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of private gardens, and use of ornamental fountains etc will be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to have a significant effect on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Temporary use ban and non-essential use ban is likely to have minor negative effects on the community and social well-being as there will be restrictions on irrigation of gardens and allotments and use of water for recreational purposes. There may also be a small increased risk of fires in allotments as vegetation dries out.	Allowing allotments limited supplies of water. Ensuring high levels of communication before, during and following the implementation of these measures.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Assuming commercial properties including gardens are exempt from bans and restrictions there is likely to be only a minor effect on tourism and recreation. Non-commercial tourism sites may be affected.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effect on waste production or resource use.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effects on built assets and infrastructure.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -3				Positive 4 Negative -3					

SWS_KTZ_RE-DRO_ALL_ALL_do_di_eme_regi											
Emergency restrictions: Kent Thanet											
Southern water											
<p>Drought Option: Emergency Drought Orders allow water companies to restrict supplies to customers through the imposition of rota cuts and/or the introduction of standpipes. These measures exist to deal with the very remote possibility of a drought much worse than any seen in the last century or more in the UK. Emergency Drought Orders have not been put in place in the UK since 1976. Ministers have made it clear that such measures should be avoided at all costs and introduced only as a last resort. The Company will make full use of all other measures before considering whether the severity of drought conditions mean that Emergency Drought Orders might be required. The full range of measures available under Emergency Drought Order include powers: To limit the use of water for such purposes as it considers necessary (i.e. further measures not specified in the Drought Direction 2011); To introduce rota cuts; and To set up, and supply water by means of, stand-pipes or water tanks. Level of intervention for this option: Unprecedented drought conditions. We intend the need for these to only arise in conditions of civil emergency and as such our emergency plan covers this in more detail.</p>											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) indicated the following Natura sites that may be affected: Thanet Coast & Sandwich Bay SPA and Ramsar; Thanet Coast SAC; Stodmarsh SPA,SAC and Ramsar. The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to all the sites as they contain GWDTEs. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Emergency restrictions may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is only to be used in severe drought circumstances so is therefore not likely to affect flood risk or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0

	Deliver reliable and resilient water supplies	0	0	++	0	Option maintains resilience of water for essential services.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have temporary effects on visual amenity as restricted water use may impact parks and gardens reliant on public water supply.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	---	Emergency restrictions such as rota cuts and imposition of standpipes may have major negative effects on social well-being, with the potential for breakdown of social cohesion and impacts on public health. Imposition of standpipes will particularly effect people with limited mobility or other disabilities. Businesses that use water and do not have access to private water supply will be largely affected with the potential for substantial economic losses. There may also be an increased risk of fires as public access to water is restricted.	Ensure high level of communication with customers before, during and after the restrictions have been imposed.	0	0	0	---
	Maintain and enhance tourism and recreation	0	0	0	--	Tourism and recreation is likely to be affected as water restrictions may force some tourist attractions and recreational activities to temporarily close.	N/A	0	0	0	--
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 7 Negative -13				Positive 7 Negative -13					

SWS_KTZ_RE-DRO_ALL_ALL_si_woo2											
Sandwich Drought Permit/Order (2025 onwards)											
Southern water											
Sandwich - increase licensed volumes. Drought Option - The proposed drought option involves increasing groundwater abstraction at Sandwich PS through the application for and implementation of a Drought Permit/Order. This source Peak Deployable Output, as calculated in the SWS 2006 assessment (SWS, 2006), is 2.73 MI/d and is constrained by the daily licence. The drought action would seek to increase the licensed daily abstraction rate by 1.27 MI/d to 4.0 MI/d, which is the peak output achieved during the 1992 drought period when a drought action was introduced to relax the daily peak licence. Proposed drought daily abstraction: 4.0 MI/d. Proposed drought option expected yield/gains: Additional 1.27 MI/d during drought											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	Potential impacts on GWDTEs in proximity to the abstraction points, it is not known how far the effects an increase in abstraction will be seen therefore minor operational effects have been identified. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress. The HRA ToLS (2021) identified no likely significant effects. This option is designed to minimise effects of drought conditions, so is likely to help to mitigate for the adverse effects of drought conditions on downstream N2K sites. The INNS RAG risk assessment identifies that there is a very limited risk as the source water is likely to be entirely free of INNS. It is assumed that groundwater is free of INNS, and that accessing it will not permit any additional inputs of INNS.	N/A	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No new infrastructure required. Increased may impact local soil quality, however effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No new infrastructure required. The option is not likely to affect flood risk or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	--	Given this option is only to be implemented under drought conditions when groundwater resources are vulnerable, the option may have negative impacts on resilience of the water environment. WFD assessment (2020) indicate further assessments required to assess impacts on the following water bodies: East Kent Tertiaries.	Monitor groundwater flows. Further WFD assessment required.	0	0	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	Option will increase water supply under a drought order with an assumed drought action duration. Proposed drought option expected yield/gains: Additional 1.27 MI/d during drought.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	0	0	0	No new infrastructure required. There may be some negative effects from an increase in emissions associated with water supply / treatment, however since this is a temporary operational change to the abstraction licence, this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No new infrastructure required. There may be some negative effects from an increase in carbon emissions associated with water supply / treatment, however since this is a temporary operational change to the abstraction licence, this is not anticipated to be significant.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	-	Increased abstraction during period of drought will reduce the water environment's ability to recover and may increase ground water resources vulnerability to drought in the future.	Monitor ground water flows.	0	0	0	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No new infrastructure required. Option unlikely to have effect on landscape, townscape and seascape character and visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No new infrastructure required. Option unlikely to have effect on the historic environment	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	No new infrastructure required. Option not likely to have a significant effect on the local community.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	Drought permit option could temporarily affect recreation, angling and other water based activities. However, as residents are likely to be aware of low flows and drought will worsen flow naturally, there will be negligible effects as a result of the option.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	No new infrastructure required. There may be some negative effects from increased resources required and waste produced from increased water treatment, however since this is a temporary operational change to the abstraction licence, this is not anticipated to be significant.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	No new infrastructure required. Unlikely to have effect on built assets and infrastructure.	N/A	0	0	0	0
SEA Metrics											
			Positive	1				Positive	1		
			Negative	-6				Negative	-6		

SWS_KTZ_RE-OTH_REP_ALL_bs_kmt_resil											
Reduce transfer to other commercial customers: Kent Thanet											
Southern Water											
Drought Option: In the event of a drought the Company would hold discussions with a commercial customer with regards to the resources position and their supply.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option may reduce the amount of water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during drought conditions and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) indicated no likely significant effect on Natura 2000 sites.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	There is not anticipated to be any effects on soil quality as a result of this option.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is not likely to be affected by flooding or lead to the exacerbation of flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and is only to be implemented in drought conditions. Option aims to reduce the water required for supply to other commercial customers, therefore potentially resulting in a reduction in abstraction. WFD assessment (2020) states no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to commercial companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the resilience of supply for these commercial customers.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	No effect on air emissions is anticipated from this option.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data has been provided for this option. Neutral effects have been identified at this stage.	N/A	0	0	0	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to commercial companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water within the natural environment. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	-	The reduction in the amount of water supplied to commercial customers may have an impact on the local economy if they are not able to carry out their business activity or have to operate at a reduced capacity. However, there is potential that the wider population will benefit from this option.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	+	-
	Maintain and enhance tourism and recreation	0	0	0	-	Given the option is to reduce the transfer of water for commercial customers, tourism and recreation could be affected if these customers rely on water to support these activities.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 5 Negative -3				Positive 5 Negative -3					

SWS_KTZ_RE-OTH_REP_ALL_bs_vws_resil											
Reduce transfer to other water companies: Kent Thanet											
Southern Water											
Drought Option: In the event of a drought the Company would hold discussions with neighbouring Companies with regards to their resources position and their supply. There are three main bulk transfers to the South East: its entitlement to 25% of the yield of the River Medway Scheme, the Sheldwich Scheme, and the Bewl-Darwell transfer. This option considers reduction of the transfer from Veolia Water Southeast to SWS Kent Thanet. The trigger for this would be when rainfall and groundwater level trigger is exceeded and/or if veolia Water Southeast is not affected as much as Kent Thanet WRZ.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Given the option reduces the transfer of water to other companies in the event of a drought, there is potential that water will be retained within the natural environment. Ecosystems may already be under severe stress therefore additional water retained in the natural environment will be beneficial. The HRA ToLS (2021) identified that the option unlikely to impact Kent Thanet WRZ N2K sites (Thanet Coast & Sandwich Bay SPA and Ramsar, Thanet Coast SAC, Stodmarsh SPA, SAC and Ramsar), as scheme is geographically separated from WRZ. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The option may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	It is not likely the option will affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply to other water companies, therefore may result in a reduction in abstraction. WFD assessment (2020) identified no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to other water companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the other water companies.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available for this option. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to other companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	The reduction in the amount transferred to other water companies may have some effects on the wider population outside of Southern Water's boundary. However, this will only occur where groundwater levels are exceeded and if the Veolia Water Southeast is not affected as much as SWS Kent Thanet WRZ.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation has the potential to be affected if the reduction in water to other companies results in restrictions for water based activities.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics											
				Positive	4					Positive	4
				Negative	-3					Negative	-3

SWS_KTZ_RE-TFR_IKT_ALL_do_si_tan_resil											
Tankering: Kent Thanet											
Southern											
Tankering water from adjacent WRZs or other water companies would be considered in severe droughts. Can be applied on a WRZ basis.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	Depending on the number of vehicles required for the operation, an increase in emissions may have negative impacts on nearby habitat.	Emission levels can be mitigated by using low emission vehicles (including electric vehicles) and strategic timing of transport e.g. avoiding driving lorries during rush hour.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option will supply water to Thanet in an emergency circumstance of severe drought.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	--	Option will cause an increase in emissions during transportation of water. This option is only to be implemented in severe circumstances therefore an increase in emissions will only be temporary.	Emission levels can be mitigated by using low emission vehicles (including electric vehicles) and strategic timing of transport e.g. avoiding driving lorries during rush hour.	0	0	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	-	There is no carbon data available for this option. There may be some negative effects from an increase in carbon emissions associated with tankering, however these are anticipated to be minor due to the temporary nature of the option.	Option only to be implemented in severe drought, emissions can be mitigated for by using low emission vehicles.	0	0	0	-

	Reduce vulnerability to climate change risks and hazards	0	0	0	0	This option is to be used only in severe drought and not a long term option. It will not affect resilience to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Visual amenity may be affected by an increase in lorries on the roads. This option is only to be implemented in severe circumstances therefore effects on visual amenity will be temporary.	Can be mitigated by strategic timing of transport of tankers.	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	-	Increased traffic may impact on built heritage e.g. conservation areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	Can be mitigated by strategic timing of transport of tankers.	0	0	0	-
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Noise from vehicles and increase in air pollution can cause disturbance in populated areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	Can be mitigated by using electric vehicles and strategic timing of transport of tankers e.g. avoiding driving tankers during rush hour.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Increase in congestion on roads from tankers and effects on visual amenity may have an effect on recreation and tourism in Thanet. This option is only to be implemented in severe circumstances therefore effects on recreation and tourism will be temporary.	Best practice mitigation techniques to reduce impacts.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	--	Use of fuel resources.	Fuel utilisation may be reduced by strategic timing of transport vehicles e.g. avoid driving tankers in rush hour.	0	0	0	-
	Avoid negative effects on built assets and infrastructure	0	0	0	-	Depending on the number of tankers required for the operation, there may be an increase in congestion on roads. This option is only to be implemented in severe circumstances therefore negative effects will only be temporary.	Can be mitigated by strategic timing of transport of tankers e.g. avoiding driving tankers in rush hour.	0	0	0	-
SEA Metrics		Positive 1 Negative -15				Positive 1 Negative -9					

SWS_OTT_HI-TFR_HTE_ALL_ott mm to otter 90											
Raw water Transfer between Havant Thicket res and Otterbourne WSW - Second section, 90 MI/d.											
Southern Water											
New raw water transfer (Pipe & Break tank) between Havant Thicket Res and Otterbourne WSW. Second section for 90MI/d from the mid-point to Otterbourne. 22h/d operation assumed.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	<p>The pipeline passes through the River Itchen SSSI (10.37% favourable, 55.74% unfavourable - recovering, 27.99% unfavourable - no change, 5.51% unfavourable - declining) and River Itchen SAC, both of which are GWDTE. There is potential for direct effects during the construction phase on the sites.</p> <p>Waltham Chase Meadows SSSI (100% favourable) and The Moors, Bishop's Waltham SSSI (6.84% favourable, 58.39% unfavourable - recovering, 33.31% unfavourable - declining, 1.46% destroyed) are within both within 500m and are also both GWDTE. As such, there is potential for indirect effects during the construction phase.</p> <p>The pipeline passes through Bishops Waltham Branch Line LNR, and Catherington Lith LNR and Yeoll's Copse LNR are within 500m. The option is within SSSI Impact Risk Zones. The pipeline crosses chalk rivers therefore potential for construction effects. There are anticipated to be direct effects on woodland including Ancient Woodland and deciduous woodland Priority Habitats, and other Priority Habitats, including coastal and floodplain grazing marsh and lowland dry acid grassland, during construction.</p> <p>The HRA ToLS (2021) identified likely significant effects for Solent Maritime SAC, SPA and Ramsar (6km downstream of the option via drainage routes and the River Hamble). The proposed pipeline route runs directly across the River Itchen, which flow into the Solent, and mobilised sediment may have an effect on habitats and qualifying species during construction. There may be a cumulative significant effect on qualifying species caused by spills and/or waste produced during the construction phase. There is a possibility of sediment discharge or pollution during construction and the operational phases. If significant effects were to occur, there would be potential loss or damage to the qualifying species and habitats. Minor construction impacts, including noise, vibration, dust and light pollution may still occur. Likely significant effects were also identified for River Itchen SAC (0km from the option), Portsmouth Harbour SPA and</p>	<p>If possible, re-route pipeline to avoid passing through designated sites. Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment and trenchless techniques to avoid designated sites and woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. However, likely residual effects on designated sites. The HRA Tier 2 Enhanced Screening identified that the likely significant effects identified for the Solent Maritime SAC, SPA and Ramsar, the River Itchen SAC, Portsmouth Harbour SPA and Ramsar, Chichester and Langstone Harbours SPA and Ramsar are mitigable. This could be through employing a robust, comprehensive CEMP to minimise, if not eliminate completely, the effects of sediment and contaminant mobilisation. The use of sediment curtains/screens would be vital, as would effective pollution control systems</p>	0	-	0	0

						Ramsar (approximately 13.0km downstream of the route option via Wallington River), Chichester and Langstone Harbours SPA and Ramsar (approximately 13.0km downstream of the route option via Wallington River) as the pipeline runs across watercourses which flow into these sites. Low risk for the transfer / movement of INNS.	to ensure that pollutants did not enter the watercourse. Alternatively, directional drilling underneath the watercourse could all but eliminate the scope for pollution and sediment plumes in the river, especially when combined with the above measures.				
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The pipeline passes through Grade 3 and Grade 4 agricultural land. There is likely to be disturbance to these soils during the construction phase. The pipeline intersects two historic landfill sites and is within 500m of other authorised and historic landfill sites with potential to disturb contaminated material during construction.	Land reinstated upon completion. Best practice construction measures to be implemented for working within or within close proximity to landfill sites.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The pipeline predominately passes through Flood Zone 1, however there are areas of Flood Zones 2 and 3 along the route and flood defences. There may be some risk of flooding during the construction phase. Operational impacts are unlikely as pipeline will be buried. Otterbourne WSW and Havant Thicket Reservoir are both within Flood Zone 1.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	The pipeline intersects watercourses, including main rivers and chalk rivers, and works will likely occur adjacent to other waterbodies. There is potential that the construction phase could lead to the contamination of these water bodies, affecting water quality. The pipeline is within SPZs. The WFD Screening Assessment (2021) identified no further WFD assessment is required.	Best practice mitigation measures likely to be implemented during construction.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+++	0	The option will increase the transfer capacity.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	Eastleigh AQMA No.2 (M3) is within 2000m. There is likely to be impacts on air quality during the construction phase.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	--	No carbon data available for this option. The option is estimated to have minor construction and moderate operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help	0	-	0	--

							identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.				
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Water levels are not anticipated to be significantly affected therefore neutral effects identified for climate resilience.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The pipeline passes through the South Downs National Park. There are likely to be impacts on landscape character and visual amenity during the construction phase of the works. Operational impacts unlikely given Havant Thicket Reservoir and Otterbourne are existing sites and the pipeline will be buried.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are conservation areas, registered parks and gardens, listed buildings and scheduled monuments within 500m. The construction phase may impact the setting of the historic assets, however this is likely to be minimal and temporary. The pipeline excavation may impact buried archaeology, if present.	Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are schools, public parks or gardens, noise action areas, playing fields, play spaces, golf courses, sports facilities, allotments, cemeteries and other community facilities within 500m. There is likely to be disturbance to the local community and users of these community facilities during the construction phase. IMD deciles range from 2 to 10 along the pipeline route.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The pipeline is on the edge of the South Downs National Park, on the edge of a Country Park and intersects a national cycle route. There are public parks and gardens, golf courses, sports facilities, allotments and other recreational facilities within 500m. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be some temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary	0	-	0	0

						disturbance to users of footpaths and other public rights of way during the construction phase.	effects are likely to still occur.					
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0	
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The pipeline intersects railway, major roads, and national cycle routes. There is likely to be moderate and temporary impacts during construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0	
SEA Metrics			Positive Negative	8 -32					Positive Negative	8 -14		

SWS_OTT_HI-TFR_HTE_ALL_ott mm to otter 120											
Raw water Transfer between Havant Thicket res and Otterbourne WSW - Second Section, 120 MI/d.											
Southern Water											
New raw water transfer (Pipe & Break tank) between Havant Thicket Res and Otterbourne WSW. Second section for 120MI/d from the mid-point to Otterbourne. 22h/d operation assumed.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	<p>The pipeline passes through the River Itchen SSSI (10.37% favourable, 55.74% unfavourable - recovering, 27.99% unfavourable - no change, 5.51% unfavourable - declining) and River Itchen SAC, both of which are GWDTE. There is potential for direct effects during the construction phase on the sites.</p> <p>Waltham Chase Meadows SSSI (100% favourable) and The Moors, Bishop's Waltham SSSI (6.84% favourable, 58.39% unfavourable - recovering, 33.31% unfavourable - declining, 1.46% destroyed) are within both within 500m and are also both GWDTE. As such, there is potential for indirect effects during the construction phase.</p> <p>The pipeline passes through Bishops Waltham Branch Line LNR, and Catherington Lith LNR and Yeoll's Copse LNR are within 500m. The option is within SSSI Impact Risk Zones. The pipeline crosses chalk rivers therefore potential for construction effects. There are anticipated to be direct effects on woodland including Ancient Woodland and deciduous woodland Priority Habitats, and other Priority Habitats, including coastal and floodplain grazing marsh and lowland dry acid grassland, during construction.</p> <p>The HRA ToLS (2021) identified likely significant effects for Solent Maritime SAC, SPA and Ramsar (6km downstream of the option via drainage routes and the River Hamble). The proposed pipeline route runs directly across the River Itchen, which flow into the Solent, and mobilised sediment may have an effect on habitats and qualifying species during construction. There may be a cumulative significant effect on qualifying species caused by spills and/or waste produced during the construction phase. There is a possibility of sediment discharge or pollution during construction and the operational phases. If significant effects were to occur, there would be potential loss or damage to the qualifying species and habitats. Minor construction impacts, including noise, vibration, dust and light pollution may still occur. Likely significant effects were also identified for River Itchen SAC (0km from the option), Portsmouth Harbour SPA and</p>	<p>If possible, re-route pipeline to avoid passing through designated sites. Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment and trenchless techniques to avoid designated sites and woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. However, likely residual effects on designated sites. The HRA Tier 2 Enhanced Screening identified that the likely significant effects identified for the Solent Maritime SAC, SPA and Ramsar, the River Itchen SAC, Portsmouth Harbour SPA and Ramsar, Chichester and Langstone Harbours SPA and Ramsar are mitigable. This could be through employing a robust, comprehensive CEMP to minimise, if not eliminate completely, the effects of sediment and contaminant mobilisation. The use of sediment curtains/screens would be vital, as would effective pollution control systems</p>	0	-	0	0

						Ramsar (approximately 13.0km downstream of the route option via Wallington River), Chichester and Langstone Harbours SPA and Ramsar (approximately 13.0km downstream of the route option via Wallington River) as the pipeline runs across watercourses which flow into these sites. Low risk for the transfer / movement of INNS.	to ensure that pollutants did not enter the watercourse. Alternatively, directional drilling underneath the watercourse could all but eliminate the scope for pollution and sediment plumes in the river, especially when combined with the above measures.				
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The pipeline passes through Grade 3 and Grade 4 agricultural land. There is likely to be disturbance to these soils during the construction phase. The pipeline intersects two historic landfill sites and is within 500m of other authorised and historic landfill sites with potential to disturb contaminated material during construction.	Land reinstated upon completion. Best practice construction measures to be implemented for working within or within close proximity to landfill sites.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The pipeline predominately passes through Flood Zone 1, however there are areas of Flood Zones 2 and 3 along the route and flood defences. There may be some risk of flooding during the construction phase. Operational impacts are unlikely as pipeline will be buried. Otterbourne WSW and Havant Thicket Reservoir are both within Flood Zone 1.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	The pipeline intersects watercourses, including main rivers and chalk rivers, and works will likely occur adjacent to other waterbodies. There is potential that the construction phase could lead to the contamination of these water bodies, affecting water quality. The pipeline is within SPZs. The WFD Screening Assessment (2021) identified no further WFD assessment is required.	Best practice mitigation measures likely to be implemented during construction.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+++	0	The option will increase the transfer capacity.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	Eastleigh AQMA No.2 (M3) is within 2000m. There is likely to be impacts on air quality during the construction phase.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	--	No carbon data available for this option. The option is estimated to have minor construction and moderate operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help	0	-	0	--

							identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.				
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Water levels are not anticipated to be significantly affected therefore neutral effects identified for climate resilience.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The pipeline passes through the South Downs National Park. There are likely to be impacts on landscape character and visual amenity during the construction phase of the works. Operational impacts unlikely given Havant Thicket Reservoir and Otterbourne are existing sites and the pipeline will be buried.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are conservation areas, registered parks and gardens, listed buildings and scheduled monuments within 500m. The construction phase may impact the setting of the historic assets, however this is likely to be minimal and temporary. The pipeline excavation may impact buried archaeology, if present.	Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are schools, public parks or gardens, noise action areas, playing fields, play spaces, golf courses, sports facilities, allotments, cemeteries and other community facilities within 500m. There is likely to be disturbance to the local community and users of these community facilities during the construction phase. IMD deciles range from 2 to 10 along the pipeline route.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The pipeline is on the edge of the South Downs National Park, on the edge of a Country Park and intersects a national cycle route. There are public parks and gardens, golf courses, sports facilities, allotments and other recreational facilities within 500m. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be some temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary	0	-	0	0

						disturbance to users of footpaths and other public rights of way during the construction phase.	effects are likely to still occur.					
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0	
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The pipeline intersects railway, major roads, and national cycle routes. There is likely to be moderate and temporary impacts during construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0	
SEA Metrics			Positive Negative	8 -32					Positive Negative	8 -14		

SWS_OTT_HI-TFR_HTE_ALL_ott mm to otter 150											
Raw water Transfer between Havant Thicket res and Otterbourne WSW - Second section, 150 MI/d.											
Southern Water											
New raw water transfer (Pipe & Break tank) between Havant Thicket Res and Otterbourne WSW. Second section for 150MI/d from the mid-point to Otterbourne. 22h/d operation assumed.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	<p>The pipeline passes through the River Itchen SSSI (10.37% favourable, 55.74% unfavourable - recovering, 27.99% unfavourable - no change, 5.51% unfavourable - declining) and River Itchen SAC, both of which are GWDTE. There is potential for direct effects during the construction phase on the sites.</p> <p>Waltham Chase Meadows SSSI (100% favourable) and The Moors, Bishop's Waltham SSSI (6.84% favourable, 58.39% unfavourable - recovering, 33.31% unfavourable - declining, 1.46% destroyed) are within both within 500m and are also both GWDTE. As such, there is potential for indirect effects during the construction phase. The pipeline passes through Bishops Waltham Branch Line LNR, and Catherington Lith LNR and Yeoll's Copse LNR are within 500m. The option is within SSSI Impact Risk Zones. The pipeline crosses chalk rivers therefore potential for construction effects. There are anticipated to be direct effects on woodland including Ancient Woodland and deciduous woodland Priority Habitats, and other Priority Habitats, including coastal and floodplain grazing marsh and lowland dry acid grassland, during construction. The HRA ToLS (2021) identified likely significant effects for Solent Maritime SAC, SPA and Ramsar (6km downstream of the option via drainage routes and the River Hamble). The proposed pipeline route runs directly across the River Itchen, which flow into the Solent,</p>	<p>If possible, re-route pipeline to avoid passing through designated sites. Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment and trenchless techniques to avoid designated sites and woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. However, likely residual effects on designated sites. The HRA Tier 2 Enhanced Screening identified that the likely significant effects identified for the Solent Maritime SAC, SPA and Ramsar, the River Itchen SAC, Portsmouth Harbour SPA and Ramsar, Chichester and Langstone Harbours SPA and Ramsar are mitigable. This could be through employing a robust, comprehensive CEMP to minimise, if not eliminate completely, the effects of sediment and contaminant mobilisation. The use of sediment curtains/screens would be vital, as would effective pollution control systems to ensure that pollutants did not enter the watercourse. Alternatively, directional drilling underneath the watercourse could all but eliminate the scope for pollution and sediment plumes in the river, especially when combined with the above measures.</p>	0	-	0	0

						and mobilised sediment may have an effect on habitats and qualifying species during construction. There may be a cumulative significant effect on qualifying species caused by spills and/or waste produced during the construction phase. There is a possibility of sediment discharge or pollution during construction and the operational phases. If significant effects were to occur, there would be potential loss or damage to the qualifying species and habitats. Minor construction impacts, including noise, vibration, dust and light pollution may still occur. Likely significant effects were also identified for River Itchen SAC (0km from the option), Portsmouth Harbour SPA and Ramsar (approximately 13.0km downstream of the route option via Wallington River), Chichester and Langstone Harbours SPA and Ramsar (approximately 13.0km downstream of the route option via Wallington River) as the pipeline runs across watercourses which flow into these sites. Low risk for the transfer / movement of INNS.					
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The pipeline passes through Grade 3 and Grade 4 agricultural land. There is likely to be disturbance to these soils during the construction phase. The pipeline intersects two historic landfill sites and is within 500m of other authorised and historic landfill sites with potential to disturb contaminated material during construction.	Land reinstated upon completion. Best practice construction measures to be implemented for working within or within close proximity to landfill sites.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The pipeline predominately passes through Flood Zone 1, however there are areas of Flood Zones 2 and 3 along the route and flood defences. There may be some risk of flooding during the construction phase. Operational impacts are unlikely as pipeline will be buried. Otterbourne WSW and Havant Thicket Reservoir are both within Flood Zone 1.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0

	Protect and enhance the quality of the water environment and water resources	0	-	0	0	The pipeline intersects watercourses, including main rivers and chalk rivers, and works will likely occur adjacent to other waterbodies. There is potential that the construction phase could lead to the contamination of these water bodies, affecting water quality. The pipeline is within SPZs. The WFD Screening Assessment (2021) identified no further WFD assessment is required.	Best practice mitigation measures likely to be implemented during construction.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+++	0	The option will increase the transfer capacity.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	Eastleigh AQMA No.2 (M3) is within 2000m. There is likely to be impacts on air quality during the construction phase.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	--	No carbon data available for this option. The option is estimated to have minor construction and moderate operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	--
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Water levels are not anticipated to be significantly affected therefore neutral effects identified for climate resilience.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The pipeline passes through the South Downs National Park. There are likely to be impacts on landscape character and visual amenity during the construction phase of the works. Operational impacts unlikely given Havant Thicket Reservoir and Otterbourne are existing sites and the pipeline will be buried.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are conservation areas, registered parks and gardens, listed buildings and scheduled monuments within 500m. The construction phase may impact the setting of the historic assets, however this is likely to be minimal and temporary. The pipeline	Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0

						excavation may impact buried archaeology, if present.					
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are schools, public parks or gardens, noise action areas, playing fields, play spaces, golf courses, sports facilities, allotments, cemeteries and other community facilities within 500m. There is likely to be disturbance to the local community and users of these community facilities during the construction phase. IMD deciles range from 2 to 10 along the pipeline route.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The pipeline is on the edge of the South Downs National Park, on the edge of a Country Park and intersects a national cycle route. There are public parks and gardens, golf courses, sports facilities, allotments and other recreational facilities within 500m. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be some temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance to users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The pipeline intersects railway, major roads, and national cycle routes. There is likely to be moderate and temporary impacts during construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics			Positive Negative	8 -32				Positive Negative	8 -14		

SWS_OTT_HI-TFR_PWE_ALL_sro_d2_61											
Havant Thicket Reservoir and raw water direct transfer to Otterbourne Water Supply Works											
Southern Water											
Additional 61 Ml/d use of Havant Thicket Reservoir and raw water direct transfer to Otterbourne Water Supply Works (WSW)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	<p>The pipeline passes through the River Itchen SSSI (10.37% favourable, 55.74% unfavourable - recovering, 27.99% unfavourable - no change, 5.51% unfavourable - declining) and River Itchen SAC, both of which are GWDTE. There is potential for direct effects during the construction phase on the sites. Waltham Chase Meadows SSSI (100% favourable) and The Moors, Bishop's Waltham SSSI (6.84% favourable, 58.39% unfavourable - recovering, 33.31% unfavourable - declining, 1.46% destroyed) are within both within 500m and are also both GWDTE. As such, there is potential for indirect effects during the construction phase. The pipeline passes through Bishops Waltham Branch Line LNR, and Catherington Lith LNR and Yeoll's Copse LNR are within 500m. The option is within SSSI Impact Risk Zones. The pipeline crosses chalk rivers therefore potential for construction effects. There are anticipated to be direct effects on woodland including Ancient Woodland and deciduous woodland Priority Habitats, and other Priority Habitats, including coastal and floodplain grazing marsh and lowland dry acid grassland, during construction.</p> <p>The HRA ToLS (2021) identified likely significant effects for the River Itchen SAC (0km from option) due to construction activities of the pipeline around the site e.g. removal of vegetation used by designated features and disturbance of river sediments and gravel bottom. Potential adverse effects include pollution events within the watercourse, dust deposition up and downstream of pipeline crossing, increase in silt leading to smothering of habitats used by the designated features. Changes to hydrological systems could lead to an adverse effect in the form of water drawn down from a potential break in the river bed etc. Low risk for the transfer / movement of INNS.</p>	<p>Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment and trenchless techniques to avoid designated sites and woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. However, likely residual effects on designated sites. The HRA Enhanced Screening (Tier 2) identified that the likely significant effects are not guaranteed to be mitigable. Construction works will follow best practice guidelines e.g. use of a robust CEMP detailing mitigation measures to minimise potential impacts to the SAC and the use of DMPs, pollution prevention, use of sediment screens, coverage of construction stockpiles during adverse weather conditions to minimise potential effects of pollution and run-off. Directional drilling underneath the River Itchen is a possibility provided there is a suitable confined clay</p>	0	--	0	0

							layer in which to lay the pipe within to make pipeline hydraulically neutral. Construction dust could be mitigated through wet cutting/crushing and vacuum drilling. Upgrading plant to minimise particulate production e.g. use of particulate filters, catalytic converters to minimise NOx production and use of low sulphur fuels is likely to minimise impacts to qualifying species. Sensitive lighting with down ward facing cowling would be used to reduce light pollution and insect draw. Uncertain effects assumed due to option crossing directly over the designated site. No predicted adverse effects during operation.				
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The pipeline passes through Grade 3 and Grade 4 agricultural land, and non-agricultural land. There is likely to be disturbance to these soils during the construction phase. The pipeline intersects two historic landfill sites and is within 500m of other authorised and historic landfill sites with potential to disturb contaminated material during construction.	Land reinstated upon completion. Best practice construction measures to be implemented for working within or within close proximity to landfill sites.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The pipeline predominately passes through Flood Zone 1, however there are areas of Flood Zones 2 and 3 along the route and flood defences. There may be some risk of flooding during the construction phase. Operational impacts are unlikely as pipeline will be buried. Otterbourne WSW and Havant Thicket Reservoir are both within Flood Zone 1.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	--	The pipeline intersects watercourses, including main rivers and chalk rivers, and works will likely occur adjacent to other waterbodies. There is potential that the construction phase could lead to the contamination of these water bodies, affecting water quality. The pipeline is within SPZs. The WFD Screening Assessment (2021) identified further WFD assessment is required due to construction and operational effects.	Best practice mitigation measures likely to be implemented during construction. Undertake further WFD assessment.	0	--	0	--

	Deliver reliable and resilient water supplies	0	0	+++	0	The option will increase the transfer capacity from Havant Thicket Reservoir by 61Ml/d.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	Eastleigh AQMA No.2 (M3) is within 2000m. There is likely to be impacts on air quality during the construction phase.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational carbon emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Water levels are not anticipated to be significantly affected therefore neutral effects identified for climate resilience.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The pipeline is on the edge of the South Downs National Park with some sections located within the National Park. There are likely to be impacts on landscape character and visual amenity during the construction phase of the works. Operational impacts unlikely given Havant Thicket Reservoir and Otterbourne are existing sites and the pipeline will be buried.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are conservation areas, registered parks and gardens, listed buildings and scheduled monuments within 500m. The construction phase may impact the setting of the historic assets, however this is likely to be minimal and temporary. The pipeline excavation may impact buried archaeology, if present.	Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are schools, public parks or gardens, noise action areas, playing fields, play spaces, golf courses, sports facilities, allotments, cemeteries and other community facilities within 500m. There is likely to be disturbance to the local community and users of these community facilities during the construction phase. IMD deciles range from 2 to 10 along the pipeline route.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The pipeline is on the edge of the South Downs National Park, on the edge of a Country Park and intersects a national cycle route. There are public parks and gardens, golf courses, sports facilities, allotments and other recreational facilities within 500m. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be some temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance to users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	The pipeline intersects railway, major roads, and national cycle routes. There is likely to be moderate and temporary impacts during construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive 8 Negative -36				Positive 8 Negative -22					

SWS_PWE_HI-REU_RE1_ALL_30toht v0.1											
Recharge of Havant Thicket Reservoir with water from Recycled water from Budds Farm and new WRP. 30MI/d											
Southern											
Recharge of Havant Thicket Res with Recycled water from Budds Farm WwTW and a new Water Recycling Plant (WRP) located near Portsmouth of 30 MI/d.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)					Option crosses Chichester and Langstone Harbours Ramsar and SPA, Langstone Harbour SSSI (91.05% unfavourable - recovering, 8.39% favourable, 0.56% unfavourable - no change), a biological SSSI, and Solent Maritime SAC. Within 500m of Solent & Southampton Water Ramsar, Portsmouth Harbour Ramsar, Portsdown SSSI (88.22% unfavourable - recovering, 9.19% favourable, 2.59% destroyed), a biological SSSI. Within 2km of Solent and Dorset Coast SPA. Option located within SSSI risk zone. Option crosses areas of woodland and priority habitats, including costal and floodplain grazing marsh, deciduous woodland, good quality semi-improved grassland, lowland calcareous grassland and mudflats.	Exact location of new Water Recycling Plant unknown. However, consider option routing and alternative location for new Water Recycling Plant to avoid direct effects on Chichester and Langstone Harbours Ramsar and SPA, Langstone Harbour SSSI and Solent Maritime SAC. Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Consider directional drilling.				
		0	---	0	---	The HRA ToLS identifies eight Natura 2000 sites: Portsmouth Harbour SPA (1.6km to the south), Portsmouth Harbour Ramsar (1.6km to the south), Solent and Southampton Water SPA (500m to the south), Solent and Southampton Water Ramsar (500m to the south), Chichester and Langstone Harbours SPA (50m to the south), Chichester and Langstone Harbours Ramsar (50m to the south), Solent Maritime SAC and Solent and Dorset Coast SPA. The proposed pipeline route runs directly across watercourses that flow into the Portsmouth Harbour SPA and Ramsar along with the Solent and Southampton Water SPA and Ramsar sites. For these sites there are likely significant effects on habitats, and hence qualifying species due to the sediment mobilised during pipeline installation. Disturbance is considered unlikely, due the distance between the option and the sites. The proposed pipeline route runs directly across watercourses that flow into the Chichester and Langstone Harbours SPA and Ramsar along with the Solent Maritime SAC and Solent and Dorset Coast SPA sites. For	Mitigation measures can be employed to ensure that the risk of damage to the habitats in the Site, that may have knock-on effects on the qualifying bird species, are reduced if not eliminated. These would centre on sediment control in the watercourses, by using sediment screens etc, or by the use of directional drilling beneath watercourses to completely avoid these effects. Employment of a robust, comprehensive CEMP, with a draft of pollution and sediment control measures, should mean that likely significant effects can be avoided. It would likely require in-river measures to remove any mobilised sediment, by avoiding unnecessary work in the watercourse. Directional drilling	0	--	0	--

						these sites there are likely significant effects on habitats, and hence qualifying species, due to the sediment mobilised during pipeline installation. Disturbance to the qualifying bird species is also likely to have significant effects, due largely to its proximity. Disturbance is most likely when birds are using high tide roosts, which may be located close to the proposed option. The INNS risk assessment identifies that there is a very low risk of the transfer / movement of INNS. Physical transfer of treated water (between two locations assumed currently unconnected. No INNS risk as treated water will be free from INNS.	beneath the watercourse would be a very effective means of avoiding effects too and should be considered as a preferred construction methodology. HRA AA required to address uncertain effects on Chichester and Langstone Harbours SPA and Ramsar.				
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	Option crosses Bedhampton Landfill authorised landfill site and Land South of Budds Farm Sewage Works historic landfill site. Within 500m of 7 other historic landfill sites. There is potential to disturb contaminated material during construction. Option crosses areas of grade 1, 2 and 3 agricultural land, non-agricultural land and urban land. Likely disturbance to these soils during construction and potential loss for above ground infrastructure, depending on where the new Water Recycling Plant is located.	Best practice construction measures to be implemented, however residual construction effects likely.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	--	Option is predominately located within Flood Zone 1, however does cross Flood Zone 2 and Flood Zone 3 at multiple locations. This may have an impact on construction and operation, depending on where the new Water Recycling Plant is located.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur. The new Water Recycling Plant will be subject to FRA and may need to be made flood resilient, depending on where it is located.	0	-	0	-
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	Option crosses multiple watercourses, including main rivers in multiple locations. Option mostly located outside of SPZ, however crosses SPZ Zone 2 and 3 briefly and abuts SPZ Zone 1 at one location. WFD assessment (2021) indicates a further assessment is required to assess impacts on the following water bodies: Alver (GB107042011370) and Un-named catchment (216).	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain. Further WFD assessments required.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	++	0	Option will facilitate water supply once operational, via Recharge of Havant Thicket Res with Recycled water from Budds Farm WWTW and a new Water Recycling Plant located near Portsmouth. Capacity of 30MI/d.	N/A	0	0	++	0

Air	Reduce and minimise air emissions	0	-	0	-	Option does not pass through any AQMAs, nor any within 500m or 2000m. However, construction and operation likely to have minor and temporary impact.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain. The new Water Recycling Plant will need to operate within air quality limits.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Water levels not predicted to be significantly affected by option. Using water recycling plants to keep water within the environment. Therefore, may increase resilience of the local environment to climate change in periods of water deficit/drought.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	Option crosses South Coast Plain and South Hampshire Lowlands NCAs. Option involves construction of new Water Recycling Plant located near Portsmouth. Potential for impacts on landscape character and visual amenity during construction and operation due to new infrastructure.	Best practice measures will likely be implemented to minimise effects during construction and operation, however temporary impacts may remain for construction. Design of permanent infrastructure to minimise visual impact e.g. through screening planting. However, residual effects will remain.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	Option within 500m of multiple listed buildings, multiple Scheduled Monuments and one Grade II* Registered Park and Garden. Option located within Titchfield Abbey Conservation Area, with two other conservation areas within 500m. Construction may affect the setting of the historic assets with permanent impacts for the Water Recycling Plant, depending on its location. Potential impact on buried archaeology, if present.	Best practice measures will likely be implemented to minimise setting effects during construction. Design of permanent infrastructure to minimise setting impact e.g. through screening planting. However, residual effects will remain. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	Option is adjacent to two schools although aligned along an existing road in these locations. Within 500m of multiple schools, medical care facilities and other important buildings. Option crosses one religious grounds, one golf course, one Public Park or Garden and one playing field. Within 500m of religious grounds, play spaces, playing fields, golf course, allotments, tennis court, bowling greens and Public Park or Garden. Option crosses one Noise Action Planning Important Area. Option crosses areas of IMD deciles ranging from 9 to 3. Disturbance to the local community has potential to be moderate. Potential for effects during operation depending on the location of the new Water Recycling Plant.	Route alignment to be amended to avoid direct impacts on community assets and land to be reinstated. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur. Potential for residual effects depending on the location of the new Water Recycling Plant.	0	-	0	0
	Maintain and enhance tourism and recreation	0	--	0	0	Option crosses Staunton Country Park as well a golf course and a playing field and is within 500m of other greenspace sites. Option crosses Staunton Country Park. Option crosses National Cycle Route in three locations. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be some temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance to users of footpaths and other public rights of way during the construction phase. Potential for effects during operation depending on the location of the new Water Recycling Plant.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur. Potential for residual effects during operation depending on the location of the new Water Recycling Plant.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	Option crosses major roads, including M27 and A3(M), railways and National Cycle Routes at three locations. Option within 500m of Lee-on-Solent Airfield. Likely to be moderate and temporary impacts during construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics			Positive	5				Positive	5		
			Negative	-53				Negative	-20		

SWS_PWE_HI-REU_RE1_ALL_60toht v0.1											
Recharge of Havant Thicket Reservoir with water from Recycled water from Budds Farm and new WRP. 60MI/d											
Southern											
Recharge of Havant Thicket Res with Recycled water from Budds Farm WwTW and a new Water Recycling Plant (WRP) located near Portsmouth of 60 MI/d.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)					Option crosses Chichester and Langstone Harbours Ramsar and SPA, Langstone Harbour SSSI (91.05% unfavourable - recovering, 8.39% favourable, 0.56% unfavourable - no change), a biological SSSI, and Solent Maritime SAC. Within 500m of Solent & Southampton Water Ramsar, Portsmouth Harbour Ramsar, Portsdown SSSI (88.22% unfavourable - recovering, 9.19% favourable, 2.59% destroyed), a biological SSSI. Within 2km of Solent and Dorset Coast SPA. Option located within SSSI risk zone. Option crosses areas of woodland and priority habitats, including costal and floodplain grazing marsh, deciduous woodland, good quality semi-improved grassland, lowland calcareous grassland and mudflats.	Exact location of new Water Recycling Plant unknown. However, consider option routing and alternative location for new Water Recycling Plant to avoid direct effects on Chichester and Langstone Harbours Ramsar and SPA, Langstone Harbour SSSI and Solent Maritime SAC. Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Consider directional drilling.				
		0	---	0	---	The HRA ToLS identifies eight Natura 2000 sites: Portsmouth Harbour SPA (1.6km to the south), Portsmouth Harbour Ramsar (1.6km to the south), Solent and Southampton Water SPA (500m to the south), Solent and Southampton Water Ramsar (500m to the south), Chichester and Langstone Harbours SPA (50m to the south), Chichester and Langstone Harbours Ramsar (50m to the south), Solent Maritime SAC and Solent and Dorset Coast SPA. The proposed pipeline route runs directly across watercourses that flow into the Portsmouth Harbour SPA and Ramsar along with the Solent and Southampton Water SPA and Ramsar sites. For these sites there are likely significant effects on habitats, and hence qualifying species due to the sediment mobilised during pipeline installation. Disturbance is considered unlikely, due the distance between the option and the sites. The proposed pipeline route runs directly across watercourses that flow into the Chichester and Langstone Harbours SPA and Ramsar along with the Solent Maritime SAC and Solent and Dorset Coast SPA sites. For	Mitigation measures can be employed to ensure that the risk of damage to the habitats in the Site, that may have knock-on effects on the qualifying bird species, are reduced if not eliminated. These would centre on sediment control in the watercourses, by using sediment screens etc, or by the use of directional drilling beneath watercourses to completely avoid these effects. Employment of a robust, comprehensive CEMP, with a draft of pollution and sediment control measures, should mean that likely significant effects can be avoided. It would likely require in-river measures to remove any mobilised sediment, by avoiding unnecessary work in the watercourse. Directional drilling	0	--	0	--

						these sites there are likely significant effects on habitats, and hence qualifying species, due to the sediment mobilised during pipeline installation. Disturbance to the qualifying bird species is also likely to have significant effects, due largely to its proximity. Disturbance is most likely when birds are using high tide roosts, which may be located close to the proposed option. The INNS risk assessment identifies that there is a very low risk of the transfer / movement of INNS. Physical transfer of treated water (between two locations assumed currently unconnected. No INNS risk as treated water will be free from INNS.	beneath the watercourse would be a very effective means of avoiding effects too and should be considered as a preferred construction methodology. HRA AA required to address uncertain effects on Chichester and Langstone Harbours SPA and Ramsar.				
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	Option crosses Bedhampton Landfill authorised landfill site and Land South of Budds Farm Sewage Works historic landfill site. Within 500m of 7 other historic landfill sites. There is potential to disturb contaminated material during construction. Option crosses areas of grade 1, 2 and 3 agricultural land, non-agricultural land and urban land. Likely disturbance to these soils during construction and potential loss for above ground infrastructure, depending on where the new Water Recycling Plant is located.	Best practice construction measures to be implemented, however residual construction effects likely.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	--	Option is predominately located within Flood Zone 1, however does cross Flood Zone 2 and Flood Zone 3 at multiple locations. This may have an impact on construction and operation, depending on where the new Water Recycling Plant is located.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur. The new Water Recycling Plant will be subject to FRA and may need to be made flood resilient, depending on where it is located.	0	-	0	-
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	Option crosses multiple watercourses, including main rivers in multiple locations. Option mostly located outside of SPZ, however crosses SPZ Zone 2 and 3 briefly and abuts SPZ Zone 1 at one location. WFD assessment (2021) indicates a further assessment is required to assess impacts on the following water bodies: Alver (GB107042011370) and Un-named catchment (216).	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain. Further WFD assessments required.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+++	0	Option will facilitate water supply once operational, via Recharge of Havant Thicket Res with Recycled water from Budds Farm WwTW and a new Water Recycling Plant located near Portsmouth. Capacity of 60MI/d.	N/A	0	0	+++	0

Air	Reduce and minimise air emissions	0	-	0	-	Option does not pass through any AQMAs, nor any within 500m or 2000m. However, construction and operation likely to have minor and temporary impact.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain. The new Water Recycling Plant will need to operate within air quality limits.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Water levels not predicted to be significantly affected by option. Using water recycling plants to keep water within the environment. Therefore, may increase resilience of the local environment to climate change in periods of water deficit/drought.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	Option crosses South Coast Plain and South Hampshire Lowlands NCAs. Option involves construction of new Water Recycling Plant located near Portsmouth. Potential for impacts on landscape character and visual amenity during construction and operation due to new infrastructure.	Best practice measures will likely be implemented to minimise effects during construction and operation, however temporary impacts may remain for construction. Design of permanent infrastructure to minimise visual impact e.g. through screening planting. However, residual effects will remain.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	Option within 500m of multiple listed buildings, multiple Scheduled Monuments and one Grade II* Registered Park and Garden. Option located within Titchfield Abbey Conservation Area, with two other conservation areas within 500m. Construction may affect the setting of the historic assets with permanent impacts for the Water Recycling Plant, depending on its location. Potential impact on buried archaeology, if present.	Best practice measures will likely be implemented to minimise setting effects during construction. Design of permanent infrastructure to minimise setting impact e.g. through screening planting. However, residual effects will remain. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	Option is adjacent to two schools although aligned along an existing road in these locations. Within 500m of multiple schools, medical care facilities and other important buildings. Option crosses one religious grounds, one golf course, one Public Park or Garden and one playing field. Within 500m of religious grounds, play spaces, playing fields, golf course, allotments, tennis court, bowling greens and Public Park or Garden. Option crosses one Noise Action Planning Important Area. Option crosses areas of IMD deciles ranging from 9 to 3. Disturbance to the local community has potential to be moderate. Potential for effects during operation depending on the location of the new Water Recycling Plant.	Route alignment to be amended to avoid direct impacts on community assets and land to be reinstated. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur. Potential for residual effects during operation depending on the location of the new Water Recycling Plant.	0	-	0	0
	Maintain and enhance tourism and recreation	0	--	0	0	Option crosses Staunton Country Park as well a golf course and a playing field and is within 500m of other greenspace sites. Option crosses Staunton Country Park. Option crosses National Cycle Route in three locations. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be some temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance to users of footpaths and other public rights of way during the construction phase. Potential for effects during operation depending on the location of the new Water Recycling Plant.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur. Potential for residual effects during operation depending on the location of the new Water Recycling Plant.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	Option crosses major roads, including M27 and A3(M), railways and National Cycle Routes at three locations. Option within 500m of Lee-on-Solent Airfield. Likely to be moderate and temporary impacts during construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics			Positive Negative	9 -53				Positive Negative	9 -20		

SWS_PWE_HI-REU_RE1_ALL_90toht v0.1											
Recharge of Havant Thicket Reservoir with water from Recycled water from Budds Farm and new WRP. 90MI/d											
Southern											
Recharge of Havant Thicket Res with Recycled water from both Budds Farm WwTW and Peel Common (PC) WTW, treat effluent transfer from PC to a new Water Recycling Plant (WRP) located near Portsmouth of 90 MI/d.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)					Option crosses Chichester and Langstone Harbours Ramsar and SPA, Langstone Harbour SSSI (91.05% unfavourable - recovering, 8.39% favourable, 0.56% unfavourable - no change), a biological SSSI, and Solent Maritime SAC. Within 500m of Solent & Southampton Water Ramsar, Portsmouth Harbour Ramsar, Portsdown SSSI (88.22% unfavourable - recovering, 9.19% favourable, 2.59% destroyed), a biological SSSI. Within 2km of Solent and Dorset Coast SPA. Option located within SSSI risk zone. Option crosses areas of woodland and priority habitats, including costal and floodplain grazing marsh, deciduous woodland, good quality semi-improved grassland, lowland calcareous grassland and mudflats.	Exact location of new Water Recycling Plant unknown. However, consider option routing and alternative location for new Water Recycling Plant to avoid direct effects on Chichester and Langstone Harbours Ramsar and SPA, Langstone Harbour SSSI and Solent Maritime SAC. Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Consider directional drilling.				
		0	---	0	---	The HRA ToLS identifies eight Natura 2000 sites: Portsmouth Harbour SPA (1.6km to the south), Portsmouth Harbour Ramsar (1.6km to the south), Solent and Southampton Water SPA (500m to the south), Solent and Southampton Water Ramsar (500m to the south), Chichester and Langstone Harbours SPA (50m to the south), Chichester and Langstone Harbours Ramsar (50m to the south), Solent Maritime SAC and Solent and Dorset Coast SPA. The proposed pipeline route runs directly across watercourses that flow into the Portsmouth Harbour SPA and Ramsar along with the Solent and Southampton Water SPA and Ramsar sites. For these sites there are likely significant effects on habitats, and hence qualifying species due to the sediment mobilised during pipeline installation. Disturbance is considered unlikely, due the distance between the option and the sites. The proposed pipeline route runs directly across watercourses that flow into the Chichester and Langstone Harbours SPA and Ramsar along with the Solent Maritime SAC and Solent and Dorset Coast SPA sites. For	Mitigation measures can be employed to ensure that the risk of damage to the habitats in the Site, that may have knock-on effects on the qualifying bird species, are reduced if not eliminated. These would centre on sediment control in the watercourses, by using sediment screens etc, or by the use of directional drilling beneath watercourses to completely avoid these effects. Employment of a robust, comprehensive CEMP, with a draft of pollution and sediment control measures, should mean that likely significant effects can be avoided. It would likely require in-river measures to remove any mobilised sediment, by avoiding unnecessary work in the watercourse. Directional drilling	0	--	0	--

						these sites there are likely significant effects on habitats, and hence qualifying species, due to the sediment mobilised during pipeline installation. Disturbance to the qualifying bird species is also likely to have significant effects, due largely to its proximity. Disturbance is most likely when birds are using high tide roosts, which may be located close to the proposed option. The INNS risk assessment identifies that there is a very low risk of the transfer / movement of INNS. Physical transfer of treated water (between two locations assumed currently unconnected. No INNS risk as treated water will be free from INNS.	beneath the watercourse would be a very effective means of avoiding effects too and should be considered as a preferred construction methodology. HRA AA required to address uncertain effects on Chichester and Langstone Harbours SPA and Ramsar.				
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	Option crosses Bedhampton Landfill authorised landfill site and Land South of Budds Farm Sewage Works historic landfill site. Within 500m of 7 other historic landfill sites. There is potential to disturb contaminated material during construction. Option crosses areas of grade 1, 2 and 3 agricultural land, non-agricultural land and urban land. Likely disturbance to these soils during construction and potential loss for above ground infrastructure, depending on where the new Water Recycling Plant is located.	Best practice construction measures to be implemented, however residual construction effects likely.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	--	Option is predominately located within Flood Zone 1, however does cross Flood Zone 2 and Flood Zone 3 at multiple locations. This may have an impact on construction and operation, depending on where the new Water Recycling Plant is located.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur. The new Water Recycling Plant will be subject to FRA and may need to be made flood resilient, depending on where it is located.	0	-	0	-
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	Option crosses multiple watercourses, including main rivers in multiple locations. Option mostly located outside of SPZ, however crosses SPZ Zone 2 and 3 briefly and abuts SPZ Zone 1 at one location. WFD assessment (2021) indicates a further assessment is required to assess impacts on the following water bodies: Alver (GB107042011370) and Un-named catchment (216).	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain. Further WFD assessments required.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+++	0	Option will facilitate water supply once operational, via Recharge of Havant Thicket Res with Recycled water from Budds Farm WWTW and a new Water Recycling Plant located near Portsmouth. Capacity of 90MI/d.	N/A	0	0	+++	0

Air	Reduce and minimise air emissions	0	-	0	-	Option does not pass through any AQMAs, nor any within 500m or 2000m. However, construction and operation likely to have minor and temporary impact.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain. The new Water Recycling Plant will need to operate within air quality limits.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Water levels not predicted to be significantly affected by option. Using water recycling plants to keep water within the environment. Therefore, may increase resilience of the local environment to climate change in periods of water deficit/drought.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	Option crosses South Coast Plain and South Hampshire Lowlands NCAs. Option involves construction of new Water Recycling Plant located near Portsmouth. Potential for impacts on landscape character and visual amenity during construction and operation due to new infrastructure.	Best practice measures will likely be implemented to minimise effects during construction and operation, however temporary impacts may remain for construction. Design of permanent infrastructure to minimise visual impact e.g. through screening planting. However, residual effects will remain.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	Option within 500m of multiple listed buildings, multiple Scheduled Monuments and one Grade II* Registered Park and Garden. Option located within Titchfield Abbey Conservation Area, with two other conservation areas within 500m. Construction may affect the setting of the historic assets with permanent impacts for the Water Recycling Plant, depending on its location. Potential impact on buried archaeology, if present.	Best practice measures will likely be implemented to minimise setting effects during construction. Design of permanent infrastructure to minimise setting impact e.g. through screening planting. However, residual effects will remain. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	Option is adjacent to two schools although aligned along an existing road in these locations. Within 500m of multiple schools, medical care facilities and other important buildings. Option crosses one religious grounds, one golf course, one Public Park or Garden and one playing field. Within 500m of religious grounds, play spaces, playing fields, golf course, allotments, tennis court, bowling greens and Public Park or Garden. Option crosses one Noise Action Planning Important Area. Option crosses areas of IMD deciles ranging from 9 to 3. Disturbance to the local community has potential to be moderate. Potential for effects during operation depending on the location of the new Water Recycling Plant.	Route alignment to be amended to avoid direct impacts on community assets and land to be reinstated. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur. Potential for residual effects during operation depending on the location of the new Water Recycling Plant.	0	-	0	0
	Maintain and enhance tourism and recreation	0	--	0	0	Option crosses Staunton Country Park as well a golf course and a playing field and is within 500m of other greenspace sites. Option crosses Staunton Country Park. Option crosses National Cycle Route in three locations. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be some temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance to users of footpaths and other public rights of way during the construction phase. Potential for effects during operation depending on the location of the new Water Recycling Plant.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur. Potential for residual effects during operation depending on the location of the new Water Recycling Plant.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	Option crosses major roads, including M27 and A3(M), railways and National Cycle Routes at three locations. Option within 500m of Lee-on-Solent Airfield. Likely to be moderate and temporary impacts during construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics			Positive Negative	9 -53				Positive Negative	9 -20		

SWS_SBZ_EF-CRE_ALL_ALL_do_di_res_regi											
Restriction to non-essential use; Sussex Brighton											
Southern Water											
Drought Option: The Company has recourse to a range of restrictions to Non-Essential Use. However, it can take a significant time to apply for and then implement a Drought Order. The Company might decide not to exercise all its powers until severe drought conditions are reached. Can be applied on a WRZ basis. Level of intervention for this option: Severe drought conditions.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) identified no likely significant effects for the following N2K sites within the Sussex Brighton WRZ: Castle Hill SAC; Lewes Downs SAC. The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to the Lewes Down SAC as it contains a GWDTE and therefore the option may help to mitigate the impacts of drought and aid recovery. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Non-essential use restrictions may marginally impact soil quality, however the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Non-essential use restrictions are not anticipated to effect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicates short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	By reducing the amount of water required for supply through restrictions to non-essential use, the option maintains resilience of water for essential services.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of gardens, and use of ornamental fountains for example, may be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	--	Restrictions on non-essential use is likely to have moderate negative effects on the community and social well-being as there may be imposed restrictions on irrigation of gardens and allotments and outdoor plants, restrictions of use of water for swimming pools, restriction of washing vehicles and non-domestic property exteriors. Restrictions may apply to all customers, domestic and commercial so potential for economic impacts.	Ensuring high level of communication with customers before, during and following the implementation of the measure.	0	0	0	--
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation sites dependant on public water supply may be affected due to non-essential restrictions.		0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics											
				Positive	4					Positive	4
				Negative	-6					Negative	-6

SWS_HAZ_EF-LKR_ALL_ALL_dmp sbz high											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
	Deliver reliable and resilient water supplies	0	0	+++	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Minor positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive 28 Negative -3		Positive 28 Negative -2							

SWS_SBZ_HI-DES_ALL_ALL_sho10											
Coastal Desalination - Shoreham Harbour (10MI/d)											
Southern											
A site in Shoreham Harbour was identified as a the most feasible location for a coastal desalination plant that could supply the Central Area WRZs. The new desalination plant would be constructed within the site of an existing power station and make use of its abstraction and discharge structures. The treated water would be supplied to the Sussex WRZ distribution network.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	-	0	-	The option is located within a SSSI risk zone. There are areas of priority habitat of good quality semi-improved grassland which may be affected during construction. Brine discharge from the desalination plant during operation may negatively impact the immediate marine environment. The HRA ToLS (2020) identified no likely significant effects. This option has the potential for pipe bursts to cause water to be released into the environment (creating pathway for the transfer of INNS). However, this risk is low as pipe bursts are unlikely events. the construction risk is also low. Once water has been treated by the desalination plant it will be entirely free of INNS.	Best practice methods to be implemented to minimise disturbance effects and habitat loss. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The desalination plant is to be located within the site of an existing power station and will not impact any ALC grade 1-3 land. Historic landfill sites within proximity but not anticipated to be affected.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	--	0	--	The option involves works within Flood Zones 2 and 3 which may have an impact on construction and operation of the plant.	Measures to reduce the impact on flooding during the construction phase is likely to be implemented, however potential residual flood risk likely to remain.	0	--	0	--
	Protect and enhance the quality of the water environment and water resources	0	--	0	--	The option will require abstraction of brackish sea water during operation with potential to deteriorate water quality/flow during operation. Option located in close proximity to WFD Ground water; Brighton Chalk Block and Surface water. The option is not located within a SPZ. The WFD screening assessment (2020) identified further WFD assessment is required due to effects identified at the construction and operational phases.	Best practicable means to prevent potential impacts on surface water receptors during construction. Ensure no deterioration of water quality associated with abstraction through monitoring during operation.	0	--	0	--

	Deliver reliable and resilient water supplies	0	0	+	0	Option will provide a minor positive impact on water supply resilience through desalination plant on operation, (10MI/d).	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	-	AQMA within 2km but unlikely to impacted. Desalination plant likely to produce emissions during operation. There will also be an increase in emissions during construction of the plant.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	--	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and moderate operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	--
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Option is not anticipated to exacerbate climate change effects.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option area intersects South Coast Plain NLCA, however the desalination plant itself is to be located within the site of an existing power station therefore only a minor impact on visual amenity likely, due the construction of above ground infrastructure.	Landscape screening and best practice mitigation measures will likely be implemented to minimise effects during construction. Opportunity for enhancement of visual amenity. However, minor and temporary effects are likely to still occur.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The option is located within a conservation area. Potential impact on buried archaeology during construction but likely to be limited as the desalination plant itself is to be located within the site of an existing power station.	Archaeological watching brief may be required.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The option is within IMD decile 3. The desalination plant is to be located within the site of an existing power station therefore it is unlikely to have direct impact on the local community. There are several important buildings within 500m including a school, a sports facility and a church. There may be minor disturbances during construction.	Best practicable means to minimise disturbance to sensitive receptors i.e. noise management, however some disruption likely to remain.	0	-	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	The desalination Plant is to be located within the site of an existing power station therefore it is unlikely to have impact on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for this option will use materials and generate waste, however, the new desalination plant would be constructed within the site of an existing power station and make use of its abstraction and discharge structures. Brine will be produced during desalination.	Seek opportunity to implement sustainable design measures, such as reuse and recycling of materials to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	-
	Avoid negative effects on built assets and infrastructure	0	-	0	0	The desalination plant is to be located within the site of an existing power station therefore it is unlikely to have impact on built assets other than the existing power station. There are two A roads within 2km of option, potential for congestion/diversions during construction of plant.	Best practicable means to manage traffic through CTMP.	0	-	0	0
SEA Metrics		Positive 1 Negative -31				Positive 1 Negative -30					

SWS_SBZ_HI-DES_ALL_ALL_sho20											
Coastal Desalination - Shoreham Harbour (20MI/d)											
Southern											
A site in Shoreham Harbour was identified as a the most feasible location for a coastal desalination plant that could supply the Central Area WRZs. The new desalination plant would be constructed within the site of an existing power station and make use of its abstraction and discharge structures. The treated water would be supplied to the Sussex WRZ distribution network.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	-	0	-	The option is located within a SSSI risk zone. There are areas of priority habitat of good quality semi-improved grassland which may be affected during construction. Brine discharge from the desalination plant during operation may negatively impact the immediate marine environment. The HRA ToLS (2020) identified no likely significant effects. This option has the potential for pipe bursts to cause water to be released into the environment (creating pathway for the transfer of INNS). However, this risk is low as pipe bursts are unlikely events. the construction risk is also low. Once water has been treated by the desalination plant it will be entirely free of INNS.	Best practice methods to be implemented to minimise disturbance effects and habitat loss. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys.	0	0	0	-
	Soil	0	0	0	0	The desalination plant is to be located within the site of an existing power station and will not impact any ALC grade 1-3 land. Historic landfill sites within proximity but not anticipated to be affected.	N/A	0	0	0	0
	Water	0	--	0	--	The option involves works within Flood Zones 2 and 3 which may have an impact on construction and operation of the plant.	Measures to reduce the impact on flooding during the construction phase is likely to be implemented, however potential residual flood risk likely to remain.	0	--	0	--
Water	Protect and enhance the quality of the water environment and water resources	0	--	0	--	The option will require abstraction of brackish sea water during operation with potential to deteriorate water quality/flow during operation. Option located in close proximity to WFD Ground water; Brighton Chalk Block and Surface water. The option is not located within a SPZ. The WFD screening assessment (2020) identified further WFD assessment is required due to effects identified at the construction and operational phases.	Best practicable means to prevent potential impacts on surface water receptors during construction. Ensure no deterioration of water quality associated with abstraction through monitoring during operation.	0	--	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	Option will provide a positive impact on water supply resilience through desalination plant on operation, (20MI/d).	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	-	0	-	AQMA within 2km but unlikely to be impacted. Desalination plant likely to produce emissions during operation. There will also be an increase in emissions during construction of the plant.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	--	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and moderate operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	--
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Option is not anticipated to exacerbate climate change effects.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option area intersects South Coast Plain NLCA, however the desalination plant itself is to be located within the site of an existing power station therefore only a minor impact on visual amenity likely, due to the construction of above ground infrastructure.	Landscape screening and best practice mitigation measures will likely be implemented to minimise effects during construction. Opportunity for enhancement of visual amenity. However, minor and temporary effects are likely to still occur.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The option is located within a conservation area. Potential impact on buried archaeology during construction but likely to be limited as the desalination plant itself is to be located within the site of an existing power station.	Archaeological watching brief may be required.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The option is within IMD decile 3. The desalination plant is to be located within the site of an existing power station therefore it is unlikely to have direct impact on the local community. There are several important buildings within 500m including a school, a sports facility and a church. There may be minor disturbances during construction.	Best practicable means to minimise disturbance to sensitive receptors i.e. noise management, however some disruption likely to remain.	0	-	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	The desalination Plant is to be located within the site of an existing power station therefore it is	N/A	0	0	0	0

						unlikely to have impact on tourism and recreation.					
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for this option will use materials and generate waste, however, the new desalination plant would be constructed within the site of an existing power station and make use of its abstraction and discharge structures. Brine will be produced during desalination.	Seek opportunity to implement sustainable design measures, such as reuse and recycling of materials, to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	-
	Avoid negative effects on built assets and infrastructure	0	-	0	0	The desalination plant is to be located within the site of an existing power station therefore it is unlikely to have impact on built assets other than the existing power station. There are two A roads within 2km of option, potential for congestion/diversions during construction of plant.	Best practicable means to manage traffic through CTMP.	0	-	0	0
SEA Metrics		Positive		1				Positive		1	
		Negative		-31				Negative		-30	

SWS_SBZ_HI-DES_ALL_ALL_sho40											
Coastal Desalination - Shoreham Harbour (40MI/d)											
Southern											
A site in Shoreham Harbour was identified as a the most feasible location for a coastal desalination plant that could supply the Central Area WRZs. The new desalination plant would be constructed within the site of an existing power station and make use of its abstraction and discharge structures. The treated water would be supplied to the Sussex WRZ distribution network.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	-	0	-	The option is located within a SSSI risk zone. There are areas of priority habitat of good quality semi-improved grassland which may be affected during construction. Brine discharge from the desalination plant during operation may negatively impact the immediate marine environment. The HRA ToLS (2021) identified no likely significant effects. Low risk of transfer of INNS as the water is likely to be entirely free of INNS once treated by the plant. Construction phase risk of INNS is considered to be low.	Best practicable means during construction, ensure no deterioration of Priority Habitat.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The desalination plant is to be located within the site of an existing power station and will not impact any ALC grade 1-3 land. Historic landfill sites within proximity but not anticipated to be affected.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The option involves works within Flood Zones 2 and 3 which may have an impact on construction and operation of the plant.	Measures to reduce the impact on flooding during the construction phase is likely to be implemented, however potential residual flood risk likely to remain.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	The option will require abstraction of brackish sea water during operation with potential to deteriorate water quality/flow during operation. Option located in close proximity to WFD Ground water; Brighton Chalk Block and Surface water. The option is not within SPZs. The WFD assessment (2020) identified that further WFD assessment is required.	Best practicable means to prevent potential impacts on surface water receptors during construction. Ensure no deterioration of water quality associated with abstraction through monitoring during operation.	0	-	0	--
	Deliver reliable and resilient water supplies	0	0	++	0	Option will provide a positive impact on water supply resilience through desalination plant on operation, (40MI/d).	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	-	AQMA within 2km but unlikely to impacted. Desalination plant likely to produce emissions during operation. There will also be an increase in emissions during construction of the plant.	Best practice mitigation measures likely to be implemented during construction phase, however minor and	0	-	0	-

							temporary impacts on air quality are likely to still occur.				
Climatic Factors	Reduce embodied and operational carbon emissions	0	--	0	---	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has moderate construction and major operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	--	0	---
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The option has the potential to have positive effect on the resilience of local environment to climate change as it aims to utilise sea water rather than fresh water.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option area intersects South Coast Plain NLCA, however the desalination plant itself is to be located within the site of an existing power station therefore only a minor impact on visual amenity likely, due the construction of above ground infrastructure.	Landscape screening and best practice mitigation measures will likely be implemented to minimise effects during construction. Opportunity for enhancement of visual amenity. However, minor and temporary effects are likely to still occur.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The option is located within a conservation area. Potential impact on buried archaeology during construction but likely to be limited as the desalination plant itself is to be located within the site of an existing power station.	Archaeological watching brief may be required.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The option is located within IMD decile 3. The desalination plant is to be located within the site of an existing power station therefore it is unlikely to have direct impact on the local community. There are several important buildings within 500m including a school, a sports facility and a church. There may be minor disturbances during construction.	Best practicable means to minimise disturbance to sensitive receptors i.e. noise management, however some disruption likely to remain.	0	-	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	The desalination Plant is to be located within the site of an existing power station therefore it is unlikely to have impact on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for this option will use materials and generate waste, however, the new desalination plant would be constructed	Seek opportunity to implement sustainable design measures, such as	0	-	0	-

						within the site of an existing power station and make use of its abstraction and discharge structures. Brine will be produced during desalination.	reuse and recycling of materials, to reduce the impact, however it is likely that minor negative effects will remain.					
	Avoid negative effects on built assets and infrastructure	0	-	0	0	The desalination Plant is to be located within the site of an existing power station therefore it is unlikely to have impact on built assets other than the existing power station. There are two A roads within 2km of option, potential for congestion/diversions during construction of plant.	Best practicable means to manage traffic through CTMP.	0	-	0	0	
SEA Metrics			Positive	5					Positive	5		
			Negative	-28					Negative	-27		

SWS_SBZ_HI-DES_RE1_ALL_shom10											
Coastal Desalination - Shoreham Harbour (Modular 0-10MI/d)											
Southern											
A site in Shoreham Harbour was identified as a the most feasible location for a coastal desalination plant that could supply the Central Area WRZs. The new desalination plant would be constructed within the site of an existing power station and make use of its abstraction and discharge structures. The treated water would be supplied to the Sussex WRZ distribution network.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	-	0	-	The option is located within a SSSI risk zone. There are areas of priority habitat of good quality semi-improved grassland which may be affected during construction. Brine discharge from the desalination plant during operation may negatively impact the immediate marine environment and there is potential for fish entrainment. The HRA ToLS (2021) identified no likely significant effects. Low risk of transfer of INNS as the source water is likely to be entirely free of INNS once treated by the plant. Construction phase risk of INNS is considered to be low.	Best practicable means during construction, ensure no deterioration of Priority Habitat.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The desalination plant is to be located within the site of an existing power station and will not impact any ALC grade 1-3 land. Historic landfill sites within proximity but not anticipated to be affected.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The desalination plant is located entirely within Flood Zones 2 and 3 which may have an impact on construction and operation of the plant.	Measures to reduce the impact on flooding during the construction phase is likely to be implemented, however potential residual flood risk likely to remain.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	The option will require abstraction of brackish sea water during operation with potential to deteriorate water quality/flow during operation. Option located in close proximity to WFD Ground water; Brighton Chalk Block and Surface water. The option is not within SPZ. The WFD screening assessment (2021) identified further WFD assessment is required.	Best practicable means to prevent potential impacts on surface water receptors during construction. Ensure no deterioration of water quality associated with abstraction through monitoring during operation.	0	-	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	Option will provide a minor positive impact on water supply resilience through desalination plant on operation, (modular 0-10MI/d).	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	-	0	-	AQMA within 2km but unlikely to impacted. Desalination plant likely to produce emissions during operation. There will also be an increase in emissions during construction of the plant.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	-
	Reduce embodied and operational carbon emissions	0	-	0	---	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon) and construction activities. The relative carbon scale identified that the option has minor construction carbon emissions (relative to other WRSE Regional Plan options). No operational carbon available for this option, however it is estimated to have major operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	---
Climatic Factors	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The option has the potential to have positive effect on the resilience of local environment to climate change as it aims to utilise sea water rather than fresh water.	N/A	0	0	+	0
	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option area intersects South Coast Plain NLCA, however the desalination plant itself is to be located within the site of an existing power station therefore only a minor impact on visual amenity likely, due the construction of above ground infrastructure.	Landscape screening and best practice mitigation measures will likely be implemented to minimise effects during construction. Opportunity for enhancement of visual amenity. However, minor and temporary effects are likely to still occur.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The option is located within a conservation area. Potential impact on buried archaeology during construction but likely to be limited as the desalination plant itself is to be located within the site of an existing power station.	Archaeological watching brief may be required.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The option is located within IMD decile 3. The desalination plant is to be located within the site of an existing power station therefore it is unlikely to have direct impact on the local community. There are several important buildings within 500m including a school, a sports facility and a church. There may be minor disturbances during construction.	Best practicable means to minimise disturbance to sensitive receptors i.e. noise management, however some disruption likely to remain.	0	-	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	The desalination plant is to be located within the site of an existing power station therefore it is unlikely to have impact on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for this option will use materials and generate waste, however, the new desalination plant would be constructed within the site of an existing	Seek opportunity to implement sustainable design measures, such as reuse and recycling of materials, to	0	-	0	-

						power station and make use of its abstraction and discharge structures. Brine will be produced during desalination.	reduce the impact, however it is likely that minor negative effects will remain.					
	Avoid negative effects on built assets and infrastructure	0	-	0	0	The desalination Plant is to be located within the site of an existing power station therefore it is unlikely to have impact on built assets other than the existing power station. There are two A roads within 2km of option, potential for congestion/diversions during construction of plant.	Best practicable means to manage traffic through CTMP.	0	-	0	0	
SEA Metrics			Positive	2					Positive	2		
			Negative	-25					Negative	-24		

SWS_SBZ_HI-DES_RE1_CNO_shom10											
Coastal Desalination - Shoreham Harbour (Modular 0-10MI/d)											
Southern											
A site in Shoreham Harbour was identified as a the most feasible location for a coastal desalination plant that could supply the Central Area WRZs. The new desalination plant would be constructed within the site of an existing power station and make use of its abstraction and discharge structures. The treated water would be supplied to the Sussex WRZ distribution network.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	-	0	-	The option is located within a SSSI risk zone. There are areas of priority habitat of good quality semi-improved grassland which may be affected during construction. Brine discharge from the desalination plant during operation may negatively impact the immediate marine environment and there is potential for fish entrainment. The HRA ToLS (2021) identified no likely significant effects. Low risk of transfer of INNS as the source water is likely to be entirely free of INNS once treated by the plant. Construction phase risk of INNS is considered to be low.	Best practicable means during construction, ensure no deterioration of Priority Habitat.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The desalination plant is to be located within the site of an existing power station and will not impact any ALC grade 1-3 land. Historic landfill sites within proximity but not anticipated to be affected.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The desalination plant is located entirely within Flood Zones 2 and 3 which may have an impact on construction and operation of the plant.	Measures to reduce the impact on flooding during the construction phase is likely to be implemented, however potential residual flood risk likely to remain.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	The option will require abstraction of brackish sea water during operation with potential to deteriorate water quality/flow during operation. Option located in close proximity to WFD Ground water; Brighton Chalk Block and Surface water. The option is not within SPZ. The WFD screening assessment (2021) identified further WFD assessment is required.	Best practicable means to prevent potential impacts on surface water receptors during construction. Ensure no deterioration of water quality associated with abstraction through monitoring during operation.	0	-	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	Option will provide a minor positive impact on water supply resilience through desalination plant on operation, (modular 10-20MI/d).	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	-	0	-	AQMA within 2km but unlikely to be impacted. Desalination plant likely to produce emissions during operation. There will also be an increase in emissions during construction of the plant.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	---	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon) and construction activities. The relative carbon scale identified that the option has minor construction carbon emissions (relative to other WRSE Regional Plan options). No operational carbon available for this option, however it is estimated to have major operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	---
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The option has the potential to have positive effect on the resilience of local environment to climate change as it aims to utilise sea water rather than fresh water.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option area intersects South Coast Plain NLCA, however the desalination plant itself is to be located within the site of an existing power station therefore only a minor impact on visual amenity likely, due to the construction of above ground infrastructure.	Landscape screening and best practice mitigation measures will likely be implemented to minimise effects during construction. Opportunity for enhancement of visual amenity. However, minor and temporary effects are likely to still occur.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The option is located within a conservation area. Potential impact on buried archaeology during construction but likely to be limited as the desalination plant itself is to be located within the site of an existing power station.	Archaeological watching brief may be required.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The option is located within IMD decile 3. The desalination plant is to be located within the site of an existing power station therefore it is unlikely to have direct impact on the local community. There are several important buildings within 500m including a school, a sports facility and a church. There may be minor disturbances during construction.	Best practicable means to minimise disturbance to sensitive receptors i.e. noise management, however some disruption likely to remain.	0	-	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	The desalination plant is to be located within the site of an existing power station therefore it is unlikely to have impact on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for this option will use materials and generate waste, however, the new desalination plant would be constructed within the site of an existing	Seek opportunity to implement sustainable design measures, such as reuse and recycling of materials, to	0	-	0	-

						power station and make use of its abstraction and discharge structures. Brine will be produced during desalination.	reduce the impact, however it is likely that minor negative effects will remain.				
	Avoid negative effects on built assets and infrastructure	0	-	0	0	The desalination Plant is to be located within the site of an existing power station therefore it is unlikely to have impact on built assets other than the existing power station. There are two A roads within 2km of option, potential for congestion/diversions during construction of plant.	Best practicable means to manage traffic through CTMP.	0	-	0	0
SEA Metrics			Positive Negative	2 -25				Positive Negative	2 -24		

SWS_SBZ_HI-DES_RE2_ALL_shom20											
Coastal Desalination - Shoreham Harbour (Modular 10-20MI/d)											
Southern											
A site in Shoreham Harbour was identified as a the most feasible location for a coastal desalination plant that could supply the Central Area WRZs. The new desalination plant would be constructed within the site of an existing power station and make use of its abstraction and discharge structures. The treated water would be supplied to the Sussex WRZ distribution network.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	-	0	-	The option is located within a SSSI risk zone. There are areas of priority habitat of good quality semi-improved grassland which may be affected during construction. Brine discharge from the desalination plant during operation may negatively impact the immediate marine environment and there is potential for fish entrainment. The HRA ToLS (2021) identified no likely significant effects. Low risk of transfer of INNS as the source water is likely to be entirely free of INNS once treated by the plant. Construction phase risk of INNS is considered to be low.	Best practicable means during construction, ensure no deterioration of Priority Habitat.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The desalination plant is to be located within the site of an existing power station and will not impact any ALC grade 1-3 land. Historic landfill sites within proximity but not anticipated to be affected.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The desalination plant is located entirely within Flood Zones 2 and 3 which may have an impact on construction and operation of the plant.	Measures to reduce the impact on flooding during the construction phase is likely to be implemented, however potential residual flood risk likely to remain.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	The option will require abstraction of brackish sea water during operation with potential to deteriorate water quality/flow during operation. Option located in close proximity to WFD Ground water; Brighton Chalk Block and Surface water. The option is not within SPZ. The WFD screening assessment (2021) identified further WFD assessment is required.	Best practicable means to prevent potential impacts on surface water receptors during construction. Ensure no deterioration of water quality associated with abstraction through monitoring during operation.	0	-	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	Option will provide a minor positive impact on water supply resilience through desalination plant on operation, (modular 10-20MI/d).	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	-	AQMA within 2km but unlikely to impacted. Desalination plant likely to produce emissions during operation. There will also be an increase in emissions during construction of the plant.	Best practice mitigation measures likely to be implemented during construction phase,	0	-	0	-

							however minor and temporary impacts on air quality are likely to still occur.				
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	---	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon) and construction activities. The relative carbon scale identified that the option has minor construction carbon emissions (relative to other WRSE Regional Plan options). No operational carbon available for this option, however it is estimated to have major operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	---
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The option has the potential to have positive effect on the resilience of local environment to climate change as it aims to utilise sea water rather than fresh water.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option area intersects South Coast Plain NLCA, however the desalination plant itself is to be located within the site of an existing power station therefore only a minor impact on visual amenity likely, due the construction of above ground infrastructure.	Landscape screening and best practice mitigation measures will likely be implemented to minimise effects during construction. Opportunity for enhancement of visual amenity. However, minor and temporary effects are likely to still occur.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The option is located within a conservation area. Potential impact on buried archaeology during construction but likely to be limited as the desalination plant itself is to be located within the site of an existing power station.	Archaeological watching brief may be required.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The option is located within IMD decile 3. The desalination plant is to be located within the site of an existing power station therefore it is unlikely to have direct impact on the local community. There are several important buildings within 500m including a school, a sports facility and a church. There may be minor disturbances during construction.	Best practicable means to minimise disturbance to sensitive receptors i.e. noise management, however some disruption likely to remain.	0	-	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	The desalination plant is to be located within the site of an existing power station therefore it is unlikely to have impact on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for this option will use materials and generate waste, however, the new desalination plant would be constructed	Seek opportunity to implement sustainable design measures, such as	0	-	0	-

						within the site of an existing power station and make use of its abstraction and discharge structures. Brine will be produced during desalination.	reuse and recycling of materials, to reduce the impact, however it is likely that minor negative effects will remain.					
	Avoid negative effects on built assets and infrastructure	0	-	0	0	The desalination Plant is to be located within the site of an existing power station therefore it is unlikely to have impact on built assets other than the existing power station. There are two A roads within 2km of option, potential for congestion/diversions during construction of plant.	Best practicable means to manage traffic through CTMP.	0	-	0	0	
SEA Metrics			Positive	2					Positive	2		
			Negative	-25					Negative	-24		

SWS_SBZ_HI-TFR_RZ2_ALL_cuckfie-bright p 5											
Cuckfield to Brighton: 5Ml/d											
Southern Water											
Bi-directional pipeline from Cuckfield to new WTW site at Brighton.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	The option intersects Clayton to Offham Escarpment SSSI (53.95% favourable, 46.05% unfavourable - recovering) and Blunts and Paiges Wood LNR with potential direct effects. The option is within 500m of Ashenground and Bolnore Woods with potential for indirect effects. Other designated sites within 2000m which may be indirectly affected. The option lies within SSSI Impact Risk Zones. The option crosses Ancient Woodland and Priority Habitats including deciduous woodland, good quality semi-improved grassland and lowland calcareous grassland. Low risk of transfer of INNS as the water will be treated after abstraction and is likely to be entirely free of INNS. Construction phase risk of INNS is considered to be low. HRA screening identified uncertain effects on semi-natural grassland around the Castle Hill SAC (1.75km south of proposed option) due to noise and light pollution during construction phase, due to construction traffic.	Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys.	0	--	0	0
	Soil	0	--	0	0	The option is within 500m of two historic landfill sites with potential to disturb contaminated material during construction. The option crosses grade 2 and 3 agricultural land with disturbance to these soils during construction.	Ground will be reinstated therefore residual effects unlikely. Best practice techniques to prevent potential disturbance of contaminated material during construction.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The majority of the option is within Flood Zone 1 with the exception of one section, which passes through Flood Zones 2 and 3 and flood defences, and may have an impact on construction. Impacts on operation unlikely given the pipeline is buried. The pipeline is unlikely to increase the risk of flooding.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	The option intersects SPZ 1, 2 and 3 and three WFD groundwater bodies. Several surface waterbodies are also intersected, including WFD waterbodies. The Sussex Chalk and Adur East nitrate vulnerable zones are also intersected. Pollution to ground and surface waters could occur during construction. WFD screening identified no further assessments required.	Best practice mitigation measures to be implemented during construction.	0	0	0	0

	Deliver reliable and resilient water supplies	0	0	+	0	The option will transfer water, increasing resilience.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	The option is not within an AQMA nor are there any within 2km. Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures to be implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	--	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and moderate operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	--
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Water levels not predicted to be significantly affected therefore, unlikely to affect resilience of the local environment to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option is within the High Weald AONB at northern end. The option is in the Low Weald, High Weald and South Downs National Landscape Character Areas. Negative effects during construction likely as excavation will be required for the transfer pipeline. Pipeline will be buried once operational.	Best practice measures to be implemented to minimise effects during construction although temporary effects during construction may remain. Land reinstated upon completion so no residual effects likely to remain during operation.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The option is within 500m of several listed buildings, three conservation areas, two scheduled monuments and two Registered Parks and Gardens. Construction may affect the setting of these historic assets, however this is likely to be temporary as the pipeline will be buried. There is potential for the excavation of the pipeline to impact buried archaeology if present.	Best practice measures to be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological	0	-	0	0

							remains due to construction.					
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The option is within 500m of a schools, a church, medical facilities and a number of community greenspaces. There is no direct land take from these areas. There is likely to be temporary disturbance effects on users of these sites and the local community during construction. IMD deciles along the pipeline route vary from 6 to 10.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0	
	Maintain and enhance tourism and recreation	0	-	0	0	The option is within 500m of a number of recreational spaces. The option intersects the South Downs National Park and South Downs Way National Trail. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0	
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0	
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option crosses major roads, a railway track and a National Cycle Route Network route, and is aligned along a major road for a short section of its length. There are likely to be moderate and temporary impacts during the construction phase from disruption for users.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0	
SEA Metrics			Positive Negative	1 -29	Positive Negative							1 -18

Cuckfield to SBZ: 20MI/d											
Cuckfield to Brighton: 20MI/d											
Southern Water											
Bi-directional pipeline from Cuckfield to new WTW site at Brighton.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	The option intersects Clayton to Offham Escarpment SSSI (53.95% favourable, 46.05% unfavourable - recovering) and Blunts and Paiges Wood LNR with potential direct effects. The option is within 500m of Ashenground and Bolnore Woods LNR with potential for indirect effects. Other designated sites within 2000m which may be indirectly affected. The option lies within SSSI Impact Risk Zones. The option crosses Ancient Woodland and Priority Habitats including deciduous woodland, good quality semi-improved grassland and lowland calcareous grassland. Low risk of transfer of INNS as the water will be treated after abstraction and is likely to be entirely free of INNS. Construction phase risk of INNS is considered to be low. HRA screening identified uncertain effects on semi-natural grassland around the Castle Hill SAC (1.75km south of proposed option) due to noise and light pollution during construction phase, due to construction traffic.	Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Uncertain effects for Castle Hill SAC are considered to be mitigatable because works are situated 1.75k from the SAC and as such are not at risk of directly impacting the qualifying features of the site. Construction phase impacts can be successfully mitigated through the production of a robust CEMP and best practice guidelines.	0	--	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The option is within 500m of two historic landfill sites with potential to disturb contaminated material during construction. The option crosses grade 2 and 3 agricultural land with disturbance to these soils during construction.	Ground will be reinstated therefore residual effects unlikely. Best practice techniques to prevent potential disturbance of contaminated material during construction.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The majority of the option is within Flood Zone 1 with the exception of one section, which passes through Flood Zones 2 and 3 and flood defences, and may have an impact on construction. Impacts on operation unlikely given the pipeline is buried. The pipeline is unlikely to increase the risk of flooding.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0

	Protect and enhance the quality of the water environment and water resources	0	-	0	0	The option intersects SPZ 1, 2 and 3 and three WFD groundwater bodies. Several surface waterbodies are also intersected, including WFD waterbodies. The Sussex Chalk and Adur East nitrate vulnerable zones are also intersected. Pollution to ground and surface waters could occur during construction. WFD screening identified no further assessments required.	Best practice mitigation measures to be implemented during construction.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	The option will transfer water, increasing resilience.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	The option is not within an AQMA nor are there any within 2km. Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures to be implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and moderate operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Water levels not predicted to be significantly affected therefore, unlikely to affect resilience of the local environment to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option is within the High Weald AONB at northern end. The option is in the Low Weald, High Weald and South Downs National Landscape Character Areas. Negative effects during construction likely as excavation will be required for the transfer pipeline. Pipeline will be buried once operational.	Best practice measures to be implemented to minimise effects during construction although temporary effects during construction may remain. Land reinstated upon completion so no residual effects likely to remain during operation.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The option is within 500m of several listed buildings, three conservation areas, two scheduled monuments and two Registered Parks and Gardens. Construction may affect the setting of these historic assets, however this is likely to be temporary as the pipeline will be buried. There is potential for the excavation of the pipeline to impact buried archaeology if present.	Best practice measures to be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects	0	-	0	0

							may remain due to potential loss of archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The option is within 500m of a schools, a church, medical facilities and a number of community greenspaces. There is no direct land take from these areas. There is likely to be temporary disturbance effects on users of these sites and the local community during construction. IMD deciles along the pipeline route vary from 6 to 10.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The option is within 500m of a number of recreational spaces. The option intersects the South Downs National Park and South Downs Way National Trail. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option crosses major roads, a railway track and a National Cycle Route Network route, and is aligned along a major road for a short section of its length. There are likely to be moderate and temporary impacts during the construction phase from disruption for users.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive 1 Negative -26				Positive 1 Negative -15					

Cuckfield to SBZ: 40MI/d											
Cuckfield to Brighton: 40MI/d											
Southern Water											
Bi-directional pipeline from Cuckfield to new WTW site at Brighton.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	The option intersects Clayton to Offham Escarpment SSSI (53.95% favourable, 46.05% unfavourable - recovering) and Blunts and Paiges Wood LNR with potential direct effects. The option is within 500m of Ashenground and Bolnore Woods LNR with potential for indirect effects. Other designated sites within 2000m which may be indirectly affected. The option lies within SSSI Impact Risk Zones. The option crosses Ancient Woodland and Priority Habitats including deciduous woodland, good quality semi-improved grassland and lowland calcareous grassland. Low risk of transfer of INNS as the water will be treated after abstraction and is likely to be entirely free of INNS. Construction phase risk of INNS is considered to be low. HRA screening identified uncertain effects on semi-natural grassland around the Castle Hill SAC (1.75km south of proposed option) due to noise and light pollution during construction phase, due to construction traffic.	Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Uncertain effects for Castle Hill SAC are considered to be mitigatable because works are situated 1.75k from the SAC and as such are not at risk of directly impacting the qualifying features of the site. Construction phase impacts can be successfully mitigated through the production of a robust CEMP and best practice guidelines.	0	--	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The option is within 500m of two historic landfill sites with potential to disturb contaminated material during construction. The option crosses grade 2 and 3 agricultural land with disturbance to these soils during construction.	Ground will be reinstated therefore residual effects unlikely. Best practice techniques to prevent potential disturbance of contaminated material during construction.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The majority of the option is within Flood Zone 1 with the exception of one section, which passes through Flood Zones 2 and 3 and flood defences, and may have an impact on construction. Impacts on operation unlikely given the pipeline is buried. The pipeline is unlikely to increase the risk of flooding.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0

	Protect and enhance the quality of the water environment and water resources	0	-	0	0	The option intersects SPZ 1, 2 and 3 and three WFD groundwater bodies. Several surface waterbodies are also intersected, including WFD waterbodies. The Sussex Chalk and Adur East nitrate vulnerable zones are also intersected. Pollution to ground and surface waters could occur during construction. WFD screening identified no further assessments required.	Best practice mitigation measures to be implemented during construction.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	++	0	The option will transfer water, increasing resilience.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	The option is not within an AQMA nor are there any within 2km. Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures to be implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	--	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and moderate operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	--
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Water levels not predicted to be significantly affected therefore, unlikely to affect resilience of the local environment to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option is within the High Weald AONB at northern end. The option is in the Low Weald, High Weald and South Downs National Landscape Character Areas. Negative effects during construction likely as excavation will be required for the transfer pipeline. Pipeline will be buried once operational.	Best practice measures to be implemented to minimise effects during construction although temporary effects during construction may remain. Land reinstated upon completion so no residual effects likely to remain during operation.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The option is within 500m of several listed buildings, three conservation areas, two scheduled monuments and two Registered Parks and Gardens. Construction may affect the setting of these historic assets, however this is likely to be temporary as the pipeline will be buried. There is potential for the excavation of the pipeline to impact buried archaeology if present.	Best practice measures to be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects	0	-	0	0

							may remain due to potential loss of archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The option is within 500m of a schools, a church, medical facilities and a number of community greenspaces. There is no direct land take from these areas. There is likely to be temporary disturbance effects on users of these sites and the local community during construction. IMD deciles along the pipeline route vary from 6 to 10.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The option is within 500m of a number of recreational spaces. The option intersects the South Downs National Park and South Downs Way National Trail. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option crosses major roads, a railway track and a National Cycle Route Network route, and is aligned along a major road for a short section of its length. There are likely to be moderate and temporary impacts during the construction phase from disruption for users.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive 4 Negative -29				Positive 4 Negative -18					

Cuckfield to SBZ: 100MI/d											
Cuckfield to Brighton: 100MI/d											
Southern Water											
Bi-directional pipeline from Cuckfield to new WTW site at Brighton.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	The option intersects Clayton to Offham Escarpment SSSI (53.95% favourable, 46.05% unfavourable - recovering) and Blunts and Paiges Wood LNR with potential direct effects. The option is within 500m of Ashenground and Bolnore Woods LNR with potential for indirect effects. Other designated sites within 2000m which may be indirectly affected. The option lies within SSSI Impact Risk Zones. The option crosses Ancient Woodland and Priority Habitats including deciduous woodland, good quality semi-improved grassland and lowland calcareous grassland. Low risk of transfer of INNS as the water will be treated after abstraction and is likely to be entirely free of INNS. Construction phase risk of INNS is considered to be low. HRA screening identified uncertain effects on semi-natural grassland around the Castle Hill SAC (1.75km south of proposed option) due to noise and light pollution during construction phase, due to construction traffic.	Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Uncertain effects for Castle Hill SAC are considered to be mitigatable because works are situated 1.75k from the SAC and as such are not at risk of directly impacting the qualifying features of the site. Construction phase impacts can be successfully mitigated through the production of a robust CEMP and best practice guidelines.	0	--	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The option is within 500m of two historic landfill sites with potential to disturb contaminated material during construction. The option crosses grade 2 and 3 agricultural land with disturbance to these soils during construction.	Ground will be reinstated therefore residual effects unlikely. Best practice techniques to prevent potential disturbance of contaminated material during construction.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The majority of the option is within Flood Zone 1 with the exception of one section, which passes through Flood Zones 2 and 3 and flood defences, and may have an impact on construction. Impacts on operation unlikely given the pipeline is buried. The pipeline is unlikely to increase the risk of flooding.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0

	Protect and enhance the quality of the water environment and water resources	0	-	0	0	The option intersects SPZ 1, 2 and 3 and three WFD groundwater bodies. Several surface waterbodies are also intersected, including WFD waterbodies. The Sussex Chalk and Adur East nitrate vulnerable zones are also intersected. Pollution to ground and surface waters could occur during construction. WFD screening identified no further assessments required.	Best practice mitigation measures to be implemented during construction.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+++	0	The option will transfer water, increasing resilience.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	The option is not within an AQMA nor are there any within 2km. Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures to be implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	--	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and moderate operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	--
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Water levels not predicted to be significantly affected therefore, unlikely to affect resilience of the local environment to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option is within the High Weald AONB at northern end. The option is in the Low Weald, High Weald and South Downs National Landscape Character Areas. Negative effects during construction likely as excavation will be required for the transfer pipeline. Pipeline will be buried once operational.	Best practice measures to be implemented to minimise effects during construction although temporary effects during construction may remain. Land reinstated upon completion so no residual effects likely to remain during operation.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The option is within 500m of several listed buildings, three conservation areas, two scheduled monuments and two Registered Parks and Gardens. Construction may affect the setting of these historic assets, however this is likely to be temporary as the pipeline will be buried. There is potential for the excavation of the pipeline to impact buried archaeology if present.	Best practice measures to be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects	0	-	0	0

							may remain due to potential loss of archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The option is within 500m of a schools, a church, medical facilities and a number of community greenspaces. There is no direct land take from these areas. There is likely to be temporary disturbance effects on users of these sites and the local community during construction. IMD deciles along the pipeline route vary from 6 to 10.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The option is within 500m of a number of recreational spaces. The option intersects the South Downs National Park and South Downs Way National Trail. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option crosses major roads, a railway track and a National Cycle Route Network route, and is aligned along a major road for a short section of its length. There are likely to be moderate and temporary impacts during the construction phase from disruption for users.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive 8 Negative -29				Positive 8 Negative -18					

SWS_SBZ_HI-TFR_RZ2_ALL_izt_bar_bal_10											
Interzonal transfer pipeline from SEW Barcombe WSW to SWS Polsdean WSR 10 MI/d.											
Southern											
This option is for a pipeline to transfer flow from SEW Barcombe WSW to SWS Polsdean WSR 10 MI/d.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)					The option crosses Lewes Brooks SSSI (88.58% unfavourable - recovering, 6.45% unfavourable - declining, 4.97% favourable), a groundwater dependent habitat. The option is within 500m of Firle Escarpment SSSI (88.35% unfavourable - recovering, 7.96% favourable, 3.69% unfavourable - declining), Lewes Downs SSSI (95.55% favourable, 4.45% unfavourable - recovering), The option within 500m of one Railway Lane Lewes LNR and within 2km of the Castle Hill and Lewes Downs SACs. The option located within SSSI Impact Risk Zones. The option crosses areas of woodland, and Priority Habitat including coastal and floodplain grazing marsh, coastal saltmarsh, deciduous woodland, good quality semi-improved grassland, lowland calcareous grassland and mudflats.	Realign pipeline or use trenchless techniques to avoid direct impacts on Lewes Brooks SSSI. Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid sensitive habitats. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Consider use of a robust CEMP detailing mitigation measures to minimise potential impacts with the use of DMPs, pollution prevention, coverage of construction stockpiles during adverse weather conditions to minimise potential effects of pollution and run-off. Construction dust could be mitigated through wet cutting/crushing and vacuum drilling. Upgrading plant to minimise particulate production e.g. use of particulate filters, catalytic converters to minimise NOx production and use of low sulphur fuels is likely to minimise impacts to qualifying species. Sensitive lighting with down ward facing cowling would be used to				
		0	---	0	0	The HRA ToLS identifies two Natura 2000 sites: Castle Hill SAC (1km north) and Lewes Downs SAC (165.4km south-east). The construction of the pipeline from Rottingdean SWS may have moderate effects upon the SAC sites through construction dust and increased air pollution from construction traffic. Construction dust and pollution may negatively affect those designated species of the SAC through smothering leading to loss of vigour of the species. During operation, no likely significant effects are predicted on the SAC sites.		0	--	0	0
						The INNS RAG risk assessment identifies that there is a very low risk of the transfer / movement of INNS. Physical transfer of treated water (between two locations assumed currently unconnected). No INNS risk as treated water will be free from INNS.					

							reduce light pollution and insect draw.				
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The option is within 500m of Southerham Grey Pit (100% favourable), Southerham Machine Bottom Pit (100% favourable) and Southerham Works Pit (100% favourable) geological SSSIs, although no impacts are anticipated. The option crosses areas of grade 2, 3 and 4 agricultural land and areas of urban land. Likely disturbance to these soils during construction. Where the pipeline crosses Grade 2 land, it is aligned along existing roads so the impact is likely to be minimal. The option crosses three historic landfill sites although the pipeline is aligned along existing roads in these locations. There are multiple other historic landfill sites and two authorised landfill sites within 500m. There is potential to disturb contaminated material during construction.	Ground will be reinstated therefore residual effects unlikely. Best practice techniques to prevent potential disturbance of contaminated material during construction.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	The option is predominately located within Flood Zone 1, however does cross Flood Zone 2 and Flood Zone 3 at multiple locations. This may have an impact on construction.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	The option crosses multiple watercourses, including main rivers in two locations. The option is within SPZs 1-3 in some locations. WFD assessment completed in 2021 indicates that all waterbodies have a passing WFD and none require further assessment.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	The option will facilitate water supply once operational, from SEW Barcombe WSW to SWS Polsdean WSR. Capacity of 10MI/d.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	The option does not pass through any AQMAs, nor any within 2km. However, construction is likely to have minor and temporary impact.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and	0	-	0	-

							operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.				
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Water levels not predicted to be significantly affected therefore, unlikely to affect resilience of the local environment to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option is almost entirely within the South Downs National Park and within Low Weald and South Downs NCAs. Potential for impacts on landscape character and visual amenity during construction.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	The option is in close proximity to eight Grade II listed buildings although is aligned along existing roads in these locations. The option is within 500m of multiple other listed buildings and two Scheduled Monuments. The option located within Lewes Conservation Area and within 500m of three other conservation areas. Construction may affect the setting of the historic assets, however this will be temporary. Potential impact on buried archaeology, if present.	Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The option crosses one area of allotments and one playing field although is aligned along existing roads at these locations so direct impacts will be limited. Religious grounds, sports facilities, allotments, playing fields and play spaces within 500m. The option is adjacent to a school although aligned along an existing road at this location so direct impacts are unlikely. Other schools and Important Buildings within 500m. The option crosses South Downs Way National Trail in multiple locations and South Downs National Park. The option crosses Noise Action Important Planning Areas in multiple locations. The option crosses areas of IMD deciles ranging from 4 to 9. Disturbance to the local community may be moderate yet temporary in nature.	Consider option routing to avoid direct impacts on allotments and playing field. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0

	Maintain and enhance tourism and recreation	0	--	0	0	The option crosses one area of allotments and one playing field. Religious grounds, sports facilities, allotments, playing fields and play spaces within 500m. The option crosses National Cycle Route in one location, South Downs Way National Trail in multiple locations and South Downs National Park. Therefore, there may be some moderate and temporary effects on recreation during construction. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be some temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance to users of footpaths and other public rights of way during the construction phase.	Consider option routing to avoid direct impacts on allotments and playing field. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option crosses multiple major roads, rail track in one location and National Cycle Route in one location. Lewes Bus Station within 500m. Likely to be moderate and temporary impacts during the construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics			Positive	1				Positive	1		
			Negative	-41				Negative	-15		

SWS_SBZ_HI-TFR_RZ2_ALL_izt_bar_bal_20											
Interzonal transfer pipeline from SEW Barcombe WSW to SWS Polsdean WSR 20 MI/d.											
Southern											
This option is for a pipeline to transfer flow from SEW Barcombe WSW to SWS Polsdean WSR 20 MI/d.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)					The option crosses Lewes Brooks SSSI (88.58% unfavourable - recovering, 6.45% unfavourable - declining, 4.97% favourable), a groundwater dependent habitat. The option is within 500m of Firle Escarpment SSSI (88.35% unfavourable - recovering, 7.96% favourable, 3.69% unfavourable - declining), Lewes Downs SSSI (95.55% favourable, 4.45% unfavourable - recovering), The option within 500m of one Railway Lane Lewes LNR and within 2km of the Castle Hill and Lewes Downs SACs. The option located within SSSI Impact Risk Zones. The option crosses areas of woodland, and Priority Habitat including coastal and floodplain grazing marsh, coastal saltmarsh, deciduous woodland, good quality semi-improved grassland, lowland calcareous grassland and mudflats.	Realign pipeline or use trenchless techniques to avoid direct impacts on Lewes Brooks SSSI. Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid sensitive habitats. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Consider use of a robust CEMP detailing mitigation measures to minimise potential impacts with the use of DMPs, pollution prevention, coverage of construction stockpiles during adverse weather conditions to minimise potential effects of pollution and run-off. Construction dust could be mitigated through wet cutting/crushing and vacuum drilling. Upgrading plant to minimise particulate production e.g. use of particulate filters, catalytic converters to minimise NOx production and use of low sulphur fuels is likely to minimise impacts to qualifying species. Sensitive lighting with down ward facing cowling would be used to				
						The HRA ToLS identifies two Natura 2000 sites: Castle Hill SAC (1km north) and Lewes Downs SAC (165.4km south-east). The construction of the pipeline from Rottingdean SWS may have moderate effects upon the SAC sites through construction dust and increased air pollution from construction traffic. Construction dust and pollution may negatively affect those designated species of the SAC through smothering leading to loss of vigour of the species. During operation, no likely significant effects are predicted on the SAC sites.					
						The INNS RAG risk assessment identifies that there is a very low risk of the transfer / movement of INNS. Physical transfer of treated water (between two locations assumed currently unconnected). No INNS risk as treated water will be free from INNS.					

							reduce light pollution and insect draw.				
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The option is within 500m of Southerham Grey Pit (100% favourable), Southerham Machine Bottom Pit (100% favourable) and Southerham Works Pit (100% favourable) geological SSSIs, although no impacts are anticipated. The option crosses areas of grade 2, 3 and 4 agricultural land and areas of urban land. Likely disturbance to these soils during construction. Where the pipeline crosses Grade 2 land, it is aligned along existing roads so the impact is likely to be minimal. The option crosses three historic landfill sites although the pipeline is aligned along existing roads in these locations. There are multiple other historic landfill sites and two authorised landfill sites within 500m. There is potential to disturb contaminated material during construction.	Ground will be reinstated therefore residual effects unlikely. Best practice techniques to prevent potential disturbance of contaminated material during construction.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	The option is predominately located within Flood Zone 1, however does cross Flood Zone 2 and Flood Zone 3 at multiple locations. This may have an impact on construction.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	The option crosses multiple watercourses, including main rivers in two locations. The option is within SPZs 1-3 in some locations. WFD assessment completed in 2021 indicates that all waterbodies have a passing WFD and none require further assessment.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	The option will facilitate water supply once operational, from SEW Barcombe WSW to SWS Polsdean WSR. Capacity of 10MI/d.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	The option does not pass through any AQMAs, nor any within 2km. However, construction is likely to have minor and temporary impact.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and	0	-	0	-

							operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.				
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Water levels not predicted to be significantly affected therefore, unlikely to affect resilience of the local environment to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option is almost entirely within the South Downs National Park and within Low Weald and South Downs NCAs. Potential for impacts on landscape character and visual amenity during construction.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	The option is in close proximity to eight Grade II listed buildings although is aligned along existing roads in these locations. The option is within 500m of multiple other listed buildings and two Scheduled Monuments. The option located within Lewes Conservation Area and within 500m of three other conservation areas. Construction may affect the setting of the historic assets, however this will be temporary. Potential impact on buried archaeology, if present.	Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The option crosses one area of allotments and one playing field although is aligned along existing roads at these locations so direct impacts will be limited. Religious grounds, sports facilities, allotments, playing fields and play spaces within 500m. The option is adjacent to a school although aligned along an existing road at this location so direct impacts are unlikely. Other schools and Important Buildings within 500m. The option crosses South Downs Way National Trail in multiple locations and South Downs National Park. The option crosses Noise Action Important Planning Areas in multiple locations. The option crosses areas of IMD deciles ranging from 4 to 9. Disturbance to the local community may be moderate yet temporary in nature.	Consider option routing to avoid direct impacts on allotments and playing field. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0

	Maintain and enhance tourism and recreation	0	--	0	0	The option crosses one area of allotments and one playing field. Religious grounds, sports facilities, allotments, playing fields and play spaces within 500m. The option crosses National Cycle Route in one location, South Downs Way National Trail in multiple locations and South Downs National Park. Therefore, there may be some moderate and temporary effects on recreation during construction. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be some temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance to users of footpaths and other public rights of way during the construction phase.	Consider option routing to avoid direct impacts on allotments and playing field. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option crosses multiple major roads, rail track in one location and National Cycle Route in one location. Lewes Bus Station within 500m. Likely to be moderate and temporary impacts during the construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics			Positive Negative	1 -41				Positive Negative	1 -15		

SWS_SBZ_HI-TFR_SWZ_ALL_har2											
Pulborough winter transfer: Stage 2 - New main between Shoreham WSW/North Shoreham WSW and Brighton A WSR											
Southern Water											
During the winter there is surplus water available at Pulborough WSW. Pulborough Winter Transfer involves 4 stages, each of which provides cumulatively increasing benefit in terms of DO. Implementation of all stages would enable transfer from Pulborough WSW to Tenants Hill WSR in Sussex Worthing, which would then gravitate to Sussex Brighton. This option considers the potential for excess surface water that may be available within the River Rother during the winter to be used (either within the existing licence, or using an extended winter licence at Pulborough WSW) to supply Sussex Coast. This would allow coastal groundwater sources to be rested, which would help Southern Water’s Source Drought Management Strategy (SDMS) and hence increase groundwater capabilities during the summer and autumn of a drought year.(1) This stage addresses turbidity and sludge handling issues at Pulborough which would otherwise constrain the DO that can be achieved following the implementation of the Pulborough to Stopham transfer (ASS_IJT_Wei). Improvements at Pulborough WSW would allow increased transfer capacity to 7 MI/d, providing a DO benefit of 2 MI/d for the Brighton Block (SB). Constrained by V6 Worthing-Brighton transfer main. To achieve further DO benefit to Brighton, it would be necessary to alleviate pressures in the V6 main. (2) New main between Shoreham WSW/North Shoreham WSW and Brighton A WSR. This would allow 7 MI/d to be pumped via a different route and relieve pressure issues in the existing V6 main. Additional water from Pulborough is only available during winter, so the benefit comes from resting groundwater sources in the Brighton Block during winter. The 7 MI/d capacity increase would only result in a 4 MI/d DO increase. (3) New main between Tenants Hill WSR and Shoreham WSW(completing the pipeline between Tenants Hill and Brighton A. This would allow an increase of the winter supply and resting strategy (resting the Brighton groundwater sources).(4) Pulborough to Sussex Brighton transfer - 4 MI/d. Details unknown at this stage. Introduced following WRSE meeting 17/10/11.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	The pipeline passes through Adur Estuary SSSI (26.24% favourable, 73.76% unfavourable - declining) / GWDTE therefore potential for direct effects. Cissbury Ring SSSI is within 2000m, and Mill Hill LNR and Lancing Ring LNR are within 500m. The option is within a SSSI risk zone. No impacts on chalk rivers anticipated. There will likely be direct impacts on priority habitats and woodland, no impacts on ancient woodland. The HRA ToLS (2021) identified no likely significant effects. Moderate risk of transfer of INNS as the source water is likely to be free of INNS. Construction phase risk of INNS is considered to be moderate due to intersecting a SSSI.	Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. However, likely residual effects on designated sites. Future design will need to undertake ecology surveys.	0	--	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The pipeline passes through Grade 2, Grade 3, non-agricultural and urban land. There is likely to be disturbance to these soils during construction works. The pipeline also passes through a historic landfill and contaminants may be disturbed during the works.	Land reinstated upon completion. Best practice construction measures to be implemented, however residual construction effects likely.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	Option predominately located within Flood Zone 1, however there is a large area of Flood Zones 2 and 3 on the pipeline route. This may have an effect on construction.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0

	Protect and enhance the quality of the water environment and water resources	0	--	+	--	There is potential for impact on water quality during construction given the pipeline crosses waterbodies, including main rivers. The pipeline is within SPZs and within Worthing chalk and Brighton Chalk Block WFD groundwater bodies. The option aims to utilise excess surface water from the River Rother to allow coastal groundwater bodies to be rested during winter. Positive effects have therefore been identified for operation. The WFD screening assessment (2020) identified further WFD assessment is required.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain.	0	--	+	--
	Deliver reliable and resilient water supplies	0	0	+	0	The option will help to increase the resilience of groundwater supplies by allowing them to recharge during the winter months. This will contribute to increased resilience during summer and autumn of a drought year.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	--	0	0	The pipeline passes through Worthing AQMA. There is likely to be impacts on air quality during the construction phase.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The option may have a positive effect on the resilience of the local environment as it allowing for the recharge of groundwater resources by utilising excess surface water from the River Rother during winter periods.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	-	The pipeline passes through South Downs National Park. Potential for impacts on landscape character and visual amenity during construction. There may be some upgrades to above ground infrastructure required, however this is likely to be minimal and therefore effects are not anticipated to be significant.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	-
Historic Environment	Conserve, protect and enhance the historic	0	-	0	0	The pipeline is within 500m of listed buildings and there are two scheduled monuments within 2000m. The construction phase may impact the	Best practice measures will likely be implemented to minimise setting effects	0	-	0	0

	environment, including archaeology					setting of these historic assets, however this is likely to be minimal and temporary. The pipeline excavation may impact buried archaeology.	during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The pipeline passes through a school and there are additional schools, golf courses, playing fields, sports facilities, play spaces, churches and religious grounds within 500m of the pipeline route. There is likely to be minor and temporary disruption to the community and users of these community facilities during the construction phase. IMD deciles range from 3 to 10 along the pipeline route.	Best practice measures will likely be implemented to minimise disturbance during construction. However, moderate yet temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The pipeline intersects a national cycle route and is within 500m of play spaces, playing fields, golf course, and may also lead to the diversion of public rights of way. Recreation therefore has the potential to be affected during the construction phase, however this will be minor and temporary.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction, including excavated materials.	Opportunity to implement sustainable design measures and reuse excavated material on site, to reduce impact.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The pipeline is within close proximity to a major road and intersects a national cycle route. Brighton City Airport is within close proximity to the pipeline route. There is likely to be moderate and temporary impacts during construction.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still remain.	0	-	0	0
SEA Metrics		Positive 3 Negative -40				Positive 3 Negative -24					

SWS_SBZ_HI-TFR_SWZ_ALL_tenants-bright p 20											
Tenants Hill Worthing to Brighton: 20MI/d											
Southern Water											
Additional bidirectional transfer from Tenants Hill to Brighton											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	Pipeline crosses through Stanmer Park LNR and areas of priority habitat including coastal and floodplain grazing marsh, costal saltmarsh, deciduous woodland, good quality semi-improved grassland, lowland calcareous grassland and mudflats. There will be direct impacts on habitat and possible effects on important and priority species. Within 500m of pipe line are Adur Estuary SSSI (100% favourable) and Cissbury Ring SSSI (approx. 81% unfavourable recovering, 19% favourable). Castle Hill SAC is within 2000m of pipeline. No direct effects on these sites but there may be disturbance effects during construction. Adur estuary may be vulnerable to pollution effects during construction.	Best practice mitigation to minimise impacts and reinstatement /compensation of habitats, but potential for residual effects to remain as removal of priority species possible. Best practice to be implemented during construction to prevent the spread of INNS.	0	--	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	Option located on mainly grade 3 and 4 agricultural soil. Short-term negative effects are expected resulting from loss of top soil during construction phase. There are 4 historic landfill sites within 500m of option, small risk of contamination during construction.	Ground will be reinstated for pipeline therefore residual effects unlikely. Best practice construction techniques will be used around historic landfill sites.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	Option passes through areas of Flood Zone 2 and 3 as it crosses the river Adur which may have an effect on construction. Pipeline crosses through flood defences so there will be an increased vulnerability to flooding during construction of pipeline in these areas. Impacts on operation unlikely given the pipeline is buried.	Best practice construction methods to be implemented to reduce the risk of flooding during construction.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	Option passes through the Adur river, one SPZ1, one SPZ 2 and two WFDGW areas, Brighton Chalk block and Worthing Chalk which could be affected during construction. WFD (2021) did not identify any waterbodies which require further assessment.	Best practice mitigation measures will likely be implemented during construction to ensure minimal impact on water environment, however there is potential for effects on water quality to occur.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option will provide bidirectional transfer of water from Tenants Hill to Brighton with a 20 MI/d capacity	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	-	0	0	Option does not pass through any AQMAs. There is likely to be an increase in emissions during construction.	Best practice construction techniques can be utilised to reduce emissions. Low emission vehicles can be used during construction.	0	0	-	0
	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
Climatic Factors	Reduce vulnerability to climate change risks and hazards	0	-	+	0	Option may increase resilience to climate change by providing a bi-directional transfer facility of water between Tenants Hill and Brighton. Option will also generate greenhouse gases from emissions during construction.	Best practice construction techniques can be implemented to reduce emissions. Low emission vehicles can be used during construction.	0	-	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option is located on a national park and crosses and South Downs NLCA. Infrastructure will be underground and ground will be reinstated however visual amenity will be disrupted during construction.	Best practice mitigation measures likely to be implemented during construction phase. Possibility for landscaping to restore/enhance visual amenity. However minor and temporary impacts are likely to occur.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are several listed building and scheduled monuments within 500m of pipeline. No direct effects but there may be temporary disturbance effects during construction.	Best practice mitigation measures likely to be implemented during construction phase.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are several noise action planning areas within the option area which may be temporarily affected during construction. Lancing College, Stanmer Church and University of Sussex are within 500m of pipeline. No land take from these areas but there may be disturbances during construction.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	Option is located within a national park, pipeline crosses national trails and four cycle routes. There are likely to be temporary effects during construction.	Cycle paths will be reinstated. Best practice construction methods will be implemented to minimise effects during construction. However, minor and temporary	0	-	0	0

							effects are likely to still occur.				
Material Assets	Minimise resource use and waste production	0	-	0	0	Energy consumption is likely to increase in both construction and operational phases. Excavated material will be generated during construction	Opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain. Reuse of excavated material on-site.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	The option crosses major roads and national cycle routes and a railway track. There is likely to be moderate and temporary impacts during the construction phase as a result of road/track closures and diversions.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics			Positive Negative	2 -23				Positive Negative	1 -16		

SWS_SBZ_HI-TFR_SWZ_ALL_tenants-bright p 40											
Tenants Hill Worthing to Brighton: 40MI/d											
Southern Water											
Additional bidirectional transfer from Tenants Hill to Brighton											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	Pipeline crosses through Stanmer Park LNR and areas of priority habitat including coastal and floodplain grazing marsh, costal saltmarsh, deciduous woodland, good quality semi-improved grassland, lowland calcareous grassland and mudflats. There will be direct impacts on habitat and possible effects on important and priority species. Within 500m of pipe line are Adur Estuary SSSI (100% favourable) and Cissbury Ring SSSI (approx. 81% unfavourable recovering, 19% favourable) . Castle Hill SAC is within 2000m of pipeline. No direct effects on these sites but there may be disturbance effects during construction. Adur estuary may be vulnerable to pollution effects during construction.	Best practice mitigation to minimise impacts and reinstatement /compensation of habitats, but potential for residual effects to remain as removal of priority species possible. Best practice to be implemented during construction to prevent the spread of INNS.	0	--	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	Option located on mainly grade 3 and 4 agricultural soil. Short-term negative effects are expected resulting from loss of top soil during construction phase. There are 4 historic landfill sites within 500m of option, small risk of contamination during construction.	Ground will be reinstated for pipeline therefore residual effects unlikely. Best practice construction techniques will be used around historic landfill sites.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	Option passes through areas of Flood Zone 2 and 3 as it crosses the river Adur which may have an effect on construction. Pipeline crosses through flood defences so there will be an increased vulnerability to flooding during construction of pipeline in these areas. Impacts on operation unlikely given the pipeline is buried.	Best practice construction methods to be implemented to reduce the risk of flooding during construction.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	Option passes through the Adur river, one SPZ1, one SPZ 2 and two WFDGW areas, Brighton Chalk block and Worthing Chalk which could be affected during construction. WFD (2021) did not identify any waterbodies which require further assessment.	Best practice mitigation measures will likely be implemented during construction to ensure minimal impact on water environment, however there is potential for effects on water quality to occur.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	++	0	Option will provide bidirectional transfer of water from Tenants Hill to Brighton with a 40 MI/d capacity	N/A	0	0	++	0

Air	Reduce and minimise air emissions	0	-	0	0	Option does not pass through any AQMAs. There is likely to be an increase in emissions during construction.	Best practice construction techniques can be utilised to reduce emissions. Low emission vehicles can be used during construction.	0	0	-	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	-	+	0	Option may increase resilience to climate change by providing a bi-directional transfer facility of water between Tenants Hill and Brighton. Option will also generate greenhouse gases from emissions during construction.	Best practice construction techniques can be implemented to reduce emissions. Low emission vehicles can be used during construction.	0	-	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option is located on a national park and crosses South Downs NLCA. Infrastructure will be underground and ground will be reinstated however visual amenity will be disrupted during construction.	Best practice mitigation measures likely to be implemented during construction phase. Possibility for landscaping to restore/enhance visual amenity. However minor and temporary impacts are likely to occur.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are several listed building and scheduled monuments within 500m of pipeline. No direct effects but there may be temporary disturbance effects during construction.	Best practice mitigation measures likely to be implemented during construction phase.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are several noise action planning areas within the option area which may be temporarily affected during construction. Lancing College, Stanmer Church and University of Sussex are within 500m of pipeline. No land take from these areas but there may be disturbances during construction.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	Option is located within a national park, pipeline crosses national trails and four cycle routes. There is likely to be temporary effects during construction.	Cycle paths will be reinstated. Best practice construction methods will be implemented to minimise effects during construction. However, minor and temporary	0	-	0	0

							effects are likely to still occur.				
Material Assets	Minimise resource use and waste production	0	-	0	0	Energy consumption is likely to increase in both construction and operational phases. Excavated material will be generated during construction	Opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain. Reuse of excavated material on-site.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	The option crosses major roads and national cycle routes and a railway track. There is likely to be moderate and temporary impacts during the construction phase as a result of road/track closures and diversions.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics			Positive Negative	5 -23				Positive Negative	4 -16		

SWS_SBZ_HI-TFR_SWZ_ALL_tenants-bright p 60											
Tenants Hill Worthing to Brighton: 60MI/d											
Southern Water											
Additional bidirectional transfer from Tenants Hill to Brighton											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	Pipeline crosses through Stanmer Park LNR and areas of priority habitat including coastal and floodplain grazing marsh, costal saltmarsh, deciduous woodland, good quality semi-improved grassland, lowland calcareous grassland and mudflats. There will be direct impacts on habitat and possible effects on important and priority species. Within 500m of pipe line are Adur Estuary SSSI (100% favourable) and Cissbury Ring SSSI (approx. 81% unfavourable recovering, 19% favourable) . Castle Hill SAC is within 2000m of pipeline. No direct effects on these sites but there may be disturbance effects during construction. Adur estuary may be vulnerable to pollution effects during construction.	Best practice mitigation to minimise impacts and reinstatement /compensation of habitats, but potential for residual effects to remain as removal of priority species possible. Best practice to be implemented during construction to prevent the spread of INNS.	0	--	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	Option located on mainly grade 3 and 4 agricultural soil. Short-term negative effects are expected resulting from loss of top soil during construction phase. There are 4 historic landfill sites within 500m of option, small risk of contamination during construction.	Ground will be reinstated for pipeline therefore residual effects unlikely. Best practice construction techniques will be used around historic landfill sites.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	Option passes through areas of Flood Zone 2 and 3 as it crosses the river Adur which may have an effect on construction. Pipeline crosses through flood defences so there will be an increased vulnerability to flooding during construction of pipeline in these areas. Impacts on operation unlikely given the pipeline is buried.	Best practice construction methods to be implemented to reduce the risk of flooding during construction.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	Option passes through the Adur river, one SPZ1, one SPZ 2 and two WFDGW areas, Brighton Chalk block and Worthing Chalk which could be affected during construction. WFD (2021) did not identify any waterbodies which require further assessment.	Best practice mitigation measures will likely be implemented during construction to ensure minimal impact on water environment, however there is potential for effects on water quality to occur.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+++	0	Option will provide bidirectional transfer of water from Tenants Hill to Brighton with a 60 MI/d capacity	N/A	0	0	+++	0

Air	Reduce and minimise air emissions	0	-	0	0	Option does not pass through any AQMAs. There is likely to be an increase in emissions during construction.	Best practice construction techniques can be utilised to reduce emissions. Low emission vehicles can be used during construction.	0	0	-	0
	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
Climatic Factors	Reduce vulnerability to climate change risks and hazards	0	-	+	0	Option may increase resilience to climate change by providing a bi-directional transfer facility of water between Tenants Hill and Brighton. Option will also generate greenhouse gases from emissions during construction.	Best practice construction techniques can be implemented to reduce emissions. Low emission vehicles can be used during construction.	0	-	+	0
	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option is located on a national park and crosses and South Downs NLCA. Infrastructure will be underground and ground will be reinstated however visual amenity will be disrupted during construction.	Best practice mitigation measures likely to be implemented during construction phase. Possibility for landscaping to restore/enhance visual amenity. However minor and temporary impacts are likely to occur.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are several listed building and scheduled monuments within 500m of pipeline. No direct effects but there may be temporary disturbance effects during construction.	Best practice mitigation measures likely to be implemented during construction phase.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are several noise action planning areas within the option area which may be temporarily affected during construction. Lancing College, Stanmer Church and University of Sussex are within 500m of pipeline. No land take from these areas but there may be disturbances during construction.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	Option is located within a national park, pipeline crosses national trails and four cycle routes. There is likely to be temporary effects during construction.	Cycle paths will be reinstated. Best practice construction methods will be implemented to minimise effects during construction. However, minor and temporary	0	-	0	0

							effects are likely to still occur.				
Material Assets	Minimise resource use and waste production	0	-	0	0	Energy consumption is likely to increase in both construction and operational phases. Excavated material will be generated during construction	Opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain. Reuse of excavated material on-site.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	The option crosses major roads and national cycle routes and a railway track. There is likely to be moderate and temporary impacts during the construction phase as a result of road/track closures and diversions.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics			Positive Negative	9 -23				Positive Negative	8 -16		

SWS_SBZ_HI-TFR_SWZ_ALL_v6b 2026											
Trunk main at v6 valve (SW to SB) additional capacity (from 2026/27) (negates need for IZT_Har3)											
Southern Water											
Trunk main at v6 valve (SW to SB) additional capacity (from 2026/27) (negates need for IZT_Har3)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	The option is for an existing transfer. No new infrastructure likely to be required therefore no impacts identified. HRA ToLS (2021) identified no likely significant effects given there is no new infrastructure. No additional risk for the transfer of INNS.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No new infrastructure as existing transfer therefore neutral effects identified for soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No new infrastructure therefore no additional flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No new infrastructure therefore neutral effects identified for water resources. WFD Screening Assessment (2020) identified no impact as it is an existing transfer and further WFD assessment is therefore not required.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	0	0	The option transfers water which leads to more resilient supplies, however as this is an existing transfer, additional positive effects have not been identified.	N/A	0	0	0	0
Air	Reduce and minimise air emissions	0	0	0	0	No new infrastructure therefore no additional impacts on air quality.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available however no new infrastructure so no additional impacts.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	No new infrastructure, utilising existing transfer and water levels are not likely to be significantly affected, therefore no additional impacts on the climate resilience of the local environment.	N/A	0	0	0	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No new infrastructure therefore no additional impacts on landscape.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No new infrastructure therefore no additional impacts on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	No new infrastructure therefore no additional impacts on the local community.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	No new infrastructure therefore no additional impacts on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	No new infrastructure therefore no additional impact on resources and waste.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	No new infrastructure therefore no additional impacts on built assets and the built environment.	N/A	0	0	0	0
SEA Metrics		Positive 0 Negative 0				Positive 0 Negative 0					

SWS_SBZ_HI-TFR_SWZ_ALL_v6b											
Trunk main at v6 valve (SW to SB)											
Southern Water											
Trunk main at v6 valve (SW to SB)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	The option is for an existing transfer. No new infrastructure likely to be required therefore no impacts identified. HRA ToLS (2021) identified no likely significant effects given there is no new infrastructure. No additional risk for the transfer of INNS.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No new infrastructure as existing transfer therefore neutral effects identified for soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No new infrastructure therefore no additional flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No new infrastructure therefore neutral effects identified for water resources. WFD Screening Assessment (2020) identified no impact as it is an existing transfer and further WFD assessment is therefore not required.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	0	0	The option transfers water which leads to more resilient supplies, however as this is an existing transfer, additional positive effects have not been identified.	N/A	0	0	0	0
Air	Reduce and minimise air emissions	0	0	0	0	No new infrastructure therefore no additional impacts on air quality.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available however no new infrastructure so no additional impacts.	N/A	0	0	0	0

	Reduce vulnerability to climate change risks and hazards	0	0	0	0	No new infrastructure, utilising existing transfer and water levels are not likely to be significantly affected, therefore no additional impacts on the climate resilience of the local environment.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No new infrastructure therefore no additional impacts on landscape.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No new infrastructure therefore no additional impacts on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	No new infrastructure therefore no additional impacts on the local community.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	No new infrastructure therefore no additional impacts on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	No new infrastructure therefore no additional impact on resources and waste.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	No new infrastructure therefore no additional impacts on built assets and the built environment.	N/A	0	0	0	0
SEA Metrics		Positive 0 Negative 0				Positive 0 Negative 0					

SWS_SBZ_RE-DRO_ALL_ALL_di-sb											
TUBS and NEU Ban - SB WRZ											
Southern water											
Temporary use bans and Non-essential use bans											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Temporary use bans and non-essential use bans in Sussex Brighton may help protect GWDTE and priority habitat by conserving water in the environment. The HRA Tols (2021) indicated the following Natura sites that may be affected: Ebernoe Common SAC; The Mens SAC; Duncton to Bignor Escarpment SAC; Arun Valley SAC; Arun Valley Ramsar; Arun Valley SPA; Castle Hill SAC; Lewes Downs SAC. The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to sites which ecosystems are dependent upon ground and surface water. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	A temporary use ban and non-essential use ban may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	By reducing demand through temporary use band and non-essential use ban, option maintains resilience of water for essential services.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The option is for a temporary use ban and non-essential use ban. By reducing demand and potentially reducing abstraction the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented in drought conditions, it will not result in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of private gardens, and use of ornamental fountains etc will be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to have a significant effect on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Temporary use ban and non-essential use ban is likely to have minor negative effects on the community and social well-being as there will be restrictions on irrigation of gardens and allotments and use of water for recreational purposes. There may also be a small increased risk of fires in allotments as vegetation dries out.	Allowing allotments limited supplies of water. Ensuring high levels of communication before, during and following the implementation of these measures.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Assuming commercial properties including gardens are exempt from bans and restrictions there is likely to be only a minor effect on tourism and recreation. Non-commercial tourism sites may be affected.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effect on waste production or resource use.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effects on built assets and infrastructure.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -3				Positive 4 Negative -3					

SWS_SBZ_RE-DRO_ALL_ALL_do_di_eme_regi											
Emergency restrictions: Sussex Brighton											
Southern water											
Drought Option: Emergency Drought Orders allow water companies to restrict supplies to customers through the imposition of rota cuts and/or the introduction of standpipes. These measures exist to deal with the very remote possibility of a drought much worse than any seen in the last century or more in the UK. Emergency Drought Orders have not been put in place in the UK since 1976. Ministers have made it clear that such measures should be avoided at all costs and introduced only as a last resort. The Company will make full use of all other measures before considering whether the severity of drought conditions mean that Emergency Drought Orders might be required. The full range of measures available under Emergency Drought Order include powers: To limit the use of water for such purposes as it considers necessary (i.e. further measures not specified in the Drought Direction 2011); To introduce rota cuts; and To set up, and supply water by means of, stand-pipes or water tanks. Level of intervention for this option: Unprecedented drought conditions. We intend the need for these to only arise in conditions of civil emergency and as such our emergency plan covers this in more detail.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) identified no likely significant effects for the N2K sites within the Sussex Brighton WRZ: Castle Hill SAC and Lewes Downs SAC. The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to Lewes Downs SAC as it contains GWDTE sites. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Emergency restrictions may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is only to be used in severe drought circumstances so is therefore not likely to affect flood risk or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0

	Deliver reliable and resilient water supplies	0	0	++	0	Option maintains resilience of water for essential services.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have temporary effects on visual amenity as restricted water use may impact parks and gardens reliant on public water supply.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	---	Emergency restrictions such as rota cuts and imposition of standpipes may have major negative effects on social well-being, with the potential for breakdown of social cohesion and impacts on public health. Imposition of standpipes will particularly effect people with limited mobility or other disabilities. Businesses that use water and do not have access to private water supply will be largely affected with the potential for substantial economic losses. There may also be an increased risk of fires as public access to water is restricted.	Ensure high level of communication with customers before, during and after the restrictions have been imposed.	0	0	0	---
	Maintain and enhance tourism and recreation	0	0	0	--	Tourism and recreation is likely to be affected as water restrictions may force some tourist attractions and recreational activities to temporarily close.	N/A	0	0	0	--
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 7 Negative -13					Negative Positive 7 -13				

SWS_SBZ_RE-OTH_REP_ALL_bs_kmt_resil											
Reduce transfer to other commercial customers: Sussex Brighton											
Southern Water											
Drought Option: In the event of a drought the Company would hold discussions with a commercial customer with regards to the resources position and their supply.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option may reduce the amount of water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during drought conditions and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) indicated no likely significant effect on Natura 2000 sites.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	There is not anticipated to be any effects on soil quality as a result of this option.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is not likely to be affected by flooding or lead to the exacerbation of flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and is only to be implemented in drought conditions. Option aims to reduce the water required for supply to other commercial customers, therefore potentially resulting in a reduction in abstraction. WFD assessment (2020) states no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to commercial companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the resilience of supply for these commercial customers.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	No effect on air emissions is anticipated from this option.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data has been provided for this option. Neutral effects have been identified at this stage.	N/A	0	0	0	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to commercial companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water within the natural environment. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	-	The reduction in the amount of water supplied to commercial customers may have an impact on the local economy if they are not able to carry out their business activity or have to operate at a reduced capacity. However, there is potential that the wider population will benefit from this option.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	+	-
	Maintain and enhance tourism and recreation	0	0	0	-	Given the option is to reduce the transfer of water for commercial customers, tourism and recreation could be affected if these customers rely on water to support these activities.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 5 Negative -3									
						Positive 5 Negative -3					

SWS_SBZ_RE-OTH_REP_ALL_bs_vws_resil											
Reduce transfer to other water companies: Sussex Brighton											
Southern Water											
Drought Option: In the event of a drought the Company would hold discussions with neighbouring Companies with regards to their resources position and their supply. There are three main bulk transfers to the South East: its entitlement to 25% of the yield of the River Medway Scheme, the Sheldwich Scheme, and the Bewl-Darwell transfer. This option considers reduction of the transfer from Veolia Water Southeast to SWS Kent Thanet. The trigger for this would be when rainfall and groundwater level trigger is exceeded and/or if veolia Water Southeast is not affected as much as Kent Thanet WRZ.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Given the option reduces the transfer of water to other companies in the event of a drought, there is potential that water will be retained within the natural environment. Ecosystems may already be under severe stress therefore additional water retained in the natural environment will be beneficial. The HRA ToLS (2021) identified that the option unlikely to impact Sussex Brighton WRZ N2K sites (Castle Hill SAC, Lewes Downs SAC), as scheme is geographically separated from WRZ. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The option may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	It is not likely the option will affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply to other water companies, therefore may result in a reduction in abstraction. WFD assessment (2020) identified no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to other water companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the other water companies.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available for this option. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to other companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	The reduction in the amount transferred to other water companies may have some effects on the wider population outside of Southern Water's boundary. However, this will only occur where groundwater levels are exceeded and if the Veolia Water Southeast is not affected as much as SWS Kent Thanet WRZ.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation has the potential to be affected if the reduction in water to other companies results in restrictions for water based activities.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics											
Positive				4		Positive				4	
Negative				-3		Negative				-3	

SWS_SBZ_RE-TFR_IKT_ALL_do_si_tan_resil											
Tankering: Sussex Brighton											
Southern											
Tankering water from adjacent WRZs or other water companies would be considered in severe droughts. Can be applied on a WRZ basis.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	Depending on the number of vehicles required for the operation, an increase in emissions may have negative impacts on nearby habitat.	Emission levels can be mitigated by using low emission vehicles (including electric vehicles) and strategic timing of transport e.g. avoiding driving lorries during rush hour.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option will supply water to Winchester in an emergency circumstance of severe drought.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	--	Option will cause an increase in emissions during transportation of water. This option is only to be implemented in severe circumstances therefore an increase in emissions will only be temporary.	Emission levels can be mitigated by using low emission vehicles (including electric vehicles) and strategic timing of transport e.g. avoiding driving lorries during rush hour.	0	0	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	-	There is no carbon data available for this option. There may be some negative effects from an increase in carbon emissions associated with	Option only to be implemented in severe drought, emissions can be	0	0	0	-

						tankering, however these are anticipated to be minor due to the temporary nature of the option.	mitigated for by using low emission vehicles.				
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	This option is to be used only in severe drought and not a long term option. It will not affect resilience to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Visual amenity may be affected by an increase in lorries on the roads. This option is only to be implemented in severe circumstances therefore effects on visual amenity will be temporary.	Can be mitigated by strategic timing of transport of tankers.	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Increased traffic may impact on built heritage e.g. conservation areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	Can be mitigated by strategic timing of transport of tankers.	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Noise from vehicles and increase in air pollution can cause disturbance in populated areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	Can be mitigated by using electric vehicles and strategic timing of transport of tankers e.g. avoiding driving tankers during rush hour.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Increase in congestion on roads from tankers and effects on visual amenity may have an effect on recreation and tourism in Winchester. This option is only to be implemented in severe circumstances therefore effects on recreation and tourism will be temporary.	Best practice mitigation techniques to reduce impacts.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	--	Use of fuel resources.	Fuel utilisation may be reduced by strategic timing of transport vehicles e.g. avoid driving tankers in rush hour.	0	0	0	-
	Avoid negative effects on built assets and infrastructure	0	0	0	-	Depending on the number of tankers required for the operation, there may be an increase in congestion on roads. This option is only to be implemented in severe circumstances therefore negative effects will only be temporary.	Can be mitigated by strategic timing of transport of tankers e.g. avoiding driving tankers in rush hour.	0	0	0	-
SEA Metrics		Positive 1 Negative -14				Positive 1 Negative -8					

SWS_SHZ_EF-CRE_ALL_ALL_do_di_res_regi											
Restriction to non-essential use; Sussex Hastings											
Southern Water											
Drought Option: The Company has recourse to a range of restrictions to Non-Essential Use. However, it can take a significant time to apply for and then implement a Drought Order. The Company might decide not to exercise all its powers until severe drought conditions are reached. Can be applied on a WRZ basis. Level of intervention for this option: Severe drought conditions.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA ToLs (2021) identified no likely significant effects on the following N2K sites within the Sussex Hastings WRZ: Hastings Cliffs SAC; Dungeness SAC; Dungeness, Romney Marsh and Rye Bay Ramsar and SPA. The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to sites as they all contain a GWDTE. The option may therefore help to mitigate drought impacts and aid recovery. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Non-essential use restrictions may marginally impact soil quality, however the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Non-essential use restrictions are not anticipated to affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicates short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0

	Deliver reliable and resilient water supplies	0	0	+	0	By reducing the amount of water required for supply through restrictions to non-essential use, the option maintains resilience of water for essential services.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of gardens, and use of ornamental fountains for example, may be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	--	Restrictions on non-essential use is likely to have moderate negative effects on the community and social well-being as there may be imposed restrictions on irrigation of gardens and allotments and outdoor plants, restrictions of use of water for swimming pools, restriction of washing vehicles and non-domestic property exteriors. Restrictions may apply to all customers, domestic and commercial so potential for economic impacts.	Ensuring high level of communication with customers before, during and following the implementation of the measure.	0	0	0	--
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation sites dependant on public water supply may be affected due to non-essential restrictions.		0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -6									
						Positive 4 Negative -6					

SWS_HAZ_EF-LKR_ALL_ALL_dmp shz high											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
	Deliver reliable and resilient water supplies	0	0	+++	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Minor positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive 28 Negative -3				Positive 28 Negative -2					

SWS_SHZ_HI-DES_ALL_ALL_cam5											
Camber Desalination near Rye Bay 5MI/d											
Southern											
Previous work in AMP4 and AMP5 indicated that the most appropriate location for a desalination plant in the vicinity of the Camber is an area of land to the south of Rye and next to Rye WwTW. This is an industrial area where further development may raise less objections than other nearby locations, and the presence of a cement works indicates power supplies may be available. A new abstraction would be required to supply the works however the existing effluent pipe of Rye WwTW may have capacity to receive the discharge. To distribute the treated water to the wider Sussex Hastings WRZ a new supply pipeline would need to be constructed to Udimore WSR (~4 km) where it is assumed there is sufficient capacity to receive the desalinated water.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	---	Option crosses Dungeness, Romney Marsh and Rye Bay Ramsar site, SSSI and SPA and crosses Rye Harbour Local Nature Reserve. (Dungeness, Romney Marsh and Rye Bay SSSI - 67.53% favourable, 32.23% unfavourable - recovering, 0.12% unfavourable - no change, 0.12% unfavourable - declining - a biological and geological SSSI). Entire option is located within SSSI risk zone. Option is within 2km of Dungeness SAC. Option crosses coastal and floodplain grazing marsh, good quality semi-improved grassland, lowland dry acid grassland and mudflats. HRA ToLS identifies a likely significant effect on Dungeness, Romney Marsh and Rye Bay RAMSAR/SPA as the construction of the desalination plant and pipeline is likely to disrupt Ramsar criterion 1,2, 5 and 6 species through disturbance, dust and light pollution caused by construction works. The output from the desalination plant could including hyper saline plumes could have a potential impact on complex network of wetland habitats present within the site including saltmarsh, natural freshwater pits, fens, ponds, gravel pits, and grazing marsh and ditches including Ramsar criterion 2 species. The new abstraction proposed as part of the scheme could impact many Ramsar criterion species including vulnerable, endangered or critically endangered species. Uncertain effects on Dungeness SAC are also highlighted. High level construction phase INNS risk. Low potential of INNS transfer during operational phase.	Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Likely significant effects on Dungeness, Romney Marsh and Rye Bay RAMSAR/SPA relating to the construction phase impacts can be mitigated through use of best practice guidelines such as use of a robust CEMP. Operational phase impacts are not considered to be mitigatable. Uncertain impacts identified for Dungeness SAC are considered to be mitigatable through use of best practice guidelines during construction phase such as use of a robust CEMP. HRA AA required to determine the effects on Dungeness, Romney Marsh and Rye Bay RAMSAR/SPA.	0	--	0	---
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	Option within 500m of four historic landfill sites. There is potential to disturb contaminated material during construction. Option crosses areas of grade 2, grade 3 and grade 4 agricultural land. Likely disturbance to these soils during construction.	Land reinstated upon completion. Best practice construction measures to be implemented, however residual construction effects likely.	0	-	0	0

Water	Increase resilience and reduce flood risk	0	--	0	--	Approximately 2/3 of option located within Flood Zones 2 and 3. This may have an effect on construction and on operation, as the desalination plant is located within Flood Zone 2 and 3.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction and operation may still occur.	0	--	0	--
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	Option crosses watercourses and crosses and is adjacent to a main river. Option crosses SPZ Zone III at one location. WFD assessment suggests one water body requires further assessment.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain. Operational impacts are likely to remain, further WFD assessment required.	0	-	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	Option will facilitate water supply once operational and distribute treated water to the wider Sussex Hastings WRZ. Capacity of 10MI/d.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	-	Option does not pass through any AQMAs, nor any within 500m or 2000m. However, construction is likely to have minor and temporary impact. There is also likely to be operational emissions which may affect air quality.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The option may improve the resilience of the local environment to climate change through utilising sea water rather than freshwater as a source for supply.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	-	The desalination plant is not located within an AONB. Option located within High Weald and Romney Marshes National Character Areas. Previous work in AMP4 and AMP5 indicated that the most appropriate location for a desalination plant in the vicinity of the Camber is an area of land to the south of Rye and next to Rye WwTW. This is an industrial area where further development may raise less objections than other nearby locations. which will have permanent effects on the landscape.	Option located in an industrial area, opportunity to implement screening, however minor operational effects on the landscape will remain. Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	-

Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	Option located within 500m of multiple listed buildings and five Scheduled Monuments. Construction may affect the setting of the historic assets, however this will be temporary. Potential impact on buried archaeology, if present.	Best practice measures will likely be implemented to minimise setting effects during construction. Archaeology Watching Brief may be required during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0		
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	Option within 500m of Important Buildings and religious grounds. Option within 500m of playing fields, play spaces, a bowling green and allotments. Option crosses areas of IMD decile 6 to 8. Disturbance to the local community and users of these community facilities will likely occur during construction, however, will be minor and temporary in nature.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0		
	Maintain and enhance tourism and recreation	0	-	0	0	Option within 500m of playing fields, play spaces, a bowling green and allotments. Option crosses National Cycle Network and may result in diversions to public rights of way. Therefore, there may be some minor and temporary effects on recreation during construction.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0		
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for option which will use materials and generate waste during construction. Waste is also likely to produce during operation, notably discharge of brine.	Opportunity to implement sustainable design measures and reuse excavated material on site, to reduce impact. Minor negative construction and operational effects will likely remain.	0	-	0	-		
	Avoid negative effects on built assets and infrastructure	0	--	0	0	Option crosses rail tracks, major roads and National Cycle Network. Likely to be moderate and temporary impacts during the construction.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0		
SEA Metrics			Positive	2	Negative			-48	Positive	2	Negative		-37

SWS_SHZ_HI-DES_ALL_ALL_cam10											
Camber Desalination near Rye Bay 10MI/d											
Southern											
Previous work in AMP4 and AMP5 indicated that the most appropriate location for a desalination plant in the vicinity of the Camber is an area of land to the south of Rye and next to Rye WwTW. This is an industrial area where further development may raise less objections than other nearby locations, and the presence of a cement works indicates power supplies may be available. A new abstraction would be required to supply the works however the existing effluent pipe of Rye WwTW may have capacity to receive the discharge. To distribute the treated water to the wider Sussex Hastings WRZ a new supply pipeline would need to be constructed to Udimore WSR (~4 km) where it is assumed there is sufficient capacity to receive the desalinated water.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	---	Option crosses Dungeness, Romney Marsh and Rye Bay Ramsar site, SSSI and SPA and crosses Rye Harbour Local Nature Reserve. (Dungeness, Romney Marsh and Rye Bay SSSI - 67.53% favourable, 32.23% unfavourable - recovering, 0.12% unfavourable - no change, 0.12% unfavourable - declining - a biological and geological SSSI). Entire option is located within SSSI risk zone. Option is within 2km of Dungeness SAC. Option crosses coastal and floodplain grazing marsh, good quality semi-improved grassland, lowland dry acid grassland and mudflats. HRA ToLS identifies a likely significant effect on Dungeness, Romney Marsh and Rye Bay RAMSAR/SPA as the construction of the desalination plant and pipeline is likely to disrupt Ramsar criterion 1,2, 5 and 6 species through disturbance, dust and light pollution caused by construction works. The output from the desalination plant could including hyper saline plumes could have a potential impact on complex network of wetland habitats present within the site including saltmarsh, natural freshwater pits, fens, ponds, gravel pits, and grazing marsh and ditches including Ramsar criterion 2 species. The new abstraction proposed as part of the scheme could impact many Ramsar criterion species including vulnerable, endangered or critically endangered species. Uncertain effects on Dungeness SAC are also highlighted.	Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Likely significant effects on Dungeness, Romney Marsh and Rye Bay RAMSAR/SPA relating to the construction phase impacts can be mitigated through use of best practice guidelines such as use of a robust CEMP. Operational phase impacts are not considered to be mitigatable. Uncertain impacts identified for Dungeness SAC are considered to be mitigatable through use of best practice guidelines during construction phase such as use of a robust CEMP. HRA AA required to determine the effects on Dungeness, Romney Marsh and Rye Bay RAMSAR/SPA.	0	--	0	---
						High level construction phase INNS risk. Low potential of INNS transfer during operational phase.					
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	Option within 500m of four historic landfill sites. There is potential to disturb contaminated material during construction. Option crosses areas of grade 2, grade 3 and	Land reinstated upon completion. Best practice construction measures to be implemented, however	0	-	0	0

						grade 4 agricultural land. Likely disturbance to these soils during construction.	residual construction effects likely.				
Water	Increase resilience and reduce flood risk	0	--	0	--	Approximately 2/3 of option located within Flood Zones 2 and 3. This may have an effect on construction and on operation, as the desalination plant is located within Flood Zone 2 and 3.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction and operation may still occur.	0	--	0	--
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	Option crosses watercourses and crosses and is adjacent to a main river. Option crosses SPZ Zone III at one location. WFD assessment suggests one water body requires further assessment.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain. Operational impacts are likely to remain, further WFD assessment required.	0	-	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	Option will facilitate water supply once operational and distribute treated water to the wider Sussex Hastings WRZ. Capacity of 10MI/d.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	-	Option does not pass through any AQMAs, nor any within 500m or 2000m. However, construction is likely to have minor and temporary impact. There is also likely to be operational emissions which may affect air quality.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The option may improve the resilience of the local environment to climate change through utilising sea water rather than freshwater as a source for supply.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	-	The desalination plant is not located within an AONB. Option located within High Weald and Romney Marshes National Character Areas. Previous work in AMP4 and AMP5 indicated that the most appropriate location for a desalination plant in the vicinity of the Camber is an area of land to the south of Rye and next to Rye WwTW. This is an industrial area where further development may raise	Option located in an industrial area, opportunity to implement screening, however minor operational effects on the landscape will remain. Best practice measures will likely be implemented to minimise effects during construction,	0	-	0	-

						less objections than other nearby locations. which will have permanent effects on the landscape.	however minor and temporary impacts may remain. Land reinstated upon completion.				
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	Option located within 500m of multiple listed buildings and five Scheduled Monuments. Construction may affect the setting of the historic assets, however this will be temporary. Potential impact on buried archaeology, if present.	Best practice measures will likely be implemented to minimise setting effects during construction. Archaeology Watching Brief may be required during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	Option within 500m of Important Buildings and religious grounds. Option within 500m of playing fields, play spaces, a bowling green and allotments. Option crosses areas of IMD decile 6 to 8. Disturbance to the local community and users of these community facilities will likely occur during construction, however, will be minor and temporary in nature.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	Option within 500m of playing fields, play spaces, a bowling green and allotments. Option crosses National Cycle Network and may result in diversions to public rights of way. Therefore, there may be some minor and temporary effects on recreation during construction.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for option which will use materials and generate waste during construction. Waste is also likely to produce during operation, notably discharge of brine.	Opportunity to implement sustainable design measures and reuse excavated material on site, to reduce impact. Minor negative construction and operational effects will likely remain.	0	-	0	-
	Avoid negative effects on built assets and infrastructure	0	--	0	0	Option crosses rail tracks, major roads and National Cycle Network. Likely to be moderate and temporary impacts during the construction.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics		Positive 2		Negative		-48		Positive 2		Negative -37	

SWS_SHZ_HI-GRW_ALL_ALL_ass_br_bre_eastn											
Reconfigure Rye - replacing boreholes to increase yield and resilience (increased redundancy)											
Southern water											
Resilience. Assumed 5MI/d, capacity TBC (Part of description missing?)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	-	0	--	<p>The option is within a SSSI Impact Risk Zone. There is Ancient Woodland and Priority Habitat, including deciduous woodland and coastal and floodplain grazing marsh, within 500m of option. Potential for disturbance effects on fauna during construction however these are not anticipated to be significant. There are no GWTDE or chalk rivers within 2km.</p> <p>The HRA Tols (2021) identified uncertain effects for Dungeness, Romney Marsh and Rye Bay Ramsar (located approximately 7.3km to the south-east) and Dungeness SAC (located approximately 10.7km to the east). Replacing the boreholes to increase yield will lead to an increase in abstraction from the groundwater in conjunction with the surface water abstraction from the River Brede at this site. Uncertain effects predicted upon the downstream designated sites due mainly from a decrease in water flow into the designated site. This could potentially affect those designated species and habitats upon which are reliant on regular water flows and quality.</p> <p>The risk for the spread / transfer of INNS is likely to be very low as the source water is likely to be entirely free of INNS. It is assumed that groundwater is free of INNS, and that accessing it will not permit any additional inputs of INNS.</p>	<p>Best practice methods to be implemented to minimise disturbance effects. Future design may need to undertake ecology surveys. The HRA Tier 2 Screening identified that the operational effects are likely to be mitigable therefore no likely significant effects are identified.</p> <p>Operationally, it is assumed that in order to build up resilience during the drier months, increased surface water and groundwater abstraction will take place over the winter period when increased flow in the River Brede is available and when the ground water aquifer is recharged. Should an increase in abstraction take place in the drier summer months, the daily abstraction levels should be lowered so as to allow sufficient water to remain within the hydrological systems at the designated sites.</p>	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The option is located on grade 3 agricultural land although it is replacement of existing boreholes at an existing site therefore no impacts anticipated.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is within Flood Zone 1 and unlikely to affect flood risk.	N/A	0	0	0	0

	Protect and enhance the quality of the water environment and water resources	0	-	0	-	Increased abstraction has potential to decrease water resource resilience over time. The option is within approximately 100m of the River Brede. Potential for the option to have negative impacts on water quality during construction. WFD assessment (2021) indicates that further WFD assessment is not required.	N/A	0	-	0	-
	Deliver reliable and resilient water supplies	0	0	+	0	The option involves replacing boreholes to increase yield and resilience (increased redundancy). 5MI/d capacity.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Emissions likely to be generated during construction although these are unlikely to be significant.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts on air quality may still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	+	-	There may be positive effects on the freshwater environment as the option relates to abstraction from groundwater. However, there may be negative effects on the resilience of groundwater to climate change	Monitor groundwater levels.	0	0	+	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	The option is in the Romney Marshes NCA and High Weald AONB. Boreholes likely to be replaced on existing site so unlikely for effects on the landscape. Potential for short term impacts to visual amenity during construction.	Ground will be reinstated following construction therefore residual effects unlikely. Measures to reduce the visual impact during construction e.g. screening could be implemented, however temporary residual effects remain.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Brede Valley Waterworks is a Grade II listed building however no setting impacts are anticipated as this is replacement of existing boreholes. Impacts on buried archaeology are likely to be limited as this is an existing site.	N/A	0	0	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	Potential disturbance impacts during construction to residents of Brede Waterworks Cottages.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	The option is unlikely to have any impact on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Waste likely to be generated and materials to be used during construction.	Limited opportunity to implement sustainable design measures to reduce the impact therefore it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Option is unlikely to have impacts on built assets and infrastructure. There may be some localised traffic disruption but this is unlikely to be over and above existing traffic for the Brede works.	N/A	0	0	0	0
SEA Metrics		Positive 2 Negative -14									
						Positive 2 Negative -9					

SWS_SHZ_HI-REU_RE1_ALL_dar10											
Hastings WTW in Darwell Reservoir (10MI/d)											
Southern											
This option proposes the transfer of treated effluent from Bexhill & Hastings WWTW, currently being discharged to sea at Pebsham Gap, in order to augment storage in Darwell reservoir. This option includes tertiary treatment of Bexhill & Hastings wastewater, this may include Membrane Bio Reactors and Reverse Osmosis. Additional GAC and UV treatment may be required at Brede WSW.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	+	0	Option will no longer involve treated effluent to be discharged at sea at Pebsham Gap with potentially positive effects for Beachy Head East MCZ. Option within 500m of Combe Haven SSSI (100% favourable) and Darwell Wood SSSI (100% favourable), both of which are GWTDEs therefore potential for indirect effects during construction. There are also additional SSSIs within 2000m, which could be indirectly affected during construction. Entire option is located within SSSI Impact Risk Zones. Within 2km of Dungeness, Romney Marsh and Rye Bay SPA. Option crosses woodland, including at least 9 areas of Ancient Woodland, and priority habitats including deciduous woodland, good quality semi-improved grassland lowland heathland and traditional orchard. The HRA ToLS (2021) identified uncertain effects for Dungeness, Romney Marsh and Rye Bay SPA (hydrologically downstream of proposed option) due to potential pollution effects during construction. No likely significant effects identified for Pevensy Levels RAMSAR and SPA (4.8km west of proposed option or Hasting Cliffs SAC (6km east along coast from hydrological connection). Very low risk of transfer of INNS as the treated source water is likely to be entirely free of INNS. Construction phase risk of INNS is considered to be very low.	Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Uncertain effects identified for Dungeness, Romney Marsh and Rye Bay SPA are considered to be mitigatable through careful design of pipeline crossing of Combe Haven watercourse and through use of best practice guideline such as use of a robust CEMP.	0	-	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	Option within 500m of two historic landfill sites and two authorised landfill sites. There is potential to disturb contaminated material during construction. Option located on grade 3 agricultural land, grade 4 agricultural land and non-agricultural land. Likely disturbance to soils during construction.	Ground will be reinstated therefore residual effects unlikely. Best practice techniques to prevent potential disturbance of contaminated material during construction.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The majority of the option is within Flood Zone 1 with the exception of one section, which passes through Flood Zones 2 and 3, and may have an impact on construction. Impacts on operation unlikely given the pipeline is buried. The pipeline is unlikely to increase the risk of flooding.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0

	Protect and enhance the quality of the water environment and water resources	0	-	0	-	Option crosses watercourses, including main rivers. Option does not cross any SPZs. There is potential for impacts on water quality during construction and operation. The WFD identifies that further WFD assessment is required.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain.	0	-	0	-
	Deliver reliable and resilient water supplies	0	0	+	0	Option will transfer treated effluent from Bexhill & Hastings WWTW, currently being discharged to sea at Pebsham Gap, in order to augment storage in Darwell reservoir. This will increase resilience of water supplies due to reliable storage in Darwell reservoir.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Option does not pass through any AQMAs, nor any within 500m or 2000m. However, construction is likely to have minor and temporary impact.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Water levels not predicted to be significantly affected therefore, unlikely to affect resilience of the local environment to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	Approximately two thirds of pipeline located within High Weald Area of Outstanding Natural Beauty. Option located entirely within High Weald National Character Areas. Potential for impacts on landscape character and visual amenity during construction.	Best practice measures to be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	Option within 500m of multiple listed buildings, some of which are in close proximity although the pipeline is routed along existing roads at these locations. Construction may affect the setting of the historic assets, however this will be temporary. Potential impact on buried archaeology, if present.	Best practice measures to be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of	0	-	0	0

							buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	Option crosses a cemetery. Option within 500m of schools, a church, playing fields and play spaces. Disturbance to the local community will be moderate yet temporary in nature. Option crosses areas of IMD deciles 8, 6, 5 and 4.	Pipeline routing to avoid crossing cemetery. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	Option within 500m of open spaces. The option crosses watercourses and habitat areas/woodland, and Darwell Reservoir itself, that could be used for recreation, therefore there may be some temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction. Waste products may be produced during operation by tertiary treatment of Bexhill & Hastings wastewater, which may include Membrane Bio Reactors and Reverse Osmosis, and by additional GAC and UV treatment which may be required at Brede WSW. However, this is not deemed significant therefore neutral effects identified for operation.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain. Minor negative construction and operational effects will likely remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	Option crosses a major road and is aligned along a major road for a short section. Likely to be temporary impacts during the construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the major road is likely to be required.	0	-	0	0
SEA Metrics		Positive 2		Negative -29				Negative		Positive 2	
										-13	

SWS_SHZ_HI-REU_RE1_ALL_env_cu_bew1_conju											
Recycling (SHZ): Tunbridge Wells WTW conjunctive use with Bewl Reservoir (3.6Ml/d)											
SWS											
New Resource. Effluent pipeline (13,883 m of pipeline with a 200 mm diameter) from Tunbridge Wells WTW to Bewl reservoir, which feeds Darwell reservoir, Bewl WSW and near Rochester WSW. Additional tertiary treatment required at Tunbridge Wells WTW, which may require land purchase. 190 kW pump required. Very high pipe pressure.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	<p>The following SSSI's are within 1km of the option: Southborough Pit (0.67km, 100% unfavourable - declining), Pembury Cutting and Pit (0.03km, 100% favourable), Brookland Wood (0.18km, 100% favourable), and Scotney Castle (0.01km, 80% unfavourable – recovering, 20% not recorded). Scotland Castle and Brookland Wood are both GWDTE. The option would also cross SSSI Impact Risk Zones associated with the Pembury Cutting and Pit, Brookland Wood and Scotney Castle SSSI's, including areas where all planning applications, and pipeline development, are highlighted as being a risk to the sensitive features for which the SSSI is notified.</p> <p>The option is not expected to have any adverse effect on National Nature Reserves or Marine Conservation Zones.</p> <p>The option would cross 6 areas of Ancient Woodland and would be situated immediately adjacent to a further 17. The option would also intersect The option intersects six ancient woodlands, woodland and priority habitats including deciduous woodland, traditional orchard and good quality semi-improved grassland. The option lies within SSSI Impact Risk Zones. Barnett's Wood LNR is within 500m. Scotney Castle SSSI (30% Favourable, 70% Unfavourable - Recovering) and Brookland Wood (100% Favourable), which are both GWDTE and are within 500m of the pipeline route. Combwell Wood SSSI is within 2000m.</p> <p>There is potential for indirect effects and disruption from dust, noise and vibration during construction but effects will be localised. The HRA ToLS identifies no likely significant effect due to distance and lack of hydrological connection from Natura 2000 sites.</p> <p>The risk of INNS is very low as the option involves the physical transfer of treated water which will likely be free from INNS.</p>	Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys.	0	-	0	0

Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The pipeline passes through agricultural land classed as Grade 3 and Grade 4 as well as urban and non-agricultural land. There is potential for disturbance to these soils during construction. The expansion of the WTW may result in permanent loss of soil. Kipling Cross historic landfill is intersected by the option, with four further historic landfills within 500m. Potential for contamination during construction but due to localised nature, effects are likely to be minimal.	Reinstate land following construction phase, however there will be permanent loss from WTW expansion. Best construction practices for working within or within close proximity to landfills likely to be implemented to minimise impact.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	--	The pipeline is predominately within flood zone 1 but does intersect flood zones 2 and 3 therefore some risk during the construction phase. The option involves additional treatment at the existing Tunbridge WTW which may require site expansion. The site is within or within close proximity to flood 2 and 3 therefore potential for operational flood risk.	Measures to reduce the impact on flooding during the construction and operational phase. Flood risk may still occur.	0	-	0	-
	Protect and enhance the quality of the water environment and water resources	0	--	+	--	The option intersects nitrate vulnerable zones, SPZ2 and overlies the Kent Weald Western - Medway WFD groundwater body. The option also intersects several surface water bodies, including main rivers, therefore potential for the construction phase to contaminate the water environment from leaks and spills. Given the option is conjunctive use, there is potential for positive effects on the water environment as it may help to reduce pressures during dry periods. WFD Screening Assessment (2021) concluded one waterbody requires further assessment due to impacts identified at the construction phase. The WFD (2023) stage confirms WFD non-compliance (with low confidence).	Best practice mitigation measures likely to be implemented during construction such as use of appropriate bedding materials, trenchless crossings and directional drilling. Further WFD assessment is required therefore moderate negative effects identified.	0	--	+	--
	Deliver reliable and resilient water supplies	0	0	+	0	Option will facilitate water supply once operational, increasing water transfer and supply.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Tunbridge Wells A26 AQMA is within 2000m. Construction is likely to result in air quality impacts.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the	0	-	0	-

							electricity grid is decarbonised, greener energy will be available.				
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	The option is not thought to result in a change in water levels. Therefore, no effect on water environment vulnerability to climate change anticipated.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option lies within the High Weald AONB, the London Area Greenbelt and NCLA, and also intersects Green Belt land. Potential for visual disturbance during construction. Tunbridge Wells WTW expansion is unlikely to have a significant effect on the landscape given it is adjacent to an existing WTW site and within an industrial area.	Best practice measures will likely be implemented to minimise effects during construction such as use of construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	The option appears to intersect a Grade II listed building, however this is likely to be a result of the GIS alignment. There are numerous listed buildings and the Scotney Castle Registered Park and Garden within 500m. There are additional listed buildings, a registered park and garden, and scheduled monuments. The pipeline excavation has the potential to impact archaeology, if present.	Consider re-routing of pipeline to avoid listed building or utilise directional drilling if required. Best practice methods to minimise the effects on the setting of the historic assets. An Archaeology Watching Brief may be required during the construction phase. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	There are sports facilities, golf courses, schools, churches and religious grounds, allotments, playing fields and a hospital within 500m. The option is also shown to intersect several residential properties on the GIS. The option may cause temporary disturbance to local communities and the users of these community facilities from dust, noise and vibration. IMD deciles range from 8-10 along the extent of the route.	Consider re-routing of pipeline to avoid residential properties or utilise directional drilling. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0

	Maintain and enhance tourism and recreation	0	--	0	0	The option intersects a national cycle route and there are also sports facilities, golf courses, allotments and playing fields within 500m. There is potential for disruption on recreational assets from dust, noise, vibration and diversions during construction.	Best construction practices and implementation of appropriate diversions to minimise impact.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste, including excavated materials.	Seek opportunity to implement sustainable design measures and reuse excavated material on site, to reduce impact. Minor negative construction effects will likely remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option intersects major roads and a national cycle route. There is likely to be moderate and temporary disruption to these assets during the construction phase.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics		Positive		2			Positive		2		
		Negative				-48		Negative		-20	

SWS_SHZ_HI-REU_RE1_ALL_env_cu_bew2_conju											
Ashford WTW Recycling Conjunctive use to Bewl Reservoir											
SWS											
New Resource. This option is a new 16.5ML/d Water Recycling Plant producing a DO of 11.8ML/d near Ashford WwTW and a transfer of treated effluent to Bewl reservoir, which feeds Darwell reservoir, Bewl WSW and near Rochester WSW.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	The option intersects 14 ancient woodlands and priority habitats including deciduous woodland, good quality semi-improved grassland and traditional orchard therefore potential for direct effects. The option lies within SSSI Impact Risk Zones and Combwell Wood SSSI (53% Favourable, 47% Unfavourable - Recovering) is within 500m of the pipeline route. Scotney Castle SSSI and Sissinghurst Park Wood SSSI, both of which are GWDTE, and Hoad's Wood SSSI, and four LNRs, are within 2000m of the pipeline. There is potential for indirect effects and disruption from dust, noise and vibration during	Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. The HRA Tier 2 Enhanced Screening identified the likely	0	-	0	0

						construction but effects will be localised. The HRA ToLS identifies likely significant effects on Stodmarsh SAX/SPA/RAMSAR and Medway Estuary and Marshes SPA, located 23.3km northeast and 40km north respectively, due to mobilisation of sediments during construction. The risk of INNS is very low as the option involves the physical transfer of treated water which will likely be free from INNS.	significant to be mitigable. During construction, works will follow best practice guidelines e.g. use of a robust CEMP detailing mitigation measures to minimise potential impacts with the use of DMPs, pollution prevention, coverage of construction stockpiles during adverse weather conditions to minimise potential effects of pollution and run-off. Construction dust could be mitigated through wet cutting/crushing and vacuum drilling. It may also be possible to cross watercourses by directional drilling, such that they are unaffected, eliminating the risk of effects due to sediment and pollution.				
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The pipeline passes through agricultural land is classed as Grade 2, 3 and 4 as well as urban and non-agricultural land. There will be disturbance to these soils during the construction phase. The new Water Recycling Plant appears to be located in Grade 3 and there will likely be permanent loss of this soil to accommodate the works. The option intersects two historic landfills, with a further five within 500m, therefore potential for contamination during construction.	Reinstate land following construction phase, however there will be permanent loss from the Water Recycling Plant. Best construction practices for working within or within close proximity to landfills likely to be implemented to minimise impact.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The pipeline is predominately within flood zone 1, however parts of the option lie within flood zones 2 and 3 therefore potential flood risk during construction. The option is unlikely to significantly affect flood risk. The location of the new Water Recycling Plant appears to be in flood zone 1, and pipeline will be buried, therefore operational impacts are likely to be low.	Measures to reduce the impact on flooding during the construction and operational phase. Flood risk may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	+	0	The option overlies nitrate vulnerable zones and the Kent Greensand Eastern and Kent Weald Western - Medway WFD groundwater bodies. The option also intersects several surface water bodies, including main rivers, therefore potential for leaks and spills during construction that could enter the water environment. Given the option is conjunctive use, there is potential for positive effects on the water environment as it may help to reduce pressures during dry periods. WFD Screening Assessment (2021) concluded one	Best practice mitigation measures likely to be implemented during construction such as use of appropriate bedding materials, trenchless crossings and directional drilling. Further WFD assessment is required therefore moderate negative effects identified.	0	--	+	0

						waterbody requires further assessment due to impacts identified at the construction phase.					
	Deliver reliable and resilient water supplies	0	0	+	0	Option will facilitate water supply once operational, increasing water transfer and supply.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	There are no AQMAs within 2000m. The construction phase is likely to have an impact on air quality, however this is likely to be minor and temporary.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	The option is not thought to result in a change in water levels. Therefore, no effect on water environment vulnerability to climate change anticipated.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option intersects the High Weald AONB and also intersects the Hight Weald, Low Weald and Wealden Greensand NCLAs. Potential for visual disturbance during construction. The site for the Water Recycling Facility is not located within any landscape designations, however there will be operational impacts.	Best practice measures will likely be implemented to minimise effects during construction and operation, such as screening, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	The Bedgebury National Pinetum, Sissinghurst and Sissinghurst Castle Registered Parks and Gardens are within 500m. It appears that the pipeline intersects listed buildings, however this is likely due to the GIS alignment as the route follows roads, and there is also a scheduled monument within close proximity. There is	Consider re-routing of pipeline to avoid listed building or utilise directional drilling if required. Best practice methods to minimise the effects on the setting of	0	-	0	0

						potential that the setting of these assets will be affected during the construction phase. The excavation required for the pipeline and potentially the Water Recycling Facility has the potential to impact archaeology, if present.	the historic assets. An Archaeology Watching Brief may be required. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.									
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The option intersects Noise Action Planning Important Areas, public parks or gardens, and a playing field. The pipeline is within 500m of public parks or gardens, emergency services, schools, sports facilities, play spaces, churches and religious grounds, playing fields, allotments, cemeteries, and other community facilities within 500m. The option may cause temporary disturbance to local communities and users of these community facilities from dust, noise and vibration. IMD deciles 2-9 along extent of the pipeline.	Consider re-routing of pipeline to avoid residential properties. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0					
	Maintain and enhance tourism and recreation	0	--	0	0	The option intersects a national cycle route, public park or garden and a playing field, and there are also sports facilities, play spaces and allotments within 500m. There is potential for disruption to recreation from dust, noise, vibration and diversions during construction.	Best construction practices and implementation of appropriate diversions to minimise impact.	0	-	0	0					
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste.	Seek opportunity to implement sustainable design measures and reuse excavated material on site, to reduce impact. Minor negative construction effects will likely remain.	0	-	0	0					
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option intersects major roads, railway tracks and a national cycle route. There is likely to be moderate disruption to these assets during the construction phase.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0					
SEA Metrics			Positive	2	Negative			-41	Positive			2	Negative			-16

SWS_SHZ_HI-REU_RE1_ALL_wr_pwr_bew3_conju											
Tonbridge WwTW water recycling to Bewl reservoir.											
Southern											
New Resource. Effluent pipeline (18,046 m of pipeline with a 325 mm diameter) from Tonbridge WwTW to Bewl reservoir, which feeds into Darwell reservoir, Bewl WSW and near Rochester WSW. Additional tertiary treatment required at Tonbridge - land purchase likely required. 235 kW pump required. Pipe could benefit from throttling towards the latter lengths of the pipe to reduce discharge head.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	The option within 500m of Brookland Wood SSSI (100% favourable) and Scotney Castle SSSI (69.55% unfavourable - recovering, 30.45% favourable), both of which are GWDTEs. The option located in SSSI Impact Risk Zones. The option crosses woodland including several areas of Ancient Woodland and deciduous woodland Priority Habitat, and other Priority Habitats including good quality semi-improved woodland.	Re-route pipeline to avoid SSSI. Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid woodland habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable	0	-	0	0

						The HRA ToLS (2021) identified no likely significant effects as there are no N2K sites within 10km and there are no effect pathways. The risk of the transfer / spread of INNS is very low as the option involves the physical transfer of treated water (between two locations assumed currently unconnected) (no INNS risk as treated water will be free from INNS).	compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys.				
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The option within 500m of Pembury Cutting and Pit SSSI (100% favourable) although no impacts are anticipated. Option crosses areas of grade 3 and 4 agricultural land and non-agricultural land. Likely disturbance to these soils during construction. Option within 500m of six historic landfill sites. There is potential to disturb contaminated material during construction.	Land reinstated upon completion, where possible. Best practice construction measures to be implemented.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	The majority of the option is within Flood Zone 1 with the exception of two sections, which pass through Flood Zones 2 and 3 and flood defences, and may have an impact on construction. Impacts on operation unlikely given the pipeline is buried. The pipeline is unlikely to increase the risk of flooding.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	The option crosses multiple watercourses, including main rivers in two locations. Option crosses SPZ 3 in one location and abuts SPZ 1. The WFD Screening Assessment (2021) identified further WFD assessment is not required.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	The option will facilitate water supply once operational, from Tonbridge WwTW to Bewl reservoir, which feeds into Darwell reservoir, Bewl WSW and near Rochester WSW. Additional tertiary treatment required at Tonbridge Capacity of 23MI/d.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	The option does not pass through any AQMAs, nor any within 500m or 2000m. However, construction is likely to have minor and temporary impact.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational carbon.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available	0	-	0	-

	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Water levels not predicted to be significantly affected therefore unlikely to affect resilience of the local environment to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	-	The majority of the option is located within High Weald AONB and partially within the London Area Greenbelt. The option is in the High Weald NCA. Negative effects during construction likely as excavation will be required for the transfer pipeline. Land purchase likely required for option which may result in permanent infrastructure within the landscape. However, likely to only result in minor residual effects due to presence of Tonbridge WwTW in close proximity. Tonbridge WwTW is not located within the AONB or Greenbelt.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion, where possible.	0	-	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	The option crosses Scotney Castle Grade I Registered Park and Garden and Somerhill Grade II Registered Park and Garden. Option within 500m of multiple listed buildings, some of which are in close proximity, and one Scheduled Monument, which is in close proximity. Construction may affect the setting of the historic assets, however this will be temporary. Potential impact on buried archaeology, if present.	Consider option re-routing or trenchless techniques to avoid direct impacts on Registered Parks and Gardens. Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	Option crosses the grounds of a school and is within 500m of other education sites, medical care facilities, and Important Buildings. Option crosses one golf course, one Public Park and Garden and is adjacent to the grounds of a church. The option is within 500m of sports facilities, Public Park of Gardens, play spaces, playing fields. There is likely to be temporary disturbance effects on users of these sites and the local community during construction. The option crosses five Noise Action Planning Important Areas. IMD deciles along the pipeline route vary from 7 to 10.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of community assets to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	--	0	0
	Maintain and enhance tourism and recreation	0	--	0	0	Option crosses one golf course, one Public Park and Garden and one religious grounds. Within 500m of sports facilities, Public Park of Gardens, play spaces, playing fields. The option crosses watercourses and habitat areas/woodland that could be used for	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of	0	--	0	0

						recreation, therefore there may be some temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance of users of a national cycle route, footpaths and other public rights of way during the construction phase.	recreational sites assets to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.					
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0	
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option crosses major roads, including A21, rail tracks and National Cycle Route. Likely to be moderate and temporary impacts during the construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0	
SEA Metrics			Positive	1	Negative			-37	Negative	Positive	1	-18

SWS_SHZ_HI-REU_RE1_ALL_wr_pwr_dar3_conju											
Bexhill and Hastings WTW Recycling Conjunctive use with Darwell											
SWS											
New Resource. Effluent pipeline from Bexhill and Hastings WTW to Darwell reservoir, which feeds into Brede, Beauport and Hazards Green WSW. Additional tertiary treatment will be required at Bexhill and Hastings WTW, requiring land purchase											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	The option intersects woodland, ancient woodlands and priority habitat including deciduous woodland, good quality semi-improved grassland and lowland heathland therefore potential for direct effects. The option lies within SSSI Impact Risk Zones. Combe Haven (68% Favourable, 32% Unfavourable - Declining) and Darwell Wood (100% Favourable), which are both GWDTE, are within 500m of the pipeline route. Dungeness, Romney Marsh and Rye Bay SPA, Ashburnham Park SSSI, Fore Wood SSSI,	Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. The HRA Tier 2 Enhanced Screening identified the uncertain effects for	0	-	0	0

						Marline Valley Woods SSSI, Marline Wood LNR and Filsham Reed Bed LNR, and Beachy Head East MCZ are all within 2000m. There is potential for indirect effects and disruption from dust, noise and vibration during construction but effects will be localised. The HRA ToLS identifies uncertain effects on Dungeness, Romney Marsh and Rye Bay SPA/RAMSAR as construction could result in sediment mobilisation or pollutant release into watercourses that are hydrologically connected to the site. The risk of INNS is very low as the option involves the physical transfer of treated water which will likely be free from INNS.	Dungeness, Romney Marsh and Rye Bay SPA/RAMSAR are mitigable. During construction, works will follow best practice guidelines e.g. use of a robust CEMP detailing mitigation measures to minimise potential impacts with the use of DMPs, pollution prevention, coverage of construction stockpiles during adverse weather conditions to minimise potential effects of pollution and run-off. Construction dust could be mitigated through wet cutting/crushing and vacuum drilling.				
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The pipeline passes through agricultural land classed as Grades 3 and 4 as well as non-agricultural land. There may be disturbance to these soils during the construction phase. The expansion of the WTWs may result in permanent loss of soil. There are two authorised landfills and two historic landfills within 500m of the option. Potential for contamination during construction but due to localised nature, effects are likely to be minimal.	Reinstate land following construction phase, however there will be permanent loss from WTW expansion. Best construction practices for working within or within close proximity to landfills likely to be implemented to minimise impact.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The pipeline is predominately within flood zone 1, however parts of the option lie within flood zones 2 and 3 therefore potential flood risk during the construction phase. The WTW appear to be located within flood zone 1 and the pipeline will be buried therefore low risk of flood risk during operation. The option is unlikely to significantly affect flood risk.	Measures to reduce the impact on flooding during the construction and operational phase. Flood risk may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	+	0	The option overlies nitrate vulnerable zones, the Hastings Beds Cuckmere and Pevensey Levels, and Kent Weald Eastern - Rother WFD groundwater bodies. The option is not within SPZs. The option also intersects several surface water bodies, including main rivers, therefore there is potential for leaks and spills during construction that could contaminate the water environment. Given the option is conjunctive use, there is potential for positive effects on the water environment as it may help to reduce pressures during dry periods. WFD Screening Assessment (2021) identified one waterbody requires further assessment due to construction effects.	Best practice mitigation measures likely to be implemented during construction such as use of appropriate bedding materials, trenchless crossings and directional drilling. Further WFD assessment is required therefore moderate negative effects identified.	0	--	+	0

	Deliver reliable and resilient water supplies	0	0	+	0	Option will facilitate water supply once operational, increasing water transfer and supply. The option is anticipated to have a default benefit of 23Ml/d therefore minor positive effects identified.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	There are no AQMAs within 2000m. The construction has the potential to impact air quality, however effects are likely to be minor and temporary.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	The option is not thought to result in a change in water levels. Therefore, no effect on water environment vulnerability to climate change anticipated.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option lies within the High Weald AONB and NCLA. Potential for visual disturbance during construction. The WTW expansion is unlikely to have a significant effect on the landscape given it is adjacent to an existing WTW sites.	Best practice measures will likely be implemented to minimise effects during construction such as use of construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are listed buildings within proximity to the pipeline route and there are also additional listed buildings and registered parks and gardens within 2000m. The construction phase may have effect the setting of these assets, however this is likely to be minor. Any excavation required has the potential to impacts archaeology, if present.	Best practice methods to minimise the effects on the setting of the historic assets. An Archaeology Watching Brief may be required. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The option appears to intersect a cemetery. There are playing fields, play spaces and schools within 500m of the pipeline route. There may be temporary disturbance to local communities and users of these community facilities from dust, noise and vibration. IMD deciles 4-6 along extent of pipeline.	Re-reroute the pipeline to avoid direct effects on the cemetery. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	No tourism or recreational assets are directly impacted by the option, however there are playing fields and play spaces within 500m of the route. Potential for disruption from dust, noise, vibration and diversions during construction.	Best construction practices and the implementation of appropriate diversions to minimise impact.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste, including excavated materials.	Seek opportunity to implement sustainable design measures and reuse excavated material on site, to reduce impact. Minor negative construction effects will likely remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option intersects a major road therefore potential for moderate disruption effects, however this is likely to be minor.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics		Positive		2		Negative		Positive		2	
				Negative		-31		Negative		-16	

SWS_SHZ_HI-TFR_KMW_ALL_bew											
Bewl-SH transfer capacity											
Southern											
Bewl-SH transfer capacity											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	The option is for an existing transfer. No new infrastructure likely to be required therefore no impacts identified. HRA ToLS (2021) identified no likely significant effects given there is no new infrastructure. No additional risk for the transfer of INNS.	N/A	0	0	0	0

Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No new infrastructure as existing transfer therefore neutral effects identified for soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No new infrastructure therefore no additional flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No new infrastructure therefore neutral effects identified for water resources. WFD Screening Assessment (2020) identified no impact as it is an existing transfer and further WFD assessment is therefore not required.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	0	0	The option transfers water which leads to more resilient supplies, however as this is an existing transfer, additional positive effects have not been identified.	N/A	0	0	0	0
Air	Reduce and minimise air emissions	0	0	0	0	No new infrastructure therefore no additional impacts on air quality.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data. However, estimated to have neutral carbon emissions.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	No new infrastructure, utilising existing transfer and water levels are not likely to be significantly affected, therefore no additional impacts on the climate resilience of the local environment.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No new infrastructure therefore no additional impacts on landscape.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No new infrastructure therefore no additional impacts on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	No new infrastructure therefore no additional impacts on the local community.	N/A	0	0	0	0

	Maintain and enhance tourism and recreation	0	0	0	0	No new infrastructure therefore no additional impacts on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	No new infrastructure therefore no additional impact on resources and waste.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	No new infrastructure therefore no additional impacts on built assets and the built environment.	N/A	0	0	0	0
SEA Metrics											
			Positive	0	Negative	0					
							Positive	0	Negative	0	

Arlington to Rye: 10MI/d											
Arlington to Brede: 10MI/d											
South East											
A bi-directional transfer between Arlington and Brede.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-

Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	Option crosses Arlington Reservoir LNR/ SSSI (100% favourable). Option within 500m of Ashburnham Park SSSI (84.40% unfavourable - recovering, 15.60% favourable), Hemingfold Meadow SSSI (100% favourable) and Pevensey Levels SSSI (99.5% unfavourable - recovering, 0.5% partially destroyed). Entire option located within SSSI Impact Risk Zones. Option within 2km of Pevensey Levels SAC/Ramsar. Option crosses woodland, including two areas of Ancient Woodland and deciduous woodland Priority Habitat as well as other Priority Habitat including coastal and floodplain grazing marsh, traditional orchard and good quality semi-improved grassland. Very low risk of transfer of INNS. Construction phase risk of INNS is considered to be low. HRA ToLS (2021) suggest significant disturbance due to dust and water pollution during construction causing degradation to wetland habitat to the following Natura 2000 sites: Pevensey Levels Ramsar (320m south of proposed option), Pevensey SAC (200m south of proposed option). There are unlikely to be any effects during operation of the scheme.	Pipeline routing to avoid Arlington Reservoir SSSI and Local Nature Reserve and Ancient Woodland. Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Uncertain effects during construction phase for Pevensey Levels Ramsar and SAC are considered to be mitigatable through use of best practice guidelines such as use of a robust CEMP.	0	--	0	0
	Soil	0	--	0	0	Option within 500m of Blackhorse Quarry SSSI (100% favourable) although no impacts are anticipated. Option crosses one historic landfill site and within 500m of six other historic landfill sites. There is potential to disturb contaminated material during construction. Option predominately located on grade 3 agricultural land, whilst frequently crossing areas of grade 4 agricultural land and adjacent to non-agricultural land in one location. Likely disturbance to these soils during construction.	Ground will be reinstated therefore residual effects unlikely. Best practice techniques to prevent potential disturbance of contaminated material during construction.	0	0	0	0
	Water	0	--	0	0	The majority of the option is within Flood Zone 1 although it passes through several areas of Flood Zones 2 and 3 and flood defences, and may have an impact on construction. Impacts on operation unlikely given the pipeline is buried. The pipeline is unlikely to increase the risk of flooding.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	Option crosses multiple watercourses, including main rivers. Option crosses SPZ Zones I, II and III at the eastern end of route and crosses SPZ Zone III briefly in one other location. Majority of option not located within SPZ. WFD identified no waterbodies requiring further WFD assessment.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain.	0	-	0	0

	Deliver reliable and resilient water supplies	0	0	+	0	Option will facilitate water supply once operational, via a bi-directional transfer between Arlington and Brede. Option is transferring water from an area of surplus to an area of deficit.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Option does not pass through any AQMAs, nor are there any within 500m or 2000m. However, construction is likely to have minor and temporary impact.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Water levels not predicted to be significantly affected therefore, unlikely to affect resilience of the local environment to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	Approximately 1/2 of option located within High Weald Area of Outstanding Natural Beauty. Option located within High Weald, Pevensey Levels, Low Weald and Romney Marshes National Character Areas. Potential for impacts on landscape character and visual amenity during construction.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	---	0	0	Option crosses one grade II listed building (a milepost) and within 500m of multiple listed buildings. Option within 500m of two Scheduled Monuments and two Grade II* Registered Parks and Gardens. Three conservation areas within 500m. Construction may affect the setting of the historic assets, however this will be temporary. Potential impact on buried archaeology, if present.	Pipeline routing to avoid crossing listed building. Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	--	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	Option within 500m of multiple schools, medical care facilities and other important buildings. Option crosses one playing field and one golf course and within 500m of religious grounds, playing fields, golf course, play spaces, allotments and public parks and gardens. Option crosses two Noise Action Important Planning Areas. Option crosses areas of IMD decile 8, 7, 6, 5 and 4. Disturbance to the local community will be temporary in nature.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction and land will be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	Option crosses one playing field and one golf course and within 500m of religious grounds, playing fields, golf course, play spaces, allotments and public parks and gardens. Option crosses two National Cycle Network routes. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	Option crosses one railway, three major roads and the National Cycle Network in two locations. Option is within 500m of a Functional Road Transport site (service station). Likely to be moderate and temporary impacts during the construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive 1 Negative -42				Positive 1 Negative -18					

Arlington to Rye: 20MI/d					
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Arlington to Brede: 20MI/d											
South East											
A bi-directional transfer between Arlington and Brede.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	Option crosses Arlington Reservoir LNR/ SSSI (100% favourable). Option within 500m of Ashburnham Park SSSI (84.40% unfavourable - recovering, 15.60% favourable), Hemingfold Meadow SSSI (100% favourable) and Pevensey Levels SSSI (99.5% unfavourable - recovering, 0.5% partially destroyed). Entire option located within SSSI Impact Risk Zones. Option within 2km of Pevensey Levels SAC/Ramsar. Option crosses woodland, including two areas of Ancient Woodland and deciduous woodland Priority Habitat as well as other Priority Habitat including coastal and floodplain grazing marsh, traditional orchard and good quality semi-improved grassland. Very low risk of transfer of INNS. Construction phase risk of INNS is considered to be low. HRA ToLS (2021) suggest significant disturbance due to dust and water pollution during construction causing degradation to wetland habitat to the following Natura 2000 sites: Pevensey Levels Ramsar (320m south of proposed option), Pevensey SAC (200m south of proposed option). There are unlikely to be any effects during operation of the scheme.	Pipeline routing to avoid Arlington Reservoir SSSI and Local Nature Reserve and Ancient Woodland. Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Uncertain effects during construction phase for Pevensey Levels Ramsar and SAC are considered to be mitigatable through use of best practice guidelines such as use of a robust CEMP.	0	--	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	Option within 500m of Blackhorse Quarry SSSI (100% favourable) although no impacts are anticipated. Option crosses one historic landfill site and within 500m of six other historic landfill sites. There is potential to disturb contaminated material during construction. Option predominately located on grade 3 agricultural land, whilst frequently crossing areas of grade 4 agricultural land and adjacent to non-agricultural land in one location. Likely disturbance to these soils during construction.	Ground will be reinstated therefore residual effects unlikely. Best practice techniques to prevent potential disturbance of contaminated material during construction.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	The majority of the option is within Flood Zone 1 although it passes through several areas of Flood Zones 2 and 3 and flood defences, and may have an impact on construction. Impacts on operation unlikely given the pipeline is buried. The pipeline is unlikely to increase the risk of flooding.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0

	Protect and enhance the quality of the water environment and water resources	0	--	0	0	Option crosses multiple watercourses, including main rivers. Option crosses SPZ Zones I, II and III at the eastern end of route and crosses SPZ Zone III briefly in one other location. Majority of option not located within SPZ. WFD identified no waterbodies requiring further WFD assessment.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option will facilitate water supply once operational, via a bi-directional transfer between Arlington and Brede. Option is transferring water from an area of surplus to an area of deficit.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Option does not pass through any AQMAs, nor are there any within 500m or 2000m. However, construction is likely to have minor and temporary impact.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Water levels not predicted to be significantly affected therefore, unlikely to affect resilience of the local environment to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	Approximately 1/2 of option located within High Weald Area of Outstanding Natural Beauty. Option located within High Weald, Pevensey Levels, Low Weald and Romney Marshes National Character Areas. Potential for impacts on landscape character and visual amenity during construction.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	---	0	0	Option crosses one grade II listed building (a milepost) and within 500m of multiple listed buildings. Option within 500m of two Scheduled Monuments and two Grade II* Registered Parks and Gardens. Three conservation areas within 500m. Construction may affect the setting of the historic assets, however this will be temporary. Potential impact on buried archaeology, if present.	Pipeline routing to avoid crossing listed building. Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential	0	--	0	0

							loss of archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	Option within 500m of multiple schools, medical care facilities and other important buildings. Option crosses one playing field and one golf course and within 500m of religious grounds, playing fields, golf course, play spaces, allotments and public parks and gardens. Option crosses two Noise Action Important Planning Areas. Option crosses areas of IMD decile 8, 7, 6, 5 and 4. Disturbance to the local community will be temporary in nature.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction and land will be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	Option crosses one playing field and one golf course and within 500m of religious grounds, playing fields, golf course, play spaces, allotments and public parks and gardens. Option crosses two National Cycle Network routes. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	Option crosses one railway, three major roads and the National Cycle Network in two locations. Option is within 500m of a Functional Road Transport site (service station). Likely to be moderate and temporary impacts during the construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive 1		Negative -42		Positive 1		Negative -18			

Arlington to Rye: 40MI/d										
Arlington to Brede: 40MI/d										
South East										
A bi-directional transfer between Arlington and Brede.										
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		
		+	-	+	-			+	-	
Biodiversity , flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	Option crosses Arlington Reservoir LNR/ SSSI (100% favourable). Option within 500m of Ashburnham Park SSSI (84.40% unfavourable - recovering, 15.60% favourable), Hemingfold Meadow SSSI (100% favourable) and Pevensey Levels SSSI (99.5% unfavourable - recovering, 0.5% partially destroyed). Entire option located within SSSI Impact Risk Zones. Option within 2km of Pevensey Levels SAC/Ramsar. Option crosses woodland, including two areas of Ancient Woodland and deciduous woodland Priority Habitat as well as other Priority Habitat including coastal and floodplain grazing marsh, traditional orchard and good quality semi-improved grassland. Very low risk of transfer of INNS. Construction phase risk of INNS is considered to be low. HRA ToLS (2021) suggest significant disturbance due to dust and water pollution during construction causing degradation to wetland habitat to the following Natura 2000 sites: Pevensey Levels Ramsar (320m south of proposed option), Pevensey SAC (200m south of proposed option). There are unlikely to be any effects during operation of the scheme.	Pipeline routing to avoid Arlington Reservoir SSSI and Local Nature Reserve and Ancient Woodland. Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Uncertain effects during construction phase for Pevensey Levels Ramsar and SAC are considered to be mitigatable through use of best practice guidelines such as use of a robust CEMP.	0	--	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	Option within 500m of Blackhorse Quarry SSSI (100% favourable) although no impacts are anticipated. Option crosses one historic landfill site and within 500m of six other historic landfill sites. There is potential to disturb contaminated material during construction. Option predominately located on grade 3 agricultural land, whilst frequently crossing areas of grade 4 agricultural land and adjacent to non-agricultural land in one location. Likely disturbance to these soils during construction.	Ground will be reinstated therefore residual effects unlikely. Best practice techniques to prevent potential disturbance of contaminated material during construction.	0	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	The majority of the option is within Flood Zone 1 although it passes through several areas of Flood Zones 2 and 3 and flood defences, and may have an impact on construction. Impacts on operation unlikely given the pipeline is buried. The pipeline is unlikely to increase the risk of flooding.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0

	Protect and enhance the quality of the water environment and water resources	0	--	0	0	Option crosses multiple watercourses, including main rivers. Option crosses SPZ Zones I, II and III at the eastern end of route and crosses SPZ Zone III briefly in one other location. Majority of option not located within SPZ. WFD identified no waterbodies requiring further WFD assessment.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain.	0	-	0
	Deliver reliable and resilient water supplies	0	0	++	0	Option will facilitate water supply once operational, via a bi-directional transfer between Arlington and Brede. Option is transferring water from an area of surplus to an area of deficit.	N/A	0	0	++
Air	Reduce and minimise air emissions	0	-	0	0	Option does not pass through any AQMAs, nor are there any within 500m or 2000m. However, construction is likely to have minor and temporary impact.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Water levels not predicted to be significantly affected therefore, unlikely to affect resilience of the local environment to climate change.	N/A	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	Approximately 1/2 of option located within High Weald Area of Outstanding Natural Beauty. Option located within High Weald, Pevensey Levels, Low Weald and Romney Marshes National Character Areas. Potential for impacts on landscape character and visual amenity during construction.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	---	0	0	Option crosses one grade II listed building (a milepost) and within 500m of multiple listed buildings. Option within 500m of two Scheduled Monuments and two Grade II* Registered Parks and Gardens. Three conservation areas within 500m. Construction may affect the setting of the historic assets, however this will be temporary. Potential impact on buried archaeology, if present.	Pipeline routing to avoid crossing listed building. Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential	0	--	0

							loss of archaeological remains due to construction.			
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	Option within 500m of multiple schools, medical care facilities and other important buildings. Option crosses one playing field and one golf course and within 500m of religious grounds, playing fields, golf course, play spaces, allotments and public parks and gardens. Option crosses two Noise Action Important Planning Areas. Option crosses areas of IMD decile 8, 7, 6, 5 and 4. Disturbance to the local community will be temporary in nature.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction and land will be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0
	Maintain and enhance tourism and recreation	0	-	0	0	Option crosses one playing field and one golf course and within 500m of religious grounds, playing fields, golf course, play spaces, allotments and public parks and gardens. Option crosses two National Cycle Network routes. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance on users of footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	Option crosses one railway, three major roads and the National Cycle Network in two locations. Option is within 500m of a Functional Road Transport site (service station). Likely to be moderate and temporary impacts during the construction.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0
SEA Metrics		Positive 4		Negative -42		Positive 4		Negative -40		

SWS_SHZ_HI-TFR_SHZ_ALL_tw_bs_dar_eastn											
Terminate Darwell reservoir supply to SEW											
Southern water											
(1) Terminate Darwell reservoir supply to South East Water. This would save 8Ml/d of water, which would then be available for Sussex Hastings WRZ. This is turn reduces reliance on Bewl Water.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	No effects on biodiversity, flora and fauna are anticipated as a result of this option. HRA ToLs identified no likely significant effects on N2K sites. No significant risk of spreading of INNS associated with this option.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No effects on soils are anticipated as a result of this option.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No effects on flood risk are anticipated as a result of this option.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	Potential benefits from reducing reliance on Bewl Reservoir. WFD assessments 2020 identified no further assessments were required.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option to terminate supply from Darwell reservoir to South East Water saving 8Ml/d of water, which would then be available for Sussex Hastings WRZ.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	No effects on air quality are anticipated as a result of this option.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No effects on carbon emissions are anticipated as a result of this option.	N/A	0	0	0	0

	Reduce vulnerability to climate change risks and hazards	0	0	0	0	No effects on climate change resilience are anticipated as a result of this option.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No effects on landscape character or visual amenity are anticipated as a result of this option.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No effects on the historic environment are anticipated as a result of this option.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	No effects on the local community are anticipated as a result of this option.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	No effects on tourism and recreation are anticipated as a result of this option.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	Option unlikely to require significant new infrastructure.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	No effects on built assets and infrastructure are anticipated as a result of this option.	N/A	0	0	0	0
SEA Metrics		Positive 1 Negative 0				Positive 1 Negative 0					

SWS_SHZ_RE-DRO_ALL_ALL_di-sh											
TUBS and NEU Ban - SH WRZ											
Southern water											
Temporary use bans and Non-essential use bans											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Temporary use bans and non-essential use bans in Sussex Hastings may help protect GWDTE and priority habitat by conserving water in the environment. The HRA Tols (2021) indicated the following Natura sites that may be affected: Hastings Cliffs SAC; Dungeness SAC; Dungeness, Romney Marsh and Rye Bay Ramsar; Dungeness, Romney Marsh and Rye Bay SPA. The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to sites which ecosystems are dependent upon ground and surface water. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	A temporary use ban and non-essential use ban may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of several water bodies. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	By reducing demand through temporary use band and non-essential use ban, option maintains resilience of water for essential services.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	There is no carbon data available for this option. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The option is for a temporary use ban and non-essential use ban. By reducing demand and potentially reducing abstraction the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented in drought conditions, it will not result in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of private gardens, and use of ornamental fountains etc will be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to have a significant effect on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Temporary use ban and non-essential use ban is likely to have minor negative effects on the community and social well-being as there will be restrictions on irrigation of gardens and allotments and use of water for recreational purposes. There may also be a small increased risk of fires in allotments as vegetation dries out.	Allowing allotments limited supplies of water. Ensuring high levels of communication before, during and following the implementation of these measures.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Assuming commercial properties including gardens are exempt from bans and restrictions there is likely to be only a minor effect on tourism and recreation. Non-commercial tourism sites may be affected.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effect on waste production or resource use.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effects on built assets and infrastructure.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -3				Positive 4 Negative -3					

SWS_SHZ_RE-DRO_ALL_ALL_do_di_eme_regi											
Emergency restrictions: Sussex Hastings											
Southern water											
<p>Drought Option: Emergency Drought Orders allow water companies to restrict supplies to customers through the imposition of rota cuts and/or the introduction of standpipes. These measures exist to deal with the very remote possibility of a drought much worse than any seen in the last century or more in the UK. Emergency Drought Orders have not been put in place in the UK since 1976. Ministers have made it clear that such measures should be avoided at all costs and introduced only as a last resort. The Company will make full use of all other measures before considering whether the severity of drought conditions mean that Emergency Drought Orders might be required. The full range of measures available under Emergency Drought Order include powers: To limit the use of water for such purposes as it considers necessary (i.e. further measures not specified in the Drought Direction 2011); To introduce rota cuts; and To set up, and supply water by means of, stand-pipes or water tanks. Level of intervention for this option: Unprecedented drought conditions. We intend the need for these to only arise in conditions of civil emergency and as such our emergency plan covers this in more detail.</p>											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) identified no likely significant effects for the N2K sites within the Sussex Hastings WRZ: Hastings Cliffs SAC; Dungeness SAC; Dungeness, Romney Marsh and Rye Bay Ramsar and SPA. The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to all the sites as the contain GWDTEs. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Emergency restrictions may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is only to be used in severe drought circumstances so is therefore not likely to affect flood risk or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0

	Deliver reliable and resilient water supplies	0	0	++	0	Option maintains resilience of water for essential services.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	There is no carbon data available for this option. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have temporary effects on visual amenity as restricted water use may impact parks and gardens reliant on public water supply.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	---	Emergency restrictions such as rota cuts and imposition of standpipes may have major negative effects on social well-being, with the potential for breakdown of social cohesion and impacts on public health. Imposition of standpipes will particularly effect people with limited mobility or other disabilities. Businesses that use water and do not have access to private water supply will be largely affected with the potential for substantial economic losses. There may also be an increased risk of fires as public access to water is restricted.	Ensure high level of communication with customers before, during and after the restrictions have been imposed.	0	0	0	---
	Maintain and enhance tourism and recreation	0	0	0	--	Tourism and recreation is likely to be affected as water restrictions may force some tourist attractions and recreational activities to temporarily close.	N/A	0	0	0	--
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 7 Negative -13				Positive 7 Negative -13					

SWS_SHZ_RE-DRO_ALL_ALL_si_dar2											
Darwell Reservoir (stages 1 (freshet removal) to 3) Drought Permit/Order (2025 onwards)											
Southern Water											
1) Reduce MRF in spring from 40MI/d to 10MI/d. Drought Option: The drought order involves a proposed reduction in the statutory Minimum Residual Flow (MRF) as gauged at the Robertsbridge flow gauging weir on the River Rother. MRF would be reduced to 10 MI/d to enable abstraction to take place when flows are sufficiently high. The proposed drought order reduction varies depending on the time of year. The drought order would be sought in order to increase the volume of water available for abstraction at the Robertsbridge intake to pump up to Darwell Reservoir to augment the remaining storage. The drought order will influence flows in the watercourses downstream of Robertsbridge. 1) Scheme yield: 30 MI/d Mar-May.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	The location is unknown at the time of the assessment. There may be potential for impacts on GWDTEs in proximity to the abstraction points, it is not known how far the effects an increase in abstraction will be seen therefore minor operational effects have been identified. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress. The HRA Tols (2021) identified no likely significant effects. There is not anticipated to be any additional risk for the transfer / spread of INNS.	Monitor abstraction.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Reduced flow may impact local soil quality, however effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is not likely to affect flood risk or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	--	Potential effects on the water flows and quality downstream of Robertsbridge and at Darwell Reservoir. Moderate negative effects during operation have been assessed in line with the SEA for the Southern Water Drought Plan.	Further assessments required.	0	0	0	--
	Deliver reliable and resilient water supplies	0	0	++	0	Option will increase storage supply at Darwell Reservoir.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	0	0	0	There may be some negative effects from an increase in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	There is no carbon data available for this option. Neutral effects have been estimated at this stage. There may be some negative effects from an increase in carbon emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Option unlikely to have significant impacts on vulnerability to climate change.	Monitor ground water flows.	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	Option unlikely to have effect on landscape, townscape and seascape character and visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option unlikely to have effect on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	++	0	The drought permit would provide additional yield, helping to maintain essential public water supplies during drought conditions, and will therefore help maintain public health and wellbeing to a moderate degree	N/A	0	0	++	0
	Maintain and enhance tourism and recreation	0	0	0	--	There is potential for a reduction in connectivity at low spring tides which may impact recreational sailing in the area, this has been as having a moderate negative effect.	N/A	0	0	0	--
Material Assets	Minimise resource use and waste production	0	0	0	-	Potential for increased resources required and waste produced from increased water treatment.	N/A	0	0	0	-
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -6				Positive 4 Negative -6					

SWS_SHZ_RE-DRO_ALL_ALL_si_pow2											
Powdermill Reservoir Drought Permit/Order (2025 onwards)											
Southern water											
Drought Option: A Drought Permit/Order may be applied for to reduce the MRF controlling abstraction from the River Brede to refill Powdermill Reservoir. This is currently 6.2 MI/d, and a reduction to as low as 2 MI/d would be considered, depending on environmental and other constraints Dependent upon flow at Brede.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	The location is unknown at the time of the assessment. There may be potential for impacts on GWDTEs in proximity to the abstraction points, it is not known how far the effects an increase in abstraction will be seen therefore minor operational effects have been identified. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress. The HRA Tols (2021) identified no likely significant effects. There is not anticipated to be any additional risk for the transfer / spread of INNS.	Monitor abstraction.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Reduced flow may impact local soil quality, however effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is not likely to affect flood risk or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	--	Potential effects on the water flows and quality downstream of River Brede abstraction. WFD assessment (2020) indicate further assessments required to assess impacts on the following water bodies: Powdermill Reservoir.	Further assessments required.	0	0	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	Option will increase storage supply at Powdermill Reservoir for drought demand.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	There may be some negative effects from an increase in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	There is no carbon data available for this option. Neutral effects have been estimated at this stage. There may be some negative effects from an increase in carbon emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	-	Potential for reduced MFR to decrease the resilience of the downstream water environment to future drought.	Monitor ground water flows.	0	0	0	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	Option unlikely to have effect on landscape, townscape and seascape character and visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option unlikely to have effect on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	Option is unlikely to have significant effects on the local community.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	Option unlikely to have any impact on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	-	Potential for increased resources required and waste produced from increased water treatment.	N/A	0	0	0	-
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure.	N/A	0	0	0	0
SEA Metrics		Positive 1 Negative -7				Positive 1 Negative -7					

SWS_SHZ_RE-OTH_REP_ALL_bs_kmt_resil											
Reduce transfer to other commercial customers: Sussex Hastings											
Southern Water											
Drought Option: In the event of a drought the Company would hold discussions with a commercial customer with regards to the resources position and their supply.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option may reduce the amount of water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during drought conditions and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) indicated no likely significant effect on Natura 2000 sites.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	There is not anticipated to be any effects on soil quality as a result of this option.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is not likely to be affected by flooding or lead to the exacerbation of flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and is only to be implemented in drought conditions. Option aims to reduce the water required for supply to other commercial customers, therefore potentially resulting in a reduction in abstraction. WFD assessment (2020) states no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to commercial companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the resilience of supply for these commercial customers.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	No effect on air emissions is anticipated from this option.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	There is no carbon data available for this option. Neutral effects identified at this stage.	N/A	0	0	0	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to commercial companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water within the natural environment. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	-	The reduction in the amount of water supplied to commercial customers may have an impact on the local economy if they are not able to carry out their business activity or have to operate at a reduced capacity. However, there is potential that the wider population will benefit from this option.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	+	-
	Maintain and enhance tourism and recreation	0	0	0	-	Given the option is to reduce the transfer of water for commercial customers, tourism and recreation could be affected if these customers rely on water to support these activities.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive		5				Positive		5	
		Negative		-3				Negative		-3	

SWS_SHZ_RE-OTH_REP_ALL_bs_vws_resil											
Reduce transfer to other water companies: Sussex Hastings											
Southern Water											
Drought Option: In the event of a drought the Company would hold discussions with neighbouring Companies with regards to their resources position and their supply. There are three main bulk transfers to the South East: its entitlement to 25% of the yield of the River Medway Scheme, the Sheldwich Scheme, and the Bewl-Darwell transfer. This option considers reduction of the transfer from Veolia Water Southeast to SWS Kent Thanet. The trigger for this would be when rainfall and groundwater level trigger is exceeded and/or if veolia Water Southeast is not affected as much as Kent Thanet WRZ.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Given the option reduces the transfer of water to other companies in the event of a drought, there is potential that water will be retained within the natural environment. Ecosystems may already be under severe stress therefore additional water retained in the natural environment will be beneficial. The HRA ToLS (2021) identified that the option unlikely to impact Sussex Hastings WRZ N2K sites (Hastings Cliffs SAC, Dungeness SAC, Dungeness, Romney Marsh and Rye Bay Ramsar and SPA), as scheme is geographically separated from WRZ. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The option may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	It is not likely the option will affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply to other water companies, therefore may result in a reduction in abstraction. WFD assessment (2020) identified no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to other water companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the other water companies.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	There is no carbon data available for this option. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to other companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	The reduction in the amount transferred to other water companies may have some effects on the wider population outside of Southern Water's boundary. However, this will only occur where groundwater levels are exceeded and if the Veolia Water Southeast is not affected as much as SWS Kent Thanet WRZ.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation has the potential to be affected if the reduction in water to other companies results in restrictions for water based activities.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -3				Positive 4 Negative -3					

SWS_SHZ_RE-TFR_IKT_ALL_do_si_tan_resil											
Tankering: Sussex Hastings											
Southern											
Tankering water from adjacent WRZs or other water companies would be considered in severe droughts. Can be applied on a WRZ basis.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	Depending on the number of vehicles required for the operation, an increase in emissions may have negative impacts on nearby habitat.	Emission levels can be mitigated by using low emission vehicles (including electric vehicles) and strategic timing of transport e.g. avoiding driving lorries during rush hour.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option will supply water to Hastings in an emergency circumstance of severe drought.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	--	Option will cause an increase in emissions during transportation of water. This option is only to be implemented in severe circumstances therefore an increase in emissions will only be temporary.	Emission levels can be mitigated by using low emission vehicles (including electric vehicles) and strategic timing of transport e.g. avoiding driving lorries during rush hour.	0	0	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	-	There is no carbon data available for this option. There may be some negative effects from an increase in carbon emissions associated with tankering, however these are anticipated to be minor due to the temporary nature of the option.	Option only to be implemented in severe drought, emissions can be mitigated for by using low emission vehicles.	0	0	0	-

	Reduce vulnerability to climate change risks and hazards	0	0	0	0	This option is to be used only in severe drought and not a long term option. It will not affect resilience to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Visual amenity may be affected by an increase in lorries on the roads. This option is only to be implemented in severe circumstances therefore effects on visual amenity will be temporary.	Can be mitigated by strategic timing of transport of tankers.	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Increased traffic may impact on built heritage e.g. conservation areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	Can be mitigated by strategic timing of transport of tankers.	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Noise from vehicles and increase in air pollution can cause disturbance in populated areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	Can be mitigated by using electric vehicles and strategic timing of transport of tankers e.g. avoiding driving tankers during rush hour.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Increase in congestion on roads from tankers and effects on visual amenity may have an effect on recreation and tourism in Hastings. This option is only to be implemented in severe circumstances therefore effects on recreation and tourism will be temporary.	Best practice mitigation techniques to reduce impacts.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	--	Use of fuel resources.	Fuel utilisation may be reduced by strategic timing of transport vehicles e.g. avoid driving tankers in rush hour.	0	0	0	-
	Avoid negative effects on built assets and infrastructure	0	0	0	-	Depending on the number of tankers required for the operation, there may be an increase in congestion on roads. This option is only to be implemented in severe circumstances therefore negative effects will only be temporary.	Can be mitigated by strategic timing of transport of tankers e.g. avoiding driving tankers in rush hour.	0	0	0	-
SEA Metrics		Positive 1 Negative -14				Positive 1 Negative -8					

SWS_SNZ_EF-CRE_ALL_ALL_do_di_res_regi											
Restriction to non-essential use; Sussex North											
Southern Water											
Drought Option: The Company has recourse to a range of restrictions to Non-Essential Use. However, it can take a significant time to apply for and then implement a Drought Order. The Company might decide not to exercise all its powers until severe drought conditions are reached. Can be applied on a WRZ basis. Level of intervention for this option: Severe drought conditions.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The ToLS (2021) identified no likely significant effects for the following N2K sites within the Sussex North WRZ: Ebernoe Common SAC; The Mens SAC; Duncton to Bignor Escarpment SAC; Arun Valley SAC, Ramsar and SPA; Duncton to Bignor Escarpment SAC. The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to sites (Ebernoe Common SAC; Arun Valley SAC, Ramsar and SPA; and Duncton to Bignor Escarpment SAC) which contain GWDTE or depend on surface water flows. The sites include: No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Non-essential use restrictions may marginally impact soil quality, however the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Non-essential use restrictions are not anticipated to affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicates short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0

	Deliver reliable and resilient water supplies	0	0	+	0	By reducing the amount of water required for supply through restrictions to non-essential use, the option maintains resilience of water for essential services.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	There is no carbon data available for this option. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of gardens, and use of ornamental fountains for example, may be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	--	Restrictions on non-essential use is likely to have moderate negative effects on the community and social well-being as there may be imposed restrictions on irrigation of gardens and allotments and outdoor plants, restrictions of use of water for swimming pools, restriction of washing vehicles and non-domestic property exteriors. Restrictions may apply to all customers, domestic and commercial so potential for economic impacts.	Ensuring high level of communication with customers before, during and following the implementation of the measure.	0	0	0	--
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation sites dependant on public water supply may be affected due to non-essential restrictions.		0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -6				Positive 4 Negative -6					

SWS_HAZ_EF-LKR_ALL_ALL_dmp snz high											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
	Deliver reliable and resilient water supplies	0	0	+++	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Minor positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive 28 Negative -3				Positive 28 Negative -2					

SWS_SNZ_HI-IMP_PRT_ALL_pwh											
Import from Portsmouth Water at Pulborough											
Southern Water											
Import from Portsmouth Water at Pulborough											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	The option is for an existing transfer. No new infrastructure likely to be required therefore no impacts identified. HRA ToLS (2021) identified no likely significant effects given there is no new infrastructure. No additional risk for the transfer of INNS.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No new infrastructure as existing transfer therefore neutral effects identified for soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No new infrastructure therefore no additional flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No new infrastructure therefore neutral effects identified for water resources. WFD Screening Assessment (2020) identified no impact as it is an existing transfer and further WFD assessment is therefore not required.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	0	0	The option transfers water which leads to more resilient supplies, however as this is an existing transfer, additional positive effects have not been identified.	N/A	0	0	0	0
Air	Reduce and minimise air emissions	0	0	0	0	No new infrastructure therefore no additional impacts on air quality.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data however no new infrastructure therefore no additional impacts.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	No new infrastructure, utilising existing transfer and water levels are not likely to be significantly affected, therefore no additional impacts on the climate resilience of the local environment.	N/A	0	0	0	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No new infrastructure therefore no additional impacts on landscape.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No new infrastructure therefore no additional impacts on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	No new infrastructure therefore no additional impacts on the local community.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	No new infrastructure therefore no additional impacts on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	No new infrastructure therefore no additional impact on resources and waste.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	No new infrastructure therefore no additional impacts on built assets and the built environment.	N/A	0	0	0	0
SEA Metrics		Positive 0 Negative 0				Positive 0 Negative 0					

SWS_SNZ_HI-IMP_SWZ_ALL_rrn											
Rock Road bi-directional transfer (SW to SN)											
Southern Water											
Rock Road bi-directional transfer (SW to SN)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	0	The option is for an existing transfer. No new infrastructure likely to be required therefore no impacts identified. HRA ToLS (2021) identified no likely significant effects given there is no new infrastructure. No additional risk for the transfer of INNS.	N/A	0	0	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No new infrastructure as existing transfer therefore neutral effects identified for soils.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No new infrastructure therefore no additional flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No new infrastructure therefore neutral effects identified for water resources. WFD Screening Assessment (2020) identified no impact as it is an existing transfer and further WFD assessment is therefore not required.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	0	0	The option transfers water which leads to more resilient supplies, however as this is an existing transfer, additional positive effects have not been identified.	N/A	0	0	0	0
Air	Reduce and minimise air emissions	0	0	0	0	No new infrastructure therefore no additional impacts on air quality.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data however, no new infrastructure therefore no additional impacts.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	No new infrastructure, utilising existing transfer and water levels are not likely to be significantly affected, therefore no additional impacts on the climate resilience of the local environment.	N/A	0	0	0	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	No new infrastructure therefore no additional impacts on landscape.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	No new infrastructure therefore no additional impacts on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	No new infrastructure therefore no additional impacts on the local community.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	No new infrastructure therefore no additional impacts on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	No new infrastructure therefore no additional impact on resources and waste.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	No new infrastructure therefore no additional impacts on built assets and the built environment.	N/A	0	0	0	0
SEA Metrics		Positive 0 Negative 0				Positive 0 Negative 0					

SWS_SNZ_HI-REU_RE1_ALL_env_cu_chu2_conju											
Horsham WTW Recycling Conjunctive use with Church Farm, Pulborough											
Southern water											
New Resource. Effluent pipeline (18,134 m of pipeline with a 400 mm diameter) from Horsham WTW to Church Farm reservoir, which feeds into Pulborough WSW. Additional tertiary treatment required at Horsham WTW, which will likely require land purchase. 95 kW pump required. Pipe could benefit from throttling towards the latter lengths of the pipe to reduce the discharge head.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	The pipeline for the option is within 500m of the Arun Valley SAC / SPA / RAMSAR. No direct impacts are anticipated but there may be disturbance effects during construction. There may also be indirect effects on Pulborough Brooks SSSI (100% favourable), which is located within 500m. The pipeline intersects woodland including Ancient Woodland and deciduous woodland Priority Habitat, as well as coastal and floodplain grazing marsh Priority Habitat. Construction of pipeline is likely to have direct impacts on these habitats and protected species. The HRA Tols (2021) identified likely significant effects on the Arun Valley SAC/Ramsar/SPA. Construction activities have the potential to cause adverse effects to the designated site and species through dust, air and noise pollution as well as potential silting of habitats leading to impacts upon designated features. The risk of the transfer / spread of INNS is likely to be very low as the option involves the physical transfer of treated water (between two locations assumed currently unconnected) (no INNS risk as treated water will be free from INNS).	Best practice mitigation to minimise impacts and reinstatement /compensation of habitats, but potential for residual effects to remain. Future design will need to undertake ecology surveys. LSE for the Arun Valley Ramsar, SPA and SAC sites are considered to be mitigatable through use of best practice measures such as a robust CEMP.	0	-	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The pipeline is within 500m of Coneyhurst Cutting SSSI (100% unfavourable- declining) although no impacts are anticipated. Option intersects predominantly grade 3 and grade 4 agricultural land, there is likely to be direct impacts on soil during construction phase as excavation will be required for laying of pipeline. The pipeline is within 500m of four historic landfill sites with potential to disturb contaminated material during construction.	Ground will be reinstated therefore residual effects unlikely. Best practice techniques to prevent potential disturbance of contaminated material during construction.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The option passes through Flood Zone 2 and 3 and flood defences, which may impact construction. It is not anticipated that this option will have any impacts on flooding during operation.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0

	Protect and enhance the quality of the water environment and water resources	0	-	0	0	The option transfer pipeline crosses watercourses therefore potential for impacts on water quality during the construction phase which could impact WFD status. The option is located within a number of SPZs with potential for impacts on water quality during the construction phase. WFD assessments 2020 identified no further assessments were required.	Best practice construction measures will likely be implemented, however possibility for impacts to remain.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option is for a 11.5 Ml/d capacity transfer from Horsham WTW to Church Farm reservoir, which feeds into Pulborough WSW.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	The option does not pass through any AQMAs not are there any within 2km. Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	It is not anticipated that the option will have significant effects on vulnerability or resilience to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	-	The option is within the Wealden Greensand and Low Weald NCAs, and the southern end of the pipeline and Church Farm reservoir are within South Downs National Park. Negative effects during construction likely as excavation will be required for the transfer pipeline. New above ground infrastructure could have visual effects.	Ground will be reinstated following pipeline construction therefore residual effects unlikely. Measures to reduce the visual impact during construction and operation e.g. screening could be implemented, however residual effects remain.	0	-	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	Pipeline passes through Pulborough, Church Place Conservation Area and is directly adjacent to four listed buildings, although it is aligned along a main road in this section therefore direct impacts are unlikely to occur. The pipeline also potentially impacts the Old Swan Bridge, Pulborough Scheduled Monument / Grade II Listed Building. There are further conservation areas, listed	Best practice measures to be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried	0	-	0	0

						buildings and a scheduled monument within 500m. Construction may also affect the setting of historic assets, however this is likely to be temporary and minimal. There are few historic assets within proximity to Horsham WTW so impacts of new above infrastructure on setting are likely to be minimal. There is potential for the excavation of the pipeline to impact buried archaeology.	archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The pipeline is immediately adjacent to Christ's Hospital, Chichester College and St. Mary's Church, Pulborough as well as allotments. There is likely to be temporary disturbance effects on the local community and users of these facilities during construction. IMD deciles along the pipeline route primarily 5, 8 and 9.	Pipeline route to be aligned to avoid direct impacts on community assets such as the allotments and land to be reinstated. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The option is within the South Downs National Park. There is a bowling green, a sports facility and several green spaces that may be used for recreation within 500m of option. There is likely to be temporary disturbance effects on the users of these facilities during construction. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be temporary effects including on angling and other water based recreation during the construction phase. There may be temporary disturbance to users of a National Cycle Route, footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The pipeline crosses A roads and a national cycle route. There is likely to be moderate and temporary impacts during the construction phase from disruption for users (e.g. road closures, diversions).	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the A272 is likely to be required.	0	-	0	0
SEA Metrics		Positive 1 Negative -33		Positive 1 Negative -13							

SWS_SNZ_HI-REU_RE1_ALL_for10											
Littlehampton WTW (10MI/d)											
Southern											
This scheme proposes the transfer of treated effluent from Ford WwTW to a new discharge point to the western River Rother upstream of the Pulborough WSW abstraction. This would support flows over the Pulborough weir as the MRF is approached, therefore prolong production at Pulborough during a drought.20 MI/d represents the upper end of the reliable flow that could be expected from Ford WwTW. Once abstracted at Pulborough WSW this water would be used to meet demand in the Sussex North WRZ.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	--	Option within 500m of Fairmile Bottom Local Nature Reserve and within 500m Amberley Wild Brooks SSSI (98.05% unfavourable - recovering, 1.95% favourable), Arun Banks SSSI (100% favourable), Arundel Park SSSI (58.62% favourable, 40.99% unfavourable - recovering), Fairmile Bottom SSSI (55.61% favourable, 44.39% unfavourable - recovering) and Waltham Brooks SSSI (100% unfavourable - recovering); all of which are biological SSSI. Entire option is located within SSSI risk zone. Option within 2km of Arun Valley Ramsar, SAC and SPA. Arun Banks, Arundel Park, Duncton to Bignor Escarpment SAC, and Waltham Brooks SSSI are water dependent. Option crosses areas of woodland, including ancient woodland, deciduous woodland, coastal and floodplain grazing marsh, good quality semi-improved grassland, lowland meadows and mudflats. Low risk of transfer of INNS as the water will be treated after abstraction and is likely to be entirely free of INNS. Construction phase risk of INNS is considered to be low. HRA ToLS (2021) identifies uncertain effects for Arun Valley SAC and Ramsar (360m from proposed option) during operation as increases in abstraction have the potential to affect qualifying features. No likely significant effects were identified for the Arun Valley SPA as the abstraction is unlikely to impact qualifying bird species as they relate to wintering bird assemblages as water levels are likely to be high during this season. No likely significant effects were also identified for Duncton to Bignor Escarpment SAC (1.8km west of proposed option).	Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. HRA ToLS identified uncertain effects for Arun Valley SAC / Ramsar which are not considered mitigated at this stage. HRA AA required to determine the hydrological connectivity between the abstraction site and ground water dependant habitats of designated sites and in order to address uncertain effects identified for the Arun Valley SAC and Ramsar.	0	-	0	--
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	Option crosses Woodlands Farm, Bank East of Hanger 2 and Days historic landfill sites and within 500m of 5 other historic landfill sites. There is potential to disturb contaminated material during construction. Option predominately located on grade 3 agricultural land and non-agricultural land, whilst also	Land reinstated upon completion. Best practice construction measures to be implemented, however residual construction effects likely.	0	-	0	0

						passing through areas of grade 1, grade 2 and grade 4 agricultural land. Likely disturbance to these soils during construction.					
Water	Increase resilience and reduce flood risk	0	--	0	0	Approximately 1/2 of option located within Flood Zones 2 and 3, remainder located within Flood Zone 1. This is likely to have an effect on construction.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	--	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	Option crosses watercourses, including main rivers, at multiple locations. Option crosses SPZ Zones II and III. WFD screening (2020) concluded no further WFD assessment is required.	Best practice mitigation measures likely to be implemented during construction.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option will facilitate water supply once operational, as follows: option proposes the transfer of treated effluent from Ford WwTW to a new discharge point to the western River Rother upstream of the Pulborough WSW abstraction. This would support flows over the Pulborough weir as the MRF is approached, therefore prolong production at Pulborough during a drought. 20 MI/d represents the upper end of the reliable flow that could be expected from Ford WwTW. Once abstracted at Pulborough WSW this water would be used to meet demand in the Sussex North WRZ. Capacity of 10MI/d.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	There are no AQMAs within 2000m. However, construction is likely to have minor and temporary impact on air quality.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Option will support flows over the Pulborough weir as the MRF is approached, therefore prolong production at Pulborough during a drought. This has the potential to increase the resilience of the local environment to climate change (droughts).	N/A	0	0	+	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	Approximately 3/4 of option located within South Downs National Park. Option located within Wealden Greensand, South Downs and South Coast Plain National Character Areas. Potential for impacts on landscape character and visual amenity during construction.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
	Historic Environment	0	---	0	0	Option crosses three Scheduled Monuments. Option within 500m of multiple listed buildings and Scheduled Monuments. Option crosses Bury and Fittleworth Conservation Areas and within 500m of nine other conservation areas. Construction may affect the setting of the historic assets, however this will be temporary. Potential impact on buried archaeology, if present.	Pipeline routing should be considered to avoid crossing Scheduled Monuments. Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	---	0	0	Option crosses one school, and within 500m of multiple other schools, Important Buildings and places of worship. Option crosses playing fields, one play space and one golf course. Option within 500m of religious grounds, sport facilities, playing fields, play spaces, allotments and tennis courts. Option crosses one Noise Action Planning Important Area. Option crosses areas of IMD deciles 9, 8, 7, 6 and 5. Disturbance to the local community will be major without mitigation.	Pipeline routing should be considered to avoid crossing school and greenspace sites. Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	--	0	0	Option crosses playing fields, one play space and one golf course. Option within 500m of religious grounds, sport facilities, playing fields, play spaces, allotments and tennis courts. Option crosses South Downs National Park and South Downs Way National Trail. Therefore, there may be some moderate and temporary effects on recreation during construction.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction.	Opportunity to implement sustainable design measures and reuse excavated material on site, to reduce impact. Minor negative construction effects will likely remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	Option crosses one rail track, multiple major roads and one National Trail (South Downs Way). Likely to be moderate and temporary impacts during the construction.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics		Positive 2 Negative -49				Positive 2 Negative -19					

SWS_SNZ_HI-REU_RE1_ALL_for20											
Littlehampton WTW (20MI/d)											
Southern											
This scheme proposes the transfer of treated effluent from Ford WwTW to a new discharge point to the western River Rother upstream of the Pulborough WSW abstraction. This would support flows over the Pulborough weir as the MRF is approached, therefore prolong production at Pulborough during a drought.20 MI/d represents the upper end of the reliable flow that could be expected from Ford WwTW. Once abstracted at Pulborough WSW this water would be used to meet demand in the Sussex North WRZ.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	--	Option within 500m of Fairmile Bottom Local Nature Reserve and within 500m Amberley Wild Brooks SSSI (98.05% unfavourable - recovering, 1.95% favourable), Arun Banks SSSI (100% favourable), Arundel Park SSSI (58.62% favourable, 40.99% unfavourable - recovering), Fairmile Bottom SSSI (55.61% favourable, 44.39% unfavourable - recovering) and Waltham Brooks SSSI (100% unfavourable - recovering); all of which are biological SSSI. Entire option is located within SSSI risk zone. Option within 2km of Arun Valley Ramsar, SAC and SPA. Arun Banks, Arundel Park, Duncton to Bignor Escarpment SAC, and Waltham Brooks SSSI are water dependent. Option crosses areas of woodland, including ancient woodland, deciduous woodland, coastal and floodplain grazing marsh, good quality semi-improved grassland, lowland meadows and mudflats. Low risk of transfer of INNS as the water will be treated after abstraction and is likely to be entirely free of INNS. Construction phase risk of INNS is considered to be low. HRA ToLS (2021) identifies uncertain effects for Arun Valley SAC and Ramsar (360m from proposed option) during operation as increases in abstraction have the potential to affect qualifying features. No likely significant effects were identified for the Arun Valley SPA as the abstraction is unlikely to impact qualifying bird species as they relate to wintering bird assemblages as water levels are likely to be high during this season. No likely significant effects were also identified for Duncton to Bignor Escarpment SAC (1.8km west of proposed option).	Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Undertake HRA AA to determine the hydrological connectivity between the abstraction site and ground water dependant habitats which support the qualifying features of the sites and to address uncertain effects for the Arun Valley SAC, SPA and Ramsar.	0	-	0	--
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	Option crosses Woodlands Farm, Bank East of Hanger 2 and Days historic landfill sites and within 500m of 5 other historic landfill sites. There is potential to disturb contaminated material during construction. Option	Land reinstated upon completion. Best practice construction measures to be implemented, however residual construction effects likely.	0	-	0	0

						predominately located on grade 3 agricultural land and non-agricultural land, whilst also passing through areas of grade 1, grade 2 and grade 4 agricultural land. Likely disturbance to these soils during construction.					
Water	Increase resilience and reduce flood risk	0	--	0	0	Approximately 1/2 of option located within Flood Zones 2 and 3, remainder located within Flood Zone 1. This is likely to have an effect on construction.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	--	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	Option crosses watercourses, including main rivers, at multiple locations. Option crosses SPZ Zones II and III. WFD screening (2020) concluded no further WFD assessment is required.	Best practice mitigation measures likely to be implemented during construction.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option will facilitate water supply once operational, as follows: option proposes the transfer of treated effluent from Ford WwTW to a new discharge point to the western River Rother upstream of the Pulborough WSW abstraction. This would support flows over the Pulborough weir as the MRF is approached, therefore prolong production at Pulborough during a drought. 20 Ml/d represents the upper end of the reliable flow that could be expected from Ford WwTW. Once abstracted at Pulborough WSW this water would be used to meet demand in the Sussex North WRZ. Capacity of 20Ml/d.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	There are no AQMAs within 2000m. However, construction is likely to have minor and temporary impact on air quality.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	--	0	--	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has moderate construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	--	0	--
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Option will support flows over the Pulborough weir as the MRF is approached, therefore prolong production at Pulborough during a drought. This has the potential to increase the resilience of the local environment to climate change (droughts).	N/A	0	0	+	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	Approximately 3/4 of option located within South Downs National Park. Option located within Wealden Greensand, South Downs and South Coast Plain National Character Areas. Potential for impacts on landscape character and visual amenity during construction.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	---	0	0	Option crosses three Scheduled Monuments. Option within 500m of multiple listed buildings and Scheduled Monuments. Option crosses Bury and Fittleworth Conservation Areas and within 500m of nine other conservation areas. Construction may affect the setting of the historic assets, however this will be temporary. Potential impact on buried archaeology, if present.	Pipeline routing should be considered to avoid crossing Scheduled Monuments. Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	---	0	0	Option crosses one school, and within 500m of multiple other schools, Important Buildings and places of worship. Option crosses playing fields, one play space and one golf course. Option within 500m of religious grounds, sport facilities, playing fields, play spaces, allotments and tennis courts. Option crosses one Noise Action Planning Important Area. Option crosses areas of IMD deciles 9, 8, 7, 6 and 5. Disturbance to the local community will be major without mitigation.	Pipeline routing should be considered to avoid crossing school and greenspace sites. Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	--	0	0	Option crosses playing fields, one play space and one golf course. Option within 500m of religious grounds, sport facilities, playing fields, play spaces, allotments and tennis courts. Option crosses South Downs National Park and South Downs Way National Trail. Therefore, there may be some moderate and temporary effects on recreation during construction.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste during construction.	Opportunity to implement sustainable design measures and reuse excavated material on site, to reduce impact. Minor negative construction effects will likely remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	Option crosses one rail track, multiple major roads and one National Trail (South Downs Way). Likely to be moderate and temporary impacts during the construction.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics		Positive 2 Negative -55		Positive 2 Negative -25							

SWS_SNZ_HI-REU_RE1_ALL_wr_pwr_chu1_conju											
Ford WTW Recycling Conjunctive use with Church Farm, Pulborough											
SWS											
New Resource. Effluent pipeline (17,081 m of pipeline with 10,000 m of 600 mm diameter pipeline and 7,081 m of 500 mm) from Ford WTW to Church Farm reservoir, which feeds into Pulborough WSW. Additional tertiary treatment required at Ford WTW, with the possibility to extend the existing site. 690 kW pump required. Pipe could benefit from throttling towards the latter lengths of the pipe to reduce the discharge head.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	<p>The option is adjacent to the Arun Valley Ramsar/SPA and Waltham Brooks SSSI (100% Unfavourable - Recovering) which are GWDTE. The option also lies within SSSI impact risk zones. Arundel Park (59% Favourable, 41% Unfavourable - Recovering), Arun Banks (100% Favourable), Amberley Wild Brooks (2% Favourable, 98% Unfavourable - Recovering) SSSIs are all within 500m and are GWDTE. Parham Park SSSI and Amberley Mount to Sullington Hill SSSI, which are both GWDTE, and Fairmile Bottom SSSI are all within 2000m. The option also intersects priority habitat including coastal and floodplain grazing marsh, coastal salt marsh, deciduous woodland, good quality semi-improved grassland, lowland meadows and mudflats. Potential for disruption from dust, noise and vibration during construction but effects will be localised.</p> <p>The HRA ToLS identifies likely significant effects on the Arun Valley SAC/SPA/RAMSAR due to close proximity (230m from option). Therefore dust, noise and vibration are likely to have a significant effect on qualifying species and designated features.</p> <p>The risk of the transfer / spread of INNS is likely to be very low as the option involves the physical transfer of treated water (between two locations assumed currently unconnected) (no INNS risk as treated water will be free from INNS).</p>	<p>Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. The HRA Tier 2 Enhanced Screening identified that the likely significant effects are mitigable. During construction, works will follow best practice guidelines e.g. use of a robust CEMP detailing mitigation measures to minimise potential impacts with the use of DMPs, pollution prevention, coverage of construction stockpiles during adverse weather conditions to minimise potential effects of pollution and run-off. Construction dust could be mitigated through wet cutting/crushing and vacuum drilling. Upgrading plant to minimise particulate production e.g. use of particulate filters, catalytic converters to minimise NOx production and use of low sulphur fuels is likely to minimise impacts to qualifying species.</p>	0	-	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	<p>The pipeline passes through agricultural land classed as Grades 1, 2, 3 and 4. There is potential for the construction phase to disturb these soils. There are two historic landfills within 500m of the site. Potential for contamination during</p>	<p>Reinstate soil following construction. Best construction practices to minimise impact.</p>	0	-	0	0

						construction but due to localised nature, effects are likely to be minimal.					
Water	Increase resilience and reduce flood risk	0	--	0	0	A large part of the pipeline route is within FZ2 and FZ3 therefore potential for flood risk during the construction phase. The pipeline will be buried therefore operational risks unlikely.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	0	0	The option overlies nitrate vulnerable zones, the Chichester chalk, Littlehampton Anticline West, Lower Greensand Arun and Western Steams, Sussex Lambeth Group and Worthing Chalk WFD groundwater bodies. The pipeline also passes through SPZs. The option also crosses several surface water bodies therefore potential for leaks and spills during construction to contaminate the water environment. WFD (2021) concluded one waterbody requires further assessment due to construction effects.	Best practice mitigation measures likely to be implemented during construction such as use of appropriate bedding materials, trenchless crossings and directional drilling. Undertake further WFD assessment due to construction effects therefore moderate residual effects remain.	0	--	0	0
	Deliver reliable and resilient water supplies	0	0	++	0	Option will facilitate water supply once operational, increasing water transfer and supply. There is a default benefit of 26Ml/d therefore moderate positive effects identified.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	There are no AQMAs within 2000m. Construction is likely to produce air emissions but these effects are likely to be temporary in nature and localised during construction.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	The option is not thought to result in a change in water levels. Therefore, no effect on water environment vulnerability to climate change anticipated.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option is within the South Downs National Park and intersects three NCLAs. Potential for visual disturbance during construction.	Best practice measures will likely be implemented to minimise effects during construction such as use of construction, however minor and temporary impacts may	0	-	0	0

							remain. Land reinstated upon completion.					
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are scheduled monuments, listed buildings, registered parks and gardens, and conservation areas within 500m of the pipeline route. No historic assets will be directly impacted by the option, however there may be impacts on the setting of these assets during the construction phase. The pipeline excavations has the potential to impact archaeology, if present.	Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0	
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are churches and religious grounds, noise action areas, allotments, sports facilities, playing fields, play spaces and schools. The option may cause temporary disturbance to local communities and users of these community facilities from dust, noise and vibration. IMD decile range from 2-10 along the extent of the pipeline route.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0	
	Maintain and enhance tourism and recreation	0	-	0	0	The option intersects the South Downs National Parks and South Downs Way National Trail. There are playing fields, sports facilities and play spaces within 500m. Potential for disruption from dust, noise, vibration and diversions during construction.	Best construction practices and the implementation of appropriate diversions to minimise impact.	0	-	0	0	
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste.	Seek opportunity to implement sustainable design measures and reuse excavated material on site, to reduce impact. Minor negative construction effects will likely remain.	0	-	0	0	
	Avoid negative effects on built assets and infrastructure	0	-	0	0	The option intersects a railway track and a national cycle trail. The pipeline does not intersect any major road, however there are major roads within 500m. There is likely to be disturbance to the local road network.	Use of directional drilling and appropriate diversions used to minimise disturbance.	0	-	0	0	
SEA Metrics			Positive Negative	4 -32	Positive Negative							4 -16

SWS_SNZ_HI-RSR_ALL_ALL_bla											
River Adur offline Reservoir											
Southern											
The option involves the construction of an earth embankment reservoir at Blackstone with a proposed storage capacity of up to 4,600 MI. The option will allow treated water to enter the distribution network to supply either the Sussex coastal block or the Pulborough area. The reservoir will be filled with water pumped from the eastern branch of the river Adur. The abstraction of raw water from the river to the reservoir would have a maximum flow of 30MI/d.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	+	--	Option is entirely located within SSSI risk zone. The option will lead to the permanent loss of priority habitat and woodland. HRA ToLS identifies no likely significant effects on any Natura 2000 sites. The new reservoir may result in habitat creation. High INNS operational risk, as overflows, sludge deposits and recreational use could transfer INNS to sensitive habitats downstream. Moderate INNS construction risk.	Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensation measures to replace damaged or lost habitat. Future design will need to undertake ecology surveys.	0	-	+	--
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	There are historic landfill sites within 2000m therefore no direct impacts anticipated. Option predominately located on grade 3 and grade 4 agricultural land but it does impact grade 2 agricultural land. There is anticipated to be a permanent loss to this land due to the creation of the new reservoir.	Land reinstated upon completion where possible, however permanent loss of Grade 2, 3 and 4 agricultural land.	0	--	0	0
Water	Increase resilience and reduce flood risk	0	-	0	-	The reservoir is located within Flood Zone 1, but is adjacent to Flood Zones 2 and 3. This may have an impact on construction and may lead to flooding at the reservoir during operation.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	-
	Protect and enhance the quality of the water environment and water resources	0	--	0	--	Option is within proximity to existing water bodies, including a main river therefore potential for contamination during construction. Option is not located within any SPZs. Option involves abstraction of raw water from the River Adur to reservoir which may affect water quality, flows and levels. WFD screening (2020) suggests one waterbody requires further assessment.	Best practice mitigation measures likely to be implemented during construction. However minor and temporary impacts may remain.	0	-	0	--
	Deliver reliable and resilient water supplies	0	0	++	0	Option will facilitate water supply once operational - treated water to enter the distribution network to supply either the Sussex coastal block or the Pulborough area. Maximum flow of 30MI/d.	N/A	0	0	++	0

Air	Reduce and minimise air emissions	0	-	0	0	Option does not pass through any AQMAs, nor any within 500m or 2000m. However, construction is likely to have minor and temporary impact on air quality.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	-	Carbon will be generated from operation. The relative carbon scale identified that the option has minor operation carbon emissions (relative to other WRSE Regional Plan options). No embodied carbon data available.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	0	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	-	The option involves the abstraction of water from the River Adur which may affect the resilience of the local environment to climate change.	N/A	0	0	0	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	--	Option located in Wealden Greensand and Low Weald National Character Areas. Option within 2000m of South Downs National Park. Option may have large area of permanent land take, with moderate operation effects. Potential for impacts on landscape character and visual amenity during construction. The new reservoir will lead to a permanent change in the landscape.	Best practice measures will likely be implemented to minimise effects during construction, however minor and temporary impacts may remain. Land reinstated upon completion where possible. Option includes earth embankment reservoir which will help with blending into landscape, and there is also an opportunity to include screening, to help reduce operational effects.	0	-	0	--
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	Option within 500m of multiple listed buildings and Blackstone Conservation Area. There is potential that the setting of these assets could be affected during the construction phase. Potential impact on buried archaeology, if present.	Best practice measures will likely be implemented to minimise setting effects during construction. Archaeological Watching Brief may be required during the construction phase. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology.	0	-	0	0

							Residual effects may remain due to potential loss of archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are no community facilities within 500m. Option within 2000m of schools and Important Buildings, tennis courts, play spaces, allotments, and churches and religious grounds. Disturbance to the local community and users of these community facilities will likely be minor and temporary in nature. Option within 500m of South Downs National Park. Option is within IMD decile 8.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	+	0	Option within 2000m of tennis courts, play spaces, allotment and religious grounds. Option within 2000m of South Downs National Park. There may diversions and loss of public rights of way as a result of the reservoir. Therefore, there may be some minor and temporary effects on recreation during construction. The reservoir may also result in new recreational opportunities if it is open to the public.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	+	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste, including excavated materials.	Opportunity to implement sustainable design measures and reuse excavated material on site (where possible), to reduce impact. Minor negative construction effects will likely remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	There is potential for minor and temporary disruption to the local transport network during construction. The option does not impact directly on major roads, railways, national trails or national cycle routes.	Best practice measures will likely be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics		Positive 6 Negative -35		Positive 6 Negative -29							

Shalford to Pulborough: 10MI/d											
Shalford to Pulborough: 10MI/d											
Southern											
A bi-directional pipe joining Shalford and Pulborough											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	<p>Option crosses Arun Valley Ramsar SAC SPA, there may be direct effects during construction phase on vulnerable habitats. There are four other SSSIs withing 500m of pipeline; Park Farm Cutting (100% favourable); Wey Vally Meadows SSSI (approx. 24 % favourable, 72% unfavourable recovering, remainder unfavourable no change); Blackheath approx. 75% favourable, 25% unfavourable recovering and Upper Arun (100% unfavourable recovering). No direct effects but there may be disturbance effects during the construction phase and potential effects on protected species. The option is within SSSI risk zone. Pipeline passes through priority habitat including deciduous woodland, coastal and floodplain grazing marsh and semi-quality semi-improved grassland. Possibility of loss of priority species during construction. Pipeline will be buried so operational effects unlikely.</p> <p>High INNS risk during construction as pipeline route crosses vulnerable habitats sensitive to INNS. Operational phase has no INNS risk/transfer as water is treated and assumed free of INNS.</p> <p>The HRA ToLS (2021) identifies uncertain effects for the Arun Valley Ramsar, SPA and SAC sites (located 1.7km east of the proposed option at Pulborough). This is associated with the dust arisings, vehicle emissions (i.e. increased nitrogen from numerous vehicle movements) along with release of sediment and construction materials that could potentially impact the flood meadows and Annex II Species dependent on ditch habitats. No likely significant effects are identified for Thursley & Ockley Bogs Ramsar, Ebernoe Common SAC, Thursley, Hankley & Frensham Commons SPA, Thursley - Ash - Pirbright & Chobham SAC and the Thames Basin Heaths SPA. This is due to the distance away from the proposed pipeline and no hydrological pathway which will effect this GWDTEs.</p>	Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Uncertain effects for the Arun Valley Ramsar, SPA and SAC sites are considered to be mitigatable through use of best practice measures such as a robust CEMP.	0	-	0	0

Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	Option is located within predominately Grade 3 agricultural land, but also passes through areas of Grade 2, 4 and urban. Disturbance to soil quality is likely to occur during construction. There are two historic landfill sites within close proximity to the pipeline.	Ground will be reinstated therefore residual effects unlikely. Best practice techniques likely to be implemented for construction work near landfill.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	The option passes through flood zones 2 and 3 and also several times through flood defences, this will cause temporary increased risk of flooding during construction. Unlikely to be any increased risk of flooding during operation.	Best practice mitigation measures will likely be implemented to minimise effects during construction to ensure minimal risk of flooding events. However, flood defences are likely to be temporarily compromised.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	The option transfer pipeline crosses watercourses and groundwater sources therefore potential for impacts on water quality such as pollution during the construction phase which could impact WFD status, effects likely to only be temporary. The option passes through SPZs. The WFD screening assessment (2021) identified no further WFD assessment is required.	Best practice mitigation measure will likely be implemented during construction to ensure minimal impact on water environment, however there is potential for effects on water quality to occur.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option provides a bi-directional pipe joining Shalford and Pulborough with 10Ml/d capacity.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	The option does not pass through any AQMAs. Construction likely to cause temporary increase in emissions.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and minor operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Option is unlikely to affect resilience of the local environment to climate changes given water levels and not anticipated to be significantly affected.	N/A	0	0	0	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	Option passes through greenbelt and a small area of Surry Hills AONB and two NLCA's. Infrastructure will be underground and ground will be reinstated however visual amenity will be disrupted during construction.	Best practice mitigation measures likely to be implemented during construction phase. Possibility for landscaping to restore/enhance visual amenity. However minor and temporary impacts are likely to occur.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	Pipeline passes through a conservation area and there are a further six conservation areas within 500m of pipeline. No direct effects anticipated given there is no above ground infrastructure, however there may be impacts on the setting of the area during construction. The pipeline also appears to intersect three listed buildings, which may be impacted by construction. There are also additional listed buildings and scheduled monuments within 500m and the setting of these may be affected during construction. There is potential for the excavation to impact archaeology, if present.	Re-route the pipeline or utilise directional drilling to mitigate effects on listed buildings. Best practice mitigation measures likely to be implemented during construction phase to minimise effects on the setting of historic assets. Archaeological Watching Brief may be required during construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There is a nursing home, three cemeteries and six allotments within 500m of pipeline, which may be affected. There is no direct land take from these areas. There is likely to be minimal and temporary disturbance effects on users of these sites and the local community during construction. IMD deciles range from 5 to 10 along the pipeline route.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	Within 500m of option are several playing fields and play spaces, open access areas and a national park. There may be some minor and temporary effects on recreation during construction.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Pipeline infrastructure, pumping station and balance tank required for option therefore materials required. Waste is likely to be generated during construction phase, including excavated materials.	Opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option crosses major roads, and national cycle routes. There is likely to be moderate and temporary impacts during the construction phase from disruption for users (e.g. road closures, diversions).	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics		Positive 1 Negative -25				Positive 1 Negative -13					

Shalford to Pulborough: 10MI/d											
Shalford to Pulborough: 10MI/d											
Southern											
A bi-directional pipe joining Shalford and Pulborough											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)					Option crosses Arun Valley Ramsar SAC SPA, there may be direct effects during construction phase on vulnerable habitats. There are four other SSSIs withing 500m of pipeline; Park Farm Cutting (100% favourable); Wey Vally Meadows SSSI (approx. 24 % favourable, 72% unfavourable recovering, remainder unfavourable no change); Blackheath approx. 75% favourable, 25% unfavourable recovering and Upper Arun (100% unfavourable recovering). No direct effects but there may be disturbance effects during the construction phase and potential effects on protected species. The option is within SSSI risk zone. Pipeline passes through priority habitat including deciduous woodland, coastal and floodplain grazing marsh and semi-quality semi-improved grassland. Possibility of loss of priority species during construction. Pipeline will be buried so operational effects unlikely.	Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Uncertain effects for the Arun Valley Ramsar, SPA and SAC sites are considered to be mitigatable through use of best practice measures such as a robust CEMP.				
		0	--	0	0	High INNS risk during construction as pipeline route crosses vulnerable habitats sensitive to INNS. Operational phase has no INNS risk/transfer as water is treated and assumed free of INNS. The HRA ToLS (2021) identifies uncertain effects for the Arun Valley Ramsar, SPA and SAC sites (located 1.7km east of the proposed option at Pulborough). This is associated with the dust arisings, vehicle emissions (i.e. increased nitrogen from numerous vehicle movements) along with release of sediment and construction materials that could potentially impact the flood meadows and Annex II Species dependent on ditch habitats. No likely significant effects are identified for Thursley & Ockley Bogs Ramsar, Ebernoe Common SAC, Thursley, Hankley & Frensham Commons SPA, Thursley - Ash - Pirbright & Chobham SAC and the Thames Basin Heaths SPA. This is due to the distance away from the proposed pipeline and no hydrological pathway which will effect this GWDTEs.		0	-	0	0

Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	Option is located within predominately Grade 3 agricultural land, but also passes through areas of Grade 2, 4 and urban. Disturbance to soil quality is likely to occur during construction. There are two historic landfill sites within close proximity to the pipeline.	Ground will be reinstated therefore residual effects unlikely. Best practice techniques likely to be implemented for construction work near landfill.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	The option passes through flood zones 2 and 3 and also several times through flood defences, this will cause temporary increased risk of flooding during construction. Unlikely to be any increased risk of flooding during operation.	Best practice mitigation measures will likely be implemented to minimise effects during construction to ensure minimal risk of flooding events. However, flood defences are likely to be temporarily compromised.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	The option transfer pipeline crosses watercourses and groundwater sources therefore potential for impacts on water quality such as pollution during the construction phase which could impact WFD status, effects likely to only be temporary. The option passes through SPZs. The WFD screening assessment (2021) identified no further WFD assessment is required.	Best practice mitigation measure will likely be implemented during construction to ensure minimal impact on water environment, however there is potential for effects on water quality to occur.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option provides a bi-directional pipe joining Shalford and Pulborough with 20Ml/d capacity.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	The option does not pass through any AQMAS. Construction likely to cause temporary increase in emissions.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and minor operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Option is unlikely to affect resilience of the local environment to climate changes given water levels and not anticipated to be significantly affected.	N/A	0	0	0	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	Option passes through greenbelt and a small area of Surry Hills AONB and two NLCA's. Infrastructure will be underground and ground will be reinstated however visual amenity will be disrupted during construction.	Best practice mitigation measures likely to be implemented during construction phase. Possibility for landscaping to restore/enhance visual amenity. However minor and temporary impacts are likely to occur.	0	-	0	0
	Historic Environment	0	--	0	0	Pipeline passes through a conservation area and there are a further six conservation areas within 500m of pipeline. No direct effects anticipated given there is no above ground infrastructure, however there may be impacts on the setting of the area during construction. The pipeline also appears to intersect three listed buildings, which may be impacted by construction. There are also additional listed buildings and scheduled monuments within 500m and the setting of these may be affected during construction. There is potential for the excavation to impact archaeology, if present.	Re-route the pipeline or utilise directional drilling to mitigate effects on listed buildings. Best practice mitigation measures likely to be implemented during construction phase to minimise effects on the setting of historic assets. Archaeological Watching Brief may be required during construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There is a nursing home, three cemeteries and six allotments within 500m of pipeline, which may be affected. There is no direct land take from these areas. There is likely to be minimal and temporary disturbance effects on users of these sites and the local community during construction. IMD deciles range from 5 to 10 along the pipeline route.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	Within 500m of option are several playing fields and play spaces, open access areas and a national park. There may be some minor and temporary effects on recreation during construction.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Pipeline infrastructure, pumping station and balance tank required for option therefore materials required. Waste is likely to be generated during construction phase, including excavated materials.	Opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option crosses major roads, and national cycle routes. There is likely to be moderate and temporary impacts during the construction phase from disruption for users (e.g. road closures, diversions).	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics		Positive 1 Negative -25				Positive 1 Negative -13					

Shalford to Pulborough: 10MI/d											
Shalford to Pulborough: 10MI/d											
A bi-directional pipe joining Shalford and Pulborough											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	<p>Option crosses Arun Valley Ramsar SAC SPA, there may be direct effects during construction phase on vulnerable habitats. There are four other SSSIs withing 500m of pipeline; Park Farm Cutting (100% favourable); Wey Vally Meadows SSSI (approx. 24 % favourable, 72% unfavourable recovering, remainder unfavourable no change); Blackheath approx. 75% favourable, 25% unfavourable recovering and Upper Arun (100% unfavourable recovering). No direct effects but there may be disturbance effects during the construction phase and potential effects on protected species. The option is within SSSI risk zone. Pipeline passes through priority habitat including deciduous woodland, coastal and floodplain grazing marsh and semi-quality semi-improved grassland. Possibility of loss of priority species during construction. Pipeline will be buried so operational effects unlikely.</p> <p>High INNS risk during construction as pipeline route crosses vulnerable habitats sensitive to INNS. Operational phase has no INNS risk/transfer as water is treated and assumed free of INNS.</p> <p>The HRA ToLS (2021) identifies uncertain effects for the Arun Valley Ramsar, SPA and SAC sites (located 1.7km east of the proposed option at Pulborough). This is associated with the dust arisings, vehicle emissions (i.e. increased nitrogen from numerous vehicle movements) along with release of sediment and construction materials that could potentially impact the flood meadows and Annex II Species dependent on ditch habitats. No likely significant effects are identified for Thursley & Ockley Bogs Ramsar, Ebernoe Common SAC, Thursley, Hankley & Frensham Commons SPA, Thursley - Ash - Pirbright & Chobham SAC and the Thames Basin Heaths SPA. This is due to the distance away from the proposed pipeline and no hydrological pathway which will effect this GWDTEs.</p>	Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys. Uncertain effects for the Arun Valley Ramsar, SPA and SAC sites are considered to be mitigatable through use of best practice measures such as a robust CEMP.	0	-	0	0

Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	Option is located within predominately Grade 3 agricultural land, but also passes through areas of Grade 2, 4 and urban. Disturbance to soil quality is likely to occur during construction. There are two historic landfill sites within close proximity to the pipeline.	Ground will be reinstated therefore residual effects unlikely. Best practice techniques likely to be implemented for construction work near landfill.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	--	0	0	The option passes through flood zones 2 and 3 and also several times through flood defences, this will cause temporary increased risk of flooding during construction. Unlikely to be any increased risk of flooding during operation.	Best practice mitigation measures will likely be implemented to minimise effects during construction to ensure minimal risk of flooding events. However, flood defences are likely to be temporarily compromised.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	The option transfer pipeline crosses watercourses and groundwater sources therefore potential for impacts on water quality such as pollution during the construction phase which could impact WFD status, effects likely to only be temporary. The option passes through SPZs. The WFD screening assessment (2021) identified no further WFD assessment is required.	Best practice mitigation measure will likely be implemented during construction to ensure minimal impact on water environment, however there is potential for effects on water quality to occur.	0	-	0	0
	Deliver reliable and resilient water supplies	0	0	++	0	Option provides a bi-directional pipe joining Shalford and Pulborough with 40Ml/d capacity.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	The option does not pass through any AQMAS. Construction likely to cause temporary increase in emissions.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and minor operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Option is unlikely to affect resilience of the local environment to climate changes given water levels and not anticipated to be significantly affected.	N/A	0	0	0	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	Option passes through greenbelt and a small area of Surry Hills AONB and two NLCA's. Infrastructure will be underground and ground will be reinstated however visual amenity will be disrupted during construction.	Best practice mitigation measures likely to be implemented during construction phase. Possibility for landscaping to restore/enhance visual amenity. However minor and temporary impacts are likely to occur.	0	-	0	0
	Historic Environment	0	--	0	0	Pipeline passes through a conservation area and there are a further six conservation areas within 500m of pipeline. No direct effects anticipated given there is no above ground infrastructure, however there may be impacts on the setting of the area during construction. The pipeline also appears to intersect three listed buildings, which may be impacted by construction. There are also additional listed buildings and scheduled monuments within 500m and the setting of these may be affected during construction. There is potential for the excavation to impact archaeology, if present.	Re-route the pipeline or utilise directional drilling to mitigate effects on listed buildings. Best practice mitigation measures likely to be implemented during construction phase to minimise effects on the setting of historic assets. Archaeological Watching Brief may be required during construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There is a nursing home, three cemeteries and six allotments within 500m of pipeline, which may be affected. There is no direct land take from these areas. There is likely to be minimal and temporary disturbance effects on users of these sites and the local community during construction. IMD deciles range from 5 to 10 along the pipeline route.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	Within 500m of option are several playing fields and play spaces, open access areas and a national park. There may be some minor and temporary effects on recreation during construction.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Pipeline infrastructure, pumping station and balance tank required for option therefore materials required. Waste is likely to be generated during construction phase, including excavated materials.	Opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option crosses major roads, and national cycle routes. There is likely to be moderate and temporary impacts during the construction phase from disruption for users (e.g. road closures, diversions).	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics		Positive 4 Negative -25				Positive 4 Negative -13					

SWS_SNZ_HI-TFR_GUI_ALL_shamely-drunge r 50											
Shamely Green to Drungewick Manor: 50MI/d											
Southern Water											
A raw water transfer from Shamley Green to Drungewick Manor, to connect to the River Arun and onward to Ardingly and Weir Wood reservoirs											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	-	There are no designated sites within 2000m of the option, however it is within a SSSI risk zone. The proposed transfer pipeline intersects with areas of deciduous woodland priority habitat. There may be direct effects on priority species and indirect effects on habitats caused by disturbances during construction. The pipeline is to transfer raw water from Shamley Green, there is a potential risk of spreading INNS during the construction and operational phases. The HRA ToLS (2021) identified no likely significant effects.	Best practice methods to be implemented to minimise disturbance effects and habitat loss. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys.	0	-	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The option is located on grade 2,3 and 4 agricultural soil. There may be temporary effects on soil quality during construction. There is one historic landfill within 500m of the pipeline, there may be a possible risk of contamination during construction.	Ground will be reinstated for pipeline therefore residual effects unlikely. Best practice construction techniques will be used around historic landfill sites.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	Option passes through flood zones 2,3 and flood defences. There may be a temporary increased risk of flooding during construction of pipeline through defences. The pipeline transfers water to a flood zone 3 area so there may be a small increase in the risk of flooding in this area.	Measures to reduce the impact on flooding during the construction phase is likely to be implemented, however potential residual flood risk likely to remain. Monitoring flow rates will reduce risk of flooding.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	Option will enhance flows in the river Arun and onward to Ardingly and Weir Wood reservoirs. The pipeline intersects with surface water and 3 river catchments and two WFD River WB Cycle 2 areas. The option's water source point is located on an area of WFD ground water, there may be effects on the water quality of the ground water as well as surface water during construction of pipeline and during operation. There are no SPZs. The WFD Screening Assessment (2021) identified further WFD assessment is required as a result of the operation of the option.	Best practice construction measures will likely be implemented to mitigate effects therefore residual construction effects are unlikely.	0	-	0	--

	Deliver reliable and resilient water supplies	0	0	++	0	Option will enhance flows in the River Arun and onward to Ardingly and Weir Wood reservoirs with a flow rate capacity of 50Ml/d.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	Construction likely to have minor and temporary impact on air quality.	Best practice construction techniques can be utilised to reduce emissions. Low emission vehicles can be used during construction.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	-	Increased abstraction of water may have a negative effect on the environment if not properly monitored and licenced.	Monitoring to reduce risk of effects on the environment due to abstraction.	0	0	0	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	Option passes through an NCA and an AONB. Infrastructure will be underground and ground will be reinstated however visual amenity and character will be temporarily affected during construction.	Best practice mitigation measures likely to be implemented during construction phase. Possibility for landscaping to restore/enhance visual amenity. However minor and temporary impacts are likely to occur.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are two scheduled monuments and several listed buildings within 500m of the pipeline. No direct effects anticipated but there may be indirect effects on the setting of these assets from disturbance during construction. The pipeline excavation may impact archaeology, if present.	Best practice mitigation measures will likely be implemented to minimise setting effects during construction. Archaeological Watching Brief may be required during the construction phase.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There is one school immediately adjacent to the option and two others within 2km of pipeline. There are two allotments, a nursing home, sports facilities and open access areas within 500m. There will likely be temporary disruptions to community facilities during the construction phase. IMD deciles range from 6 to 10 along the pipeline route.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The pipeline intersects a national cycle path and a greenspace site. There may also be diversions to public rights of way during the construction phase. As such, there is potential for recreation to be affected, however this is likely to be minor and temporary.	Best practice construction methods will be implemented to minimise effects during construction. However, minor and temporary effects are likely to occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Option requires material use and new infrastructure. Waste will be generated, including excavated material.	Opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain. Reuse of excavated material on-site.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option crosses a major roads and a national cycle routes. There is likely to be moderate and temporary impacts during the construction phase as a result of road/track closures and diversions.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics		Positive 4 Negative -28				Positive 4 Negative -19					

SWS_SNZ_HI-TFR_GUI_ALL_shamely-drunge r 100											
Shamely Green to Drungewick Manor: 100MI/d											
Southern Water											
A raw water transfer from Shamley Green to Drungewick Manor, to connect to the River Arun and onward to Ardingly and Weir Wood reservoirs											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	-	There are no designated sites within 2000m of the option, however it is within a SSSI risk zone. The proposed transfer pipeline intersects with areas of deciduous woodland priority habitat. There may be direct effects on priority species and indirect effects on habitats caused by disturbances during construction. The pipeline is to transfer raw water from Shamley Green, there is a potential risk of spreading INNS during the construction and operational phases. The HRA ToLS (2021) identified no likely significant effects.	Best practice methods to be implemented to minimise disturbance effects and habitat loss. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys.	0	-	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The option is located on grade 2,3 and 4 agricultural soil. There may be temporary effects on soil quality during construction. There is one historic landfill within 500m of the pipeline, there may be a possible risk of contamination during construction.	Ground will be reinstated for pipeline therefore residual effects unlikely. Best practice construction techniques will be used around historic landfill sites.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	Option passes through flood zones 2,3 and flood defences. There may be a temporary increased risk of flooding during construction of pipeline through defences. The pipeline transfers water to a flood zone 3 area so there may be a small increase in the risk of flooding in this area.	Measures to reduce the impact on flooding during the construction phase is likely to be implemented, however potential residual flood risk likely to remain. Monitoring flow rates will reduce risk of flooding.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	Option will enhance flows in the river Arun and onward to Ardingly and Weir Wood reservoirs. The pipeline intersects with surface water and 3 river catchments and two WFD River WB Cycle 2 areas. The option's water source point is located on an area of WFD ground water, there may be effects on the water quality of the ground water as well as surface water during construction of pipeline and during operation. There are no SPZs. The WFD Screening Assessment (2021) identified further WFD assessment is required as a result of the operation of the option.	Best practice construction measures will likely be implemented to mitigate effects therefore residual construction effects are unlikely.	0	-	0	--

	Deliver reliable and resilient water supplies	0	0	+++	0	Option will enhance flows in the River Arun and onward to Ardingly and Weir Wood reservoirs with a flow rate capacity of 100Ml/d.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	Construction likely to have minor and temporary impact on air quality.	Best practice construction techniques can be utilised to reduce emissions. Low emission vehicles can be used during construction.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	-	Increased abstraction of water may have a negative effect on the environment if not properly monitored and licenced.	Monitoring to reduce risk of effects on the environment due to abstraction.	0	0	0	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	Option passes through an NCA and an AONB. Infrastructure will be underground and ground will be reinstated however visual amenity and character will be temporarily affected during construction.	Best practice mitigation measures likely to be implemented during construction phase. Possibility for landscaping to restore/enhance visual amenity. However minor and temporary impacts are likely to occur.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are two scheduled monuments and several listed buildings within 500m of the pipeline. No direct effects anticipated but there may be indirect effects on the setting of these assets from disturbance during construction. The pipeline excavation may impact archaeology, if present.	Best practice mitigation measures will likely be implemented to minimise setting effects during construction. Archaeological Watching Brief may be required during the construction phase.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There is one school immediately adjacent to the option and two others within 2km of pipeline. There are two allotments, a nursing home, sports facilities and open access areas within 500m. There will likely be temporary disruptions to community facilities during the construction phase. IMD deciles range from 6 to 10 along the pipeline route.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The pipeline intersects a national cycle path and a greenspace site. There may also be diversions to public rights of way during the construction phase. As such, there is potential for recreation to be affected, however this is likely to be minor and temporary.	Best practice construction methods will be implemented to minimise effects during construction. However, minor and temporary effects are likely to occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Option requires material use and new infrastructure. Waste will be generated, including excavated material.	Opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain. Reuse of excavated material on-site.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	The option crosses a major roads and a national cycle routes. There is likely to be moderate and temporary impacts during the construction phase as a result of road/track closures and diversions.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics		Positive 8 Negative -28				Positive 8 Negative -19					

SWS_SNZ_HI-TFR_GUI_ALL_shamely-drunge r 200											
Shamely Green to Drungewick Manor: 200MI/d											
Southern Water											
A raw water transfer from Shamley Green to Drungewick Manor, to connect to the River Arun and onward to Ardingly and Weir Wood reservoirs											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	-	There are no designated sites within 2000m of the option, however it is within a SSSI risk zone. The proposed transfer pipeline intersects with areas of deciduous woodland priority habitat. There may be direct effects on priority species and indirect effects on habitats caused by disturbances during construction. The pipeline is to transfer raw water from Shamley Green, there is a potential risk of spreading INNS during the construction and operational phases. The HRA ToLS (2021) identified no likely significant effects.	Best practice methods to be implemented to minimise disturbance effects and habitat loss. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys.	0	-	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The option is located on grade 2,3 and 4 agricultural soil. There may be temporary effects on soil quality during construction. There is one historic landfill within 500m of the pipeline, there may be a possible risk of contamination during construction.	Ground will be reinstated for pipeline therefore residual effects unlikely. Best practice construction techniques will be used around historic landfill sites.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	Option passes through flood zones 2,3 and flood defences. There may be a temporary increased risk of flooding during construction of pipeline through defences. The pipeline transfers water to a flood zone 3 area so there may be a small increase in the risk of flooding in this area.	Measures to reduce the impact on flooding during the construction phase is likely to be implemented, however potential residual flood risk likely to remain. Monitoring flow rates will reduce risk of flooding.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	Option will enhance flows in the river Arun and onward to Ardingly and Weir Wood reservoirs. The pipeline intersects with surface water and 3 river catchments and two WFD River WB Cycle 2 areas. The option's water source point is located on an area of WFD ground water, there may be effects on the water quality of the ground water as well as surface water during construction of pipeline and during operation. There are no SPZs. The WFD Screening Assessment (2021) identified further WFD assessment is required as a result of the operation of the option.	Best practice construction measures will likely be implemented to mitigate effects therefore residual construction effects are unlikely.	0	-	0	--

	Deliver reliable and resilient water supplies	0	0	+++	0	Option will enhance flows in the River Arun and onward to Ardingly and Weir Wood reservoirs with a flow rate capacity of 200Ml/d.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	Construction likely to have minor and temporary impact on air quality.	Best practice construction techniques can be utilised to reduce emissions. Low emission vehicles can be used during construction.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	--	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and moderate operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	--
	Reduce vulnerability to climate change risks and hazards	0	0	0	-	Increased abstraction of water may have a negative effect on the environment if not properly monitored and licenced.	Monitoring to reduce risk of effects on the environment due to abstraction.	0	0	0	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	Option passes through an NCA and an AONB. Infrastructure will be underground and ground will be reinstated however visual amenity and character will be temporarily affected during construction.	Best practice mitigation measures likely to be implemented during construction phase. Possibility for landscaping to restore/enhance visual amenity. However minor and temporary impacts are likely to occur.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are two scheduled monuments and several listed buildings within 500m of the pipeline. No direct effects anticipated but there may be indirect effects on the setting of these assets from disturbance during construction. The pipeline excavation may impact archaeology, if present.	Best practice mitigation measures will likely be implemented to minimise setting effects during construction. Archaeological Watching Brief may be required during the construction phase.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There is one school immediately adjacent to the option and two others within 2km of pipeline. There are two allotments, a nursing home, sports facilities and open access areas within 500m. There will likely be temporary disruptions to community facilities during the construction phase. IMD deciles range from 6 to 10 along the pipeline route.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The pipeline intersects a national cycle path and a greenspace site. There may also be diversions to public rights of way during the construction phase. As such, there is potential for recreation to be affected, however this is likely to be minor and temporary.	Best practice construction methods will be implemented to minimise effects during construction. However, minor and temporary effects are likely to occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Option requires material use and new infrastructure. Waste will be generated, including excavated material.	Opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain. Reuse of excavated material on-site.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	The option crosses a major roads and a national cycle routes. There is likely to be moderate and temporary impacts during the construction phase as a result of road/track closures and diversions.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics		Positive 8 Negative -31				Positive 8 Negative -22					

Tilmore to Pulborough: 10MI/d											
Tilmore to Pulborough: 10MI/d											
Southern											
A transfer between Tilmore and Pulborough (possible gravity transfer from Tilmore to Pulborough). (OAM completed using gis for option Tilmore to Pulborough: 80MI/d)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	Upper Arun SSSI (100% favourable) and Fyning Moor (100% favourable) are marginally within 500m of proposed pipeline. Iping Common and Rotherlands LNRs are within 500m of the proposed pipeline. Arun Valley SAC and East Hampshire Hangers SAC are within 2km of pipeline. No direct impacts but there may be significant disturbance effects on important species during construction. The option is entirely located within SSSI Impact Risk Zones. The pipeline intersects areas of priority habitat including: coastal and floodplain grazing marsh, deciduous woodland and good quality semi-improved grassland. There will be direct impacts on these areas during construction of pipeline with potential to affect priority species. The HRA screening identified likely significant impacts during construction on the Arun Valley Ramsar (1.9km east of proposed option), the Arun Valley SPA (1.9km east of proposed option) and the Arun Valley SAC (1.9km east of proposed option) sites. Pipeline construction may affect water quality via pollution due to dust and changes in sedimentation. Changes in water quality upstream from the N2k site may influence the water quality. Reductions in water quality would potentially impact qualifying wildfowl species <i>Anas acuta</i> and <i>Cygnus columbianus</i> due to reduced food and water quality, other ditch flora due to eutrophication and the nationally scarce mollusc <i>Anisus vorticulus</i> (part of the N2K site Pulborough Brooks SSSI contains) due to nutrient enrichment at the site. High INNS construction risk, as proposed pipeline route crosses River Rother at multiple points. This is a likely effects pathway for INNS transfer from works area to sensitive sites downstream e.g. Arun Valley SAC/SPA & Ramsar sites. Very low INNS risk/transfer during operational as transferred water is treated and presumed free of INNS.	Best practice mitigation to minimise impacts and reinstatement /compensation of habitats, but potential for residual effects to remain as removal of priority species likely. Future design will need to undertake ecological surveys. HRA ToLS LSE for Arun Valley Ramsar (1.9km east of proposed option), the Arun Valley SPA (1.9km east of proposed option) and the Arun Valley SAC (1.9km east of proposed option) sites are considered to be mitigatable through use of best practice measures such as a robust CEMP, wet cutting/crushing and vacuum drilling and minimisation of NOX emissions.	0	--	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	Option passes through ALC Grades 2, 3, 4 as well as non-agricultural and urban land. Construction of pipeline will require excavation and there may be a temporary impact on soil quality during	Ground will be reinstated so effects on soil are temporary. Best practice construction techniques to	0	0	0	0

						construction. There are three historic landfill sites within 500m of proposed pipeline. Construction may result in localised contamination of soils.	be implemented where pipeline passes close to historic landfill sites.				
Water	Increase resilience and reduce flood risk	0	--	0	0	The proposed pipeline passes through flood zones 2 and 3 and also through flood defences, this will cause temporary increased risk of flooding during construction. Pipeline infrastructure will be buried so unlikely for there to be any effect on flooding after construction.	Measures to reduce the impact on flooding during the construction phase are likely to be implemented, however potential residual flood risk likely to remain.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	The option crosses SPZ1 and SPZ1, ground water: Lower Greensand Arun & Western Streams and surface water which may have impacts on water quality during construction phase. WFD assessment (2020) concluded no additional assessment required.	Best practice construction measures will likely be implemented to mitigate effects therefore residual effects are unlikely.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Upon completion, the option will provide a 10Ml/d transfer between Tilmore and Pulborough. Treated water transfer from area of surplus to one of deficit.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	The option is not within an AQMA nor are there any within 2km. Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	0	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon) and construction activities. The relative carbon scale identified that the option has minor construction carbon emissions (relative to other WRSE Regional Plan options). Option may potentially use gravity transfer reducing the need for pumps.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	No effect anticipated. The option is not anticipated to have a significant effect on water levels as such is not likely to affect the resilience to climate change.	N/A	0	0	0	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option is in the Wealden Greensand NCA and South Downs National Park. There will be minor negative effects during construction likely as excavation will be required for the transfer pipeline.	Best practice measures to be implemented to minimise effects during construction although temporary effects during construction may remain. Land reinstated upon completion so no residual effects likely to remain during operation.	0	-	0	0
	Historic Environment	0	--	0	0	Pipeline intersects Cowdray House Grade II* Registered Park and Garden), two conservation areas and a Grade II listed building (Ambersham Bridge). The pipeline is aligned along the A272 for much of its route through Cowdray House RPG. There are numerous listed buildings and scheduled monuments within 500m of the proposed pipeline. Construction may affect the setting of these historic assets, however this is likely to be temporary as the pipeline will be buried. Excavation will be required during construction, which may impact buried archaeology.	Pipeline route alignment or use of trenchless techniques to avoid direct impacts on historic assets. Best practice mitigation measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	A golf course would be directly impacted during construction. Within 500m of proposed pipeline there are six allotments, four cemeteries, a nursing home, four sports facilities and seven schools. No direct land take but there is likely to be disturbance effects during construction of pipeline. Option is with in areas of IMD decile 6 and 7.	Pipeline alignment to avoid golf course where possible. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction and land will be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	--	0	0	The option lies within South Downs National Park. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be temporary effects on recreation, angling and other water based recreation during the construction phase. There may be minimal and temporary disturbance on users of footpaths and other public rights of way during the construction phase. Pipeline will be buried so operational effects unlikely.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0

Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials. Waste will be produced during excavation for pipeline.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option intersects a railway line and major roads, and is aligned along major roads for part of its length. It is likely that there will be disturbance effects during construction.	Best practice mitigation measures including a Traffic Management Plan will likely be implemented to minimise effects during construction and roads and cycle routes will be reinstated above the pipeline. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive 1 Negative -37				Positive 1 Negative -13					

Tilmore to Pulborough: 80MI/d											
Tilmore to Pulborough: 80MI/d											
Southern											
A transfer between Tilmore and Pulborough (possible gravity transfer from Tilmore to Pulborough).											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	Upper Arun SSSI (100% favourable) and Fyning Moor (100% favourable) are marginally within 500m of proposed pipeline. Iping Common and Rotherlands LNRs are within 500m of the proposed pipeline. Arun Valley SAC and East Hampshire Hangers SAC are within 2km of pipeline. No direct impacts but there may be significant disturbance effects on important species during construction. The option is entirely located within SSSI Impact Risk Zones. The pipeline intersects areas of priority habitat including: coastal and floodplain grazing marsh, deciduous woodland and good quality semi-improved grassland. There will be direct impacts on these areas during construction of pipeline with potential to affect priority species. The HRA screening identified likely significant impacts during construction on the Arun Valley Ramsar (1.9km east of proposed option), the Arun Valley SPA (1.9km east of proposed option) and the Arun Valley SAC (1.9km east of proposed option) sites. Pipeline construction may affect water quality via pollution due to dust and changes in sedimentation. Changes in water quality upstream from the N2k site may influence the water quality. Reductions in water quality would potentially impact qualifying wildfowl species <i>Anas acuta</i> and <i>Cygnus columbianus</i> due to reduced food and water quality, other ditch flora due to eutrophication and the nationally scarce mollusc <i>Anisus vorticulus</i> (part of the N2K site Pulborough Brooks SSSI contains) due to nutrient enrichment at the site. High INNS construction risk, as proposed pipeline route crosses River Rother at multiple points. This is a likely effects pathway for INNS transfer from works area to sensitive sites downstream e.g. Arun Valley SAC/SPA & Ramsar sites. Very low INNS risk/transfer during operational as transferred water is treated and presumed free of INNS.	Best practice mitigation to minimise impacts and reinstatement /compensation of habitats, but potential for residual effects to remain as removal of priority species likely. Future design will need to undertake ecological surveys. HRA ToLS LSE for Arun Valley Ramsar (1.9km east of proposed option), the Arun Valley SPA (1.9km east of proposed option) and the Arun Valley SAC (1.9km east of proposed option) sites are considered to be mitigatable through use of best practice measures such as a robust CEMP, wet cutting/crushing and vacuum drilling and minimisation of NOX emissions.	0	--	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	Option passes through ALC Grades 2, 3, 4 as well as non-agricultural and urban land. Construction of pipeline will require excavation and there may be a temporary impact on soil quality during construction. There are three historic landfill	Ground will be reinstated so effects on soil are temporary. Best practice construction techniques to be implemented where	0	0	0	0

						sites within 500m of proposed pipeline. Construction may result in localised contamination of soils.	pipeline passes close to historic landfill sites.				
Water	Increase resilience and reduce flood risk	0	--	0	0	The proposed pipeline passes through flood zones 2 and 3 and also through flood defences, this will cause temporary increased risk of flooding during construction. Pipeline infrastructure will be buried so unlikely for there to be any effect on flooding after construction.	Measures to reduce the impact on flooding during the construction phase are likely to be implemented, however potential residual flood risk likely to remain.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	The option crosses SPZ1 and SPZ1, ground water: Lower Greensand Arun & Western Streams and surface water which may have impacts on water quality during construction phase. WFD assessment (2020) concluded no additional assessment required.	Best practice construction measures will likely be implemented to mitigate effects therefore residual effects are unlikely.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+++	0	Upon completion, the option will provide an 80ML/d transfer between Tilmore and Pulborough. Treated water transfer from area of surplus to one of deficit.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	The option is not within an AQMA nor are there any within 2km. Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	0	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon) and construction activities. The relative carbon scale identified that the option has minor construction carbon emissions (relative to other WRSE Regional Plan options). Option may potentially use gravity transfer reducing the need for pumps.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	No effect anticipated. The option is not anticipated to have a significant effect on water levels as such is not likely to affect the resilience to climate change.	N/A	0	0	0	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option is in the Wealden Greensand NCA and South Downs National Park. There will be minor negative effects during construction likely as excavation will be required for the transfer pipeline.	Best practice measures to be implemented to minimise effects during construction although temporary effects during construction may remain. Land reinstated upon completion so no residual effects likely to remain during operation.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	Pipeline intersects Cowdray House Grade II* Registered Park and Garden), two conservation areas and a Grade II listed building (Ambersham Bridge). The pipeline is aligned along the A272 for much of its route through Cowdray House RPG. There are numerous listed buildings and scheduled monuments within 500m of the proposed pipeline. Construction may affect the setting of these historic assets, however this is likely to be temporary as the pipeline will be buried. Excavation will be required during construction, which may impact buried archaeology.	Pipeline route alignment or use of trenchless techniques to avoid direct impacts on historic assets. Best practice mitigation measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	A golf course would be directly impacted during construction. Within 500m of proposed pipeline there are six allotments, four cemeteries, a nursing home, four sports facilities and seven schools. No direct land take but there is likely to be disturbance effects during construction of pipeline. Option is with in areas of IMD decile 6 and 7.	Pipeline alignment to avoid golf course where possible. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction and land will be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	--	0	0	The option lies within South Downs National Park. The option crosses watercourses and habitat areas/woodland that could be used for recreation, therefore there may be temporary effects on recreation, angling and other water based recreation during the construction phase. There may be minimal and temporary disturbance on users of footpaths and other public rights of way during the construction phase. Pipeline will be buried so operational effects unlikely.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. Direct land take of recreational sites to be avoided where possible and land to be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0

Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials. Waste will be produced during excavation for pipeline.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option intersects a railway line and major roads, and is aligned along major roads for part of its length. It is likely that there will be disturbance effects during construction.	Best practice mitigation measures including a Traffic Management Plan will likely be implemented to minimise effects during construction and roads and cycle routes will be reinstated above the pipeline. However, minor and temporary effects are likely to still occur. Directional drilling under the railway and major roads is likely to be required.	0	-	0	0
SEA Metrics		Positive 8 Negative -37				Positive 8 Negative -13					

Outwood To E875Turners Hill: 10MI/d											
Outwood To Turners Hill: 10MI/d											
Southern											
Proposed new transfer from Outwood To Buchen Hill, Crawley. 10MLD transfer flow rate											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	<p>The proposed pipeline intersects with two areas of ancient woodland and several areas of priority habitat including deciduous woodland and good quality semi-improved grassland. This option is likely to result in a of loss of habitat and priority species during construction. Pipeline will be buried so it is unlikely that there will be any operational effects. Transferred water is treated so unlikely to transfer INNS.</p> <p>The Mole Gap to Reigate Escarpment SAC is located 9.6km north and is considered to be hydrologically connected to the option. The HRA screening concluded uncertain LSE due to the possibility of sediment discharge or pollution during the construction phase which could lead to negative consequences for qualifying habitats and species (including great crested newt). It is uncertain whether dilution (due to the distance from the site) would reduce the likelihood of LSE.</p>	Consider alignment options that reduce intersection with ancient woodland and priority habitats. Best practice mitigation to minimise impacts and reinstatement /compensation of habitats, but potential for residual effects to remain as removal of priority species likely. Best practice mitigation for pollution prevention and sediment disturbance should be used along with other measures set out in a robust CEMP to address HRA ToLS uncertain effects identified for Mole Gap to Reigate Escarpment SAC.	0	-	0	0
	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	Option in located on grade 3, grade 4 and non-agricultural land, soil is likely to be temporarily affected during construction as excavation is necessary for construction of pipeline. There are four historic landfill sites within close proximity to pipeline, there is a possible risk of contamination during construction.	Ground will be reinstated therefore residual effects unlikely. Best practice techniques likely to be implemented for construction work in landfill.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	There are small areas of flood zone 2 and flood zone 3 within 500m of the option pipeline. The pipeline will be buried so it is unlikely that there will be an increased risk of flooding.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	The option passes through two WFD river catchment areas The pipeline intersects with WFDGW and Surface water. Quality of ground water and surface water may be affected during construction. Pipeline to transfer treated water. Potential for sediment disturbance to occur in the waterbody which would result in an impact on the WFD status. WFD (2021) did not identify any waterbodies requiring further assessment.	Best practice mitigation measure will likely be implemented during construction to ensure minimal impact on water environment, however there is potential for effects on water quality to occur. Best practice mitigation to be followed	0	-	0	0

							with regards to sediment disturbance.				
	Deliver reliable and resilient water supplies	0	0	+	0	Option will provide a new transfer of water from Outwood To Buchen Hill, Crawley (10MLD transfer flow rate)	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Option does not pass through any AQMAS. Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	0	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon). The relative carbon scale identified that the option has minor construction carbon emissions (relative to other WRSE Regional Plan options). The option description does not include information on operational phase pumps or assets requiring energy input, therefore no operational phase emissions assumed.	Investigate use of renewables during construction for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Unlikely to impact climate change risks and hazards.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	Part of the pipeline is located on Greenbelt area. Option does not require above ground infrastructure and ground will be reinstated. There is an ANOB within a kilometre of the pipeline. No direct effects but there may be temporary negative effects on visual amenity during construction. It is assumed that the pipeline would be installed using directional drilling below areas of woodland, resulting in no change to existing once ground is reinstated following works	Best practice mitigation measures likely to be implemented during construction phase. Possibility for landscaping to restore/enhance visual amenity. However minor and temporary impacts are likely to occur.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	Outwood Conservation Area is within 200m of pipeline as well as a small number of listed buildings. No direct effects but there may be potential disturbance effects. Potential for buried heritage assets to be impacted due to likelihood	Best practice mitigation measures likely to be implemented during construction phase, however minor impacts	0	-	0	0

						of ground not having been previously excavated and proximity to conservation area.	may occur. Desk based assessment recommended to dictate potential requirement for archaeological watching brief during the works.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There is a school immediately adjacent to the pipeline and one playing field and two open access areas 500m of pipeline. No direct land take but there may be temporary disturbance during construction.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	Option intersects with a cycle route and a greenspace site, there will be direct effects during construction but pipeline will be buried and excavated land will be reinstated. There is a golf course and two open access areas within 500m of pipeline, no direct effects on these areas but there may be disturbance effects during construction.	Best practice mitigation measures likely to be implemented during construction phase. Possibility for landscaping to restore/enhance cycle path and excavated greenspace site. However minor and temporary impacts are likely to occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Due to the requirement for machinery and plant during the construction phase, energy requirements will be high. Excavated material will be generated.	Opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain. Reuse of excavated material on-site.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	Pipeline intersects with one cycle route that will need to be closed/diverted for a short period during construction. Cycle path will be reinstated.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts are likely to occur.	0	-	0	0
SEA Metrics		Positive 1 Negative -14				Positive 1 Negative -10					

Outwood To Turners Hill: 50MI/d											
Outwood To Turners Hill: 50MI/d											
Southern											
Proposed new transfer from Outwood To Buchen Hill, Crawley. 10MLD transfer flow rate											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	<p>The proposed pipeline intersects with two areas of ancient woodland and several areas of priority habitat including deciduous woodland and good quality semi-improved grassland. This option is likely to result in a of loss of habitat and priority species during construction. Pipeline will be buried so it is unlikely that there will be any operational effects. Transferred water is treated so unlikely to transfer INNS.</p> <p>The Mole Gap to Reigate Escarpment SAC is located 9.6km north and is considered to be hydrologically connected to the option. The HRA screening concluded uncertain LSE due to the possibility of sediment discharge or pollution during the construction phase which could lead to negative consequences for qualifying habitats and species (including great crested newt). It is uncertain whether dilution (due to the distance from the site) would reduce the likelihood of LSE.</p>	<p>Consider alignment options that reduce intersection with ancient woodland and priority habitats.</p> <p>Best practice mitigation to minimise impacts and reinstatement /compensation of habitats, but potential for residual effects to remain as removal of priority species likely. Best practice mitigation for pollution prevention and sediment disturbance and use of a robust CEMP should be used to mitigate effects identified by HRA ToLS on Mole Gap to Reigate Escarpment SAC.</p>	0	-	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	<p>Option in located on grade 3, grade 4 and non-agricultural land, soil is likely to be temporarily affected during construction as excavation is necessary for construction of pipeline. There are four historic landfill sites within close proximity to pipeline, there is a possible risk of contamination during construction.</p>	<p>Ground will be reinstated therefore residual effects unlikely. Best practice techniques likely to be implemented for construction work in landfill.</p>	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	<p>There are small areas of flood zone 2 and flood zone 3 within 500m of the option pipeline. The pipeline will be buried so it is unlikely that there will be an increased risk of flooding.</p>	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	<p>The option passes through two WFD river catchment areas The pipeline intersects with WFDGW and Surface water. Quality of ground water and surface water may be affected during construction. Pipeline to transfer treated water. Potential for sediment disturbance to occur in the waterbody which would result in an impact on the WFD status.</p> <p>WFD (2021) did not identify any waterbodies requiring further assessment.</p>	<p>Best practice mitigation measure will likely be implemented during construction to ensure minimal impact on water environment, however there is potential for effects on water quality to occur. Best practice mitigation to be followed with regards to sediment disturbance.</p>	0	-	0	0

	Deliver reliable and resilient water supplies	0	0	++	0	Option will provide a new transfer of water from Outwood To Buchen Hill, Crawley (10MLD transfer flow rate) (50Ml capacity)	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	Option does not pass through any AQMAS. Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	0	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon). The relative carbon scale identified that the option has minor construction carbon emissions (relative to other WRSE Regional Plan options). The option description does not include information on operational phase pumps or assets requiring energy input, therefore no operational phase emissions assumed.	Investigate use of renewables during construction for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Unlikely to impact climate change risks and hazards.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	Part of the pipeline is located on Greenbelt area. Option does not require above ground infrastructure and ground will be reinstated. There is an ANOB within a kilometre of the pipeline. No direct effects but there may be temporary negative effects on visual amenity during construction. It is assumed that the pipeline would be installed using directional drilling below areas of woodland, resulting in no change to existing once ground is reinstated following works	Best practice mitigation measures likely to be implemented during construction phase. Possibility for landscaping to restore/enhance visual amenity. However minor and temporary impacts are likely to occur.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	Outwood Conservation Area is within 200m of pipeline as well as a small number of listed buildings. No direct effects but there may be potential disturbance effects. Potential for buried heritage assets to be impacted due to likelihood of ground not having been previously excavated and proximity to conservation area.	Best practice mitigation measures likely to be implemented during construction phase, however minor impacts may occur. Desk based assessment recommended to dictate potential requirement for archaeological watching brief during the works.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There is a school immediately adjacent to the pipeline and one playing field and two open access areas 500m of pipeline. No direct land take but there may be temporary disturbance during construction.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	Option intersects with a cycle route and a greenspace site, there will be direct effects during construction but pipeline will be buried and excavated land will be reinstated. There is a golf course and two open access areas within 500m of pipeline, no direct effects on these areas but there may be disturbance effects during construction.	Best practice mitigation measures likely to be implemented during construction phase. Possibility for landscaping to restore/enhance cycle path and excavated greenspace site. However minor and temporary impacts are likely to occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Due to the requirement for machinery and plant during the construction phase, energy requirements will be high. Excavated material will be generated.	Opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain. Reuse of excavated material on-site.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	Pipeline intersects with one cycle route that will need to be closed/diverted for a short period during construction. Cycle path will be reinstated.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts are likely to occur.	0	-	0	0
SEA Metrics		Positive 4 Negative -14				Positive 4 Negative -10					

Outwood To Turners Hill: 100MI/d											
Outwood To Turners Hill: 100MI/d											
Southern											
Proposed new transfer from Outwood To Buchen Hill, Crawley. 10MLD transfer flow rate											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	<p>The proposed pipeline intersects with two areas of ancient woodland and several areas of priority habitat including deciduous woodland and good quality semi-improved grassland. This option is likely to result in a of loss of habitat and priority species during construction. Pipeline will be buried so it is unlikely that there will be any operational effects. Transferred water is treated so unlikely to transfer INNS.</p> <p>The Mole Gap to Reigate Escarpment SAC is located 9.6km north and is considered to be hydrologically connected to the option. The HRA screening concluded uncertain LSE due to the possibility of sediment discharge or pollution during the construction phase which could lead to negative consequences for qualifying habitats and species (including great crested newt). It is uncertain whether dilution (due to the distance from the site) would reduce the likelihood of LSE.</p>	<p>Consider alignment options that reduce intersection with ancient woodland and priority habitats.</p> <p>Best practice mitigation to minimise impacts and reinstatement /compensation of habitats, but potential for residual effects to remain as removal of priority species likely. Best practice mitigation for pollution prevention and sediment disturbance, such as use of a robust CEMP can mitigate construction phase effects identified by HRA ToLS for Mole Gap to Reigate Escarpment SAC.</p>	0	-	0	0
	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	<p>Option in located on grade 3, grade 4 and non-agricultural land, soil is likely to be temporarily affected during construction as excavation is necessary for construction of pipeline. There are four historic landfill sites within close proximity to pipeline, there is a possible risk of contamination during construction.</p>	<p>Ground will be reinstated therefore residual effects unlikely. Best practice techniques likely to be implemented for construction work in landfill.</p>	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	<p>There are small areas of flood zone 2 and flood zone 3 within 500m of the option pipeline. The pipeline will be buried so it is unlikely that there will be an increased risk of flooding.</p>	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	<p>The option passes through two WFD river catchment areas The pipeline intersects with WFDGW and Surface water. Quality of ground water and surface water may be affected during construction. Pipeline to transfer treated water. Potential for sediment disturbance to occur in the waterbody which would result in an impact on the WFD status.</p> <p>WFD (2021) did not identify any waterbodies requiring further assessment.</p>	<p>Best practice mitigation measure will likely be implemented during construction to ensure minimal impact on water environment, however there is potential for effects on water quality to occur. Best practice mitigation to be followed with regards to sediment disturbance.</p>	0	-	0	0

	Deliver reliable and resilient water supplies	0	0	+++	0	Option will provide a new transfer of water from Outwood To Buchen Hill, Crawley (10MLD transfer flow rate) (100MI Capacity)	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	Option does not pass through any AQMAS. Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	0	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon). The relative carbon scale identified that the option has minor construction carbon emissions (relative to other WRSE Regional Plan options). The option description does not include information on operational phase pumps or assets requiring energy input, therefore no operational phase emissions assumed.	Investigate use of renewables during construction for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Unlikely to impact climate change risks and hazards.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	Part of the pipeline is located on Greenbelt area. Option does not require above ground infrastructure and ground will be reinstated. There is an ANOB within a kilometre of the pipeline. No direct effects but there may be temporary negative effects on visual amenity during construction. It is assumed that the pipeline would be installed using directional drilling below areas of woodland, resulting in no change to existing once ground is reinstated following works	Best practice mitigation measures likely to be implemented during construction phase. Possibility for landscaping to restore/enhance visual amenity. However minor and temporary impacts are likely to occur.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	Outwood Conservation Area is within 200m of pipeline as well as a small number of listed buildings. No direct effects but there may be potential disturbance effects. Potential for buried heritage assets to be impacted due to likelihood of ground not having been previously excavated and proximity to conservation area.	Best practice mitigation measures likely to be implemented during construction phase, however minor impacts may occur. Desk based assessment recommended to dictate potential requirement for archaeological watching brief during the works.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There is a school immediately adjacent to the pipeline and one playing field and two open access areas 500m of pipeline. No direct land take but there may be temporary disturbance during construction.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	Option intersects with a cycle route and a greenspace site, there will be direct effects during construction but pipeline will be buried and excavated land will be reinstated. There is a golf course and two open access areas within 500m of pipeline, no direct effects on these areas but there may be disturbance effects during construction.	Best practice mitigation measures likely to be implemented during construction phase. Possibility for landscaping to restore/enhance cycle path and excavated greenspace site. However minor and temporary impacts are likely to occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Due to the requirement for machinery and plant during the construction phase, energy requirements will be high. Excavated material will be generated.	Opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain. Reuse of excavated material on-site.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	Pipeline intersects with one cycle route that will need to be closed/diverted for a short period during construction. Cycle path will be reinstated.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts are likely to occur.	0	-	0	0
SEA Metrics		Positive 8 Negative -14				Positive 8 Negative -10					

SWS_SNZ_HI-TFR_SES_ALL_outwood-turner p 200											
Outwood To Turners Hill: 200ML/d											
Southern											
Proposed new transfer from Outwood To Buchen Hill, Crawley. 10MLD transfer flow rate											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	<p>The proposed pipeline intersects with two areas of ancient woodland and several areas of priority habitat including deciduous woodland and good quality semi-improved grassland. This option is likely to result in a of loss of habitat and priority species during construction. Pipeline will be buried so it is unlikely that there will be any operational effects. Transferred water is treated so unlikely to transfer INNS.</p> <p>The Mole Gap to Reigate Escarpment SAC is located 9.6km north and is considered to be hydrologically connected to the option. The HRA screening concluded uncertain LSE due to the possibility of sediment discharge or pollution during the construction phase which could lead to negative consequences for qualifying habitats and species (including great crested newt). It is uncertain whether dilution (due to the distance from the site) would reduce the likelihood of LSE.</p>	Consider alignment options that reduce intersection with ancient woodland and priority habitats. Best practice mitigation to minimise impacts and reinstatement /compensation of habitats, but potential for residual effects to remain as removal of priority species likely. Best practice mitigation for pollution prevention and sediment disturbance and use of a robust CEMP should be used to mitigate uncertain effects identified by HRA ToLS for Mole Gap to Reigate Escarpment SAC.	0	-	0	0
	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	Option in located on grade 3, grade 4 and non-agricultural land, soil is likely to be temporarily affected during construction as excavation is necessary for construction of pipeline. There are four historic landfill sites within close proximity to pipeline, there is a possible risk of contamination during construction.	Ground will be reinstated therefore residual effects unlikely. Best practice techniques likely to be implemented for construction work in landfill.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	There are small areas of flood zone 2 and flood zone 3 within 500m of the option pipeline. The pipeline will be buried so it is unlikely that there will be an increased risk of flooding.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	The option passes through two WFD river catchment areas The pipeline intersects with WFDGW and Surface water. Quality of ground water and surface water may be affected during construction. Pipeline to transfer treated water. Potential for sediment disturbance to occur in the waterbody which would result in an impact on the WFD status. WFD (2021) did not identify any waterbodies requiring further assessment.	Best practice mitigation measure will likely be implemented during construction to ensure minimal impact on water environment, however there is potential for effects on water quality to occur. Best practice mitigation to be followed with regards to sediment disturbance.	0	-	0	0

	Deliver reliable and resilient water supplies	0	0	+++	0	Option will provide a new transfer of water from Outwood To Buchen Hill, Crawley (10MLD transfer flow rate) (200ML capacity)	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	Option does not pass through any AQMAs. Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	0	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon). The relative carbon scale identified that the option has minor construction carbon emissions (relative to other WRSE Regional Plan options). The option description does not include information on operational phase pumps or assets requiring energy input, therefore no operational phase emissions assumed.	Investigate use of renewables during construction for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Unlikely to impact climate change risks and hazards.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	Part of the pipeline is located on Greenbelt area. Option does not require above ground infrastructure and ground will be reinstated. There is an ANOB within a kilometre of the pipeline. No direct effects but there may be temporary negative effects on visual amenity during construction. It is assumed that the pipeline would be installed using directional drilling below areas of woodland, resulting in no change to existing once ground is reinstated following works	Best practice mitigation measures likely to be implemented during construction phase. Possibility for landscaping to restore/enhance visual amenity. However minor and temporary impacts are likely to occur.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	Outwood Conservation Area is within 200m of pipeline as well as a small number of listed buildings. No direct effects but there may be potential disturbance effects. Potential for buried heritage assets to be impacted due to likelihood of ground not having been previously excavated and proximity to conservation area.	Best practice mitigation measures likely to be implemented during construction phase, however minor impacts may occur. Desk based assessment recommended to dictate potential requirement for archaeological watching brief during the works.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There is a school immediately adjacent to the pipeline and one playing field and two open access areas 500m of pipeline. No direct land take but there may be temporary disturbance during construction.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	Option intersects with a cycle route and a greenspace site, there will be direct effects during construction but pipeline will be buried and excavated land will be reinstated. There is a golf course and two open access areas within 500m of pipeline, no direct effects on these areas but there may be disturbance effects during construction.	Best practice mitigation measures likely to be implemented during construction phase. Possibility for landscaping to restore/enhance cycle path and excavated greenspace site. However minor and temporary impacts are likely to occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Due to the requirement for machinery and plant during the construction phase, energy requirements will be high. Excavated material will be generated.	Opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain. Reuse of excavated material on-site.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	-	0	0	Pipeline intersects with one cycle route that will need to be closed/diverted for a short period during construction. Cycle path will be reinstated.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts are likely to occur.	0	-	0	0
SEA Metrics		Positive 8 Negative -14				Positive 8 Negative -10					

SWS_SNZ_HI-TFR_SNZ_ALL_bs_rww_cent											
Rest Weir Wood reservoir source during early stages of drought											
Southern Water											
Drought Option: Maximising pumping from Pulborough WSW through the distribution network into Crawley in order to displace water normally supplied by Weir Wood, resting Weir Wood reservoir for use in later stages of a drought. Sources could be rested immediately provided that there is headroom available.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	No effects on biodiversity, flora and fauna are anticipated as a result of this option. Option may have positive effects on Weir Wood Reservoir SSSI (25.46% favourable, 74.54% unfavourable- no change) resting period may benefits on local habitat. HRA ToLs identified no likely significant effects on N2K sites. The option is likely to have very low risk for the transfer / spread of INNS.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No effects on soils are anticipated as a result of this option.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	No effects on flood risk are anticipated as a result of this option.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	No effects on water quality are anticipated as a result of this option. Option allows resting of Weir Wood reservoir reserving use in later stages of a drought. WFD assessments indicate no further assessments were required.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	The option increases supply resilience as it allows water to be rested in Weir Wood reservoir for use in later stages of a drought. 5 MI/d capacity.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	No effects on air quality are anticipated as a result of this option.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	-	No carbon data available for this option. Likely to be a minor increase in carbon emissions associated with increased water transfer from Pulborough.	Use of renewable energy.	0	0	0	-

	Reduce vulnerability to climate change risks and hazards	0	0	0	0	The option is unlikely to have any long term impacts on vulnerability to climate change. Option to provide water resource for use in the later stage of drought.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	The option is unlikely to have effects on landscape, townscape and seascape character and visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	The option is unlikely to have an effect on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	Option is not anticipated to have significant effects.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	No effects on tourism or recreation are anticipated as a result of this option.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	Minimal new infrastructure requires. Option unlikely to have significant effects.	Opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain.	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	No effects on built assets and infrastructure are anticipated as a result of this option.	N/A	0	0	0	0
SEA Metrics		Positive 2 Negative -1				Positive 2 Negative -1					

SWS_SNZ_RE-DRO_ALL_ALL_di-sn											
TUBS and NEU Ban - SN WRZ											
Southern water											
Temporary use bans and Non-essential use bans											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Temporary use bans and non-essential use bans in Sussex North may help protect GWDTE and priority habitat by conserving water in the environment. The HRA Tols (2021) indicated the following Natura sites that may be affected: Ebernoe Common SAC; The Mens SAC; Duncton to Bignor Escarpment SAC; Arun Valley SAC; Arun Valley Ramsar; Arun Valley SPA. The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to sites which ecosystems are dependent upon ground and surface water. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	A temporary use ban and non-essential use ban may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of several water bodies. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	By reducing demand through temporary use band and non-essential use ban, option maintains resilience of water for essential services.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	There is no carbon data available for this option. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The option is for a temporary use ban and non-essential use ban. By reducing demand and potentially reducing abstraction the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented in drought conditions, it will not result in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of private gardens, and use of ornamental fountains etc will be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to have a significant effect on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Temporary use ban and non-essential use ban is likely to have minor negative effects on the community and social well-being as there will be restrictions on irrigation of gardens and allotments and use of water for recreational purposes. There may also be a small increased risk of fires in allotments as vegetation dries out.	Allowing allotments limited supplies of water. Ensuring high levels of communication before, during and following the implementation of these measures.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Assuming commercial properties including gardens are exempt from bans and restrictions there is likely to be only a minor effect on tourism and recreation. Non-commercial tourism sites may be affected.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effect on waste production or resource use.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effects on built assets and infrastructure.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -3				Positive 4 Negative -3					

SWS_SNZ_RE-DRO_ALL_ALL_do_di_eme_regi											
Emergency restrictions: Sussex North											
Southern water											
<p>Drought Option: Emergency Drought Orders allow water companies to restrict supplies to customers through the imposition of rota cuts and/or the introduction of standpipes. These measures exist to deal with the very remote possibility of a drought much worse than any seen in the last century or more in the UK. Emergency Drought Orders have not been put in place in the UK since 1976. Ministers have made it clear that such measures should be avoided at all costs and introduced only as a last resort. The Company will make full use of all other measures before considering whether the severity of drought conditions mean that Emergency Drought Orders might be required. The full range of measures available under Emergency Drought Order include powers: To limit the use of water for such purposes as it considers necessary (i.e. further measures not specified in the Drought Direction 2011); To introduce rota cuts; and To set up, and supply water by means of, stand-pipes or water tanks. Level of intervention for this option: Unprecedented drought conditions. We intend the need for these to only arise in conditions of civil emergency and as such our emergency plan covers this in more detail.</p>											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) identified no likely significant effects for the Sussex North WRZ as there are no N2K sites present. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Emergency restrictions may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is only to be used in severe drought circumstances so is therefore not likely to affect flood risk or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	++	0	Option maintains resilience of water for essential services.	N/A	0	0	++	0

Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	There is no carbon data available for this option. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have temporary effects on visual amenity as restricted water use may impact parks and gardens reliant on public water supply.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	---	Emergency restrictions such as rota cuts and imposition of standpipes may have major negative effects on social well-being, with the potential for breakdown of social cohesion and impacts on public health. Imposition of standpipes will particularly effect people with limited mobility or other disabilities. Businesses that use water and do not have access to private water supply will be largely affected with the potential for substantial economic losses. There may also be an increased risk of fires as public access to water is restricted.	Ensure high level of communication with customers before, during and after the restrictions have been imposed.	0	0	0	---
	Maintain and enhance tourism and recreation	0	0	0	--	Tourism and recreation is likely to be affected as water restrictions may force some tourist attractions and recreational activities to temporarily close.	N/A	0	0	0	--
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 7 Negative -13				Positive 7 Negative -13					

SWS_SNZ_RE-DRO_ALL_ALL_si_har_2											
Pulborough surface water (Phases 1 to 3) Drought Permit/Order (2025 onwards)											
Southern water											
Pulborough surface water (Phases 1 to 3) Drought Permit/Order (2025 onwards)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	The location is unknown at the time of the assessment. There may be potential for impacts on GWDTEs in proximity to the abstraction points, it is not known how far the effects an increase in abstraction will be seen therefore minor operational effects have been identified. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress. The HRA Tols (2021) identified no likely significant effects. There is not anticipated to be any additional risk for the transfer / spread of INNS.	Monitor abstraction.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Increased abstraction may impact local soil quality, however effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is not likely to affect flood risk or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	--	Given this option is only to be implemented under drought conditions when groundwater resources are vulnerable, the option may have negative impacts on resilience of the water environment. WFD assessment (2020) indicate further assessments required to assess impacts on the following water bodies: Western Rother.	Further assessments required.	0	0	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	Option will increase water supply under a drought order with an assumed drought action duration. Abstraction capacity increase not yet certain therefore minor effects identified.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	There may be some negative effects from an increase in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	There is no carbon data available for this option. Neutral effects have been estimated at this stage. There may be some negative effects from an increase in carbon emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0

	Reduce vulnerability to climate change risks and hazards	0	0	0	-	Increased abstraction during period of drought will reduce the water environment's ability to recover and may increase ground water resources vulnerability to drought in the future.	Monitor ground water flows.	0	0	0	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	Option unlikely to have effect on landscape, townscape and seascape character and visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option unlikely to have effect on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	Option is unlikely to have significant effects on the local community.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	Option unlikely to have any impact on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	-	Potential for increased resources required and waste produced from increased water treatment.	N/A	0	0	0	-
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure.	N/A	0	0	0	0
SEA Metrics		Positive 1 Negative -7				Positive 1 Negative -7					

SWS_SNZ_RE-DRO_ALL_ALL_si_har20											
Pulborough Groundwater Drought Order (2020 onwards)											
Southern water											
Pulborough Groundwater Drought Order (2020 onwards)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	The location is unknown at the time of the assessment. There may be potential for impacts on GWDTEs in proximity to the abstraction points, it is not known how far the effects an increase in abstraction will be seen therefore minor operational effects have been identified. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress. The HRA Tols (2021) identified no likely significant effects. There is not anticipated to be any additional risk for the transfer / spread of INNS.	Monitor abstraction.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Increased abstraction may impact local soil quality, however effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is not likely to affect flood risk or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	--	Given this option is only to be implemented under drought conditions when groundwater resources are vulnerable, the option may have negative impacts on resilience of the water environment. WFD assessment (2020) indicate further assessments required to assess impacts on the following water bodies: Lower Greensand Arun & Western Stream.	Further assessments required.	0	0	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	Option will increase water supply under a drought order with an assumed drought action duration. Abstraction capacity increase not yet certain therefore minor effects identified.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	There may be some negative effects from an increase in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	There is no carbon data available for this option. Neutral effects have been estimated at this stage. There may be some negative effects from an increase in carbon emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0

	Reduce vulnerability to climate change risks and hazards	0	0	0	-	Increased abstraction during period of drought will reduce the water environment's ability to recover and may increase ground water resources vulnerability to drought in the future.	Monitor ground water flows.	0	0	0	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	Option unlikely to have effect on landscape, townscape and seascape character and visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option unlikely to have effect on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	Option is unlikely to have significant effects on the local community.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	Option unlikely to have any impact on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	-	Potential for increased resources required and waste produced from increased water treatment.	N/A	0	0	0	-
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure.	N/A	0	0	0	0
SEA Metrics		Positive 1 Negative -7				Positive 1 Negative -7					

SWS_SNZ_RE-DRO_ALL_ALL_si_wei_2											
Weir Wood reservoir Drought Permit/Order (2025 onwards)											
Southern water											
(1) Reduce compensation flows by 3.6 MI/d in Winter. (2) Reduce compensation flows by 5.4 MI/d in Summer. Drought Option: The Company can apply for a Drought Permit or Order to reduce the compensation flow from Weir Wood reservoir to maintain water levels. This is a possibility for both summer and winter conditions but typically will only be sought when a specific drought issue is affecting the integrity of the reservoir. This Drought Permit is concerned with a reduction in compensation flow from Weir Wood Reservoir and Weir Wood WSW to maximise available resources for public water supply Aim is to conserve the depleted volume of water in storage. So DO is variable – depends upon need and availability of water. Previous application was for 3.6 MI/d all year.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	--	The western end of the reservoir is a protected nature reserve and bird sanctuary: Weir Wood Reservoir SSSI (25.46% favourable, 74.54% Unfavourable no change). The site includes reed grass and sheltering breeding birds which will likely benefit from maintaining reservoir water levels. Option may however, impact flora and fauna, including fish, downstream of compensation flow due to reductions in flow during a period of drought, when ecosystems are under severe stress. HRA Tols indicate no likely significant effects on N2K sites. INNS	Monitor downstream flows.	0	0	+	--
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	No effects on soils are anticipated as a result of this option.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Resilience to flood risk is not anticipated to be affected by this option.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	--	Option may help to maintain water quality and resilience of resource held in Weir Wood reservoir. The option may also result in negative impacts in water quality and flow for water bodies downstream of compensation flow. WFD assessments (2020) identified further WFD assessment is required due to operational effects.	Monitor downstream flows. Undertake further WFD assessment.	0	0	+	--
	Deliver reliable and resilient water supplies	0	0	+	0	Option for drought order to reduce compensation flows by 3.6 MI/d in Winter and by 5.4 MI/d in Summer. Aim is to conserve the depleted volume of water in storage. So DO is variable – depending on need and availability of water.	N/A	0	0	+	0

Air	Reduce and minimise air emissions	0	0	0	0	No effects on air quality are anticipated as a result of this option.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No effects on carbon emissions are anticipated as a result of this option.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Unlikely to have any long-term impacts on vulnerability to climate change. Option may help protect the reservoir from problems associated with prolonged or extreme drought conditions.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may impact the visual amenity of downstream of compensation flow.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	The option is unlikely to have an effect on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	--	Reduction in compensation flows may have impacts on downstream riparian land owners due to reduction in flow.	Communication with riparian land owners to prevent legal complications.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	+	-	Option may help to maintain reservoir recreation including angling, but may have negative impacts on angling downstream of compensation flows.	Communication with anglers to minimise conflicts.	0	0	+	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Option unlikely to require significant new infrastructure.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	No effects on built assets and infrastructure are anticipated as a result of this option.	N/A	0	0	0	0
SEA Metrics		Positive		5				Positive		5	
		Negative		-14				Negative		-11	

SWS_SNZ_RE-OTH_REP_ALL_bs_kmt_resil											
Reduce transfer to other commercial customers: Sussex North											
Southern Water											
Drought Option: In the event of a drought the Company would hold discussions with a commercial customer with regards to the resources position and their supply.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option may reduce the amount of water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during drought conditions and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) indicated no likely significant effect on Natura 2000 sites.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	There is not anticipated to be any effects on soil quality as a result of this option.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is not likely to be affected by flooding or lead to the exacerbation of flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and is only to be implemented in drought conditions. Option aims to reduce the water required for supply to other commercial customers, therefore potentially resulting in a reduction in abstraction. WFD assessment (2020) states no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to commercial companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the resilience of supply for these commercial customers.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	No effect on air emissions is anticipated from this option.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data has been provided for this option. Neutral effects identified at this stage.	N/A	0	0	0	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to commercial companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water within the natural environment. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	-	The reduction in the amount of water supplied to commercial customers may have an impact on the local economy if they are not able to carry out their business activity or have to operate at a reduced capacity. However, there is potential that the wider population will benefit from this option.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	+	-
	Maintain and enhance tourism and recreation	0	0	0	-	Given the option is to reduce the transfer of water for commercial customers, tourism and recreation could be affected if these customers rely on water to support these activities.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive		5				Positive		5	
		Negative		-3				Negative		-3	

SWS_SNZ_RE-OTH_REP_ALL_bs_vws_resil											
Reduce transfer to other water companies: Sussex North											
Southern Water											
Drought Option: In the event of a drought the Company would hold discussions with neighbouring Companies with regards to their resources position and their supply. There are three main bulk transfers to the South East: its entitlement to 25% of the yield of the River Medway Scheme, the Sheldwich Scheme, and the Bewl-Darwell transfer. This option considers reduction of the transfer from Veolia Water Southeast to SWS Kent Thanet. The trigger for this would be when rainfall and groundwater level trigger is exceeded and/or if veolia Water Southeast is not affected as much as Kent Thanet WRZ.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Given the option reduces the transfer of water to other companies in the event of a drought, there is potential that water will be retained within the natural environment. Ecosystems may already be under severe stress therefore additional water retained in the natural environment will be beneficial. The HRA ToLS (2021) identified that the option unlikely to impact Sussex North WRZ N2K sites (Ebernoe Common SAC, The Mens SAC, Duncton to Bignor Escarpment SAC, Arun Valley SAC, SPA and Ramsar, Singleton and Cocking Tunnels SAC, Rook Clift SAC), as scheme is geographically separated from WRZ. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The option may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	It is not likely the option will affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply to other water companies, therefore may result in a reduction in abstraction. WFD assessment (2020) identified no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to other water companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the other water companies.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	There is no carbon data available for this option. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to other companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	The reduction in the amount transferred to other water companies may have some effects on the wider population outside of Southern Water's boundary. However, this will only occur where groundwater levels are exceeded and if the Veolia Water Southeast is not affected as much as SWS Kent Thanet WRZ.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation has the potential to be affected if the reduction in water to other companies results in restrictions for water based activities.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -3				Positive 4 Negative -3					

SWS_SNZ_RE-TFR_IKT_ALL_do_si_tan_resil											
Tankering: Sussex North											
Southern											
Tankering water from adjacent WRZs or other water companies would be considered in severe droughts. Can be applied on a WRZ basis.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	Depending on the number of vehicles required for the operation, an increase in emissions may have negative impacts on nearby habitat.	Emission levels can be mitigated by using low emission vehicles (including electric vehicles) and strategic timing of transport e.g. avoiding driving lorries during rush hour.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option will supply water to North Sussex in an emergency circumstance of severe drought.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	--	Option will cause an increase in emissions during transportation of water. This option is only to be implemented in severe circumstances therefore an increase in emissions will only be temporary.	Emission levels can be mitigated by using low emission vehicles (including electric vehicles) and strategic timing of transport e.g. avoiding driving lorries during rush hour.	0	0	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	-	There is no carbon data available for this option. There may be some negative effects from an increase in carbon emissions associated with tankering, however these are anticipated to be minor due to the temporary nature of the option.	Option only to be implemented in severe drought, emissions can be mitigated for by using low emission vehicles.	0	0	0	-

	Reduce vulnerability to climate change risks and hazards	0	0	0	0	This option is to be used only in severe drought and not a long term option. It will not affect resilience to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Visual amenity may be affected by an increase in lorries on the roads. This option is only to be implemented in severe circumstances therefore effects on visual amenity will be temporary.	Can be mitigated by strategic timing of transport of tankers.	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	-	Increased traffic may impact on built heritage e.g. conservation areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	Can be mitigated by strategic timing of transport of tankers.	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Noise from vehicles and increase in air pollution can cause disturbance in populated areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	Can be mitigated by using electric vehicles and strategic timing of transport of tankers e.g. avoiding driving tankers during rush hour.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Increase in congestion on roads from tankers and effects on visual amenity may have an effect on recreation and tourism in North Sussex. This option is only to be implemented in severe circumstances therefore effects on recreation and tourism will be temporary.	Best practice mitigation techniques to reduce impacts.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	--	Use of fuel resources.	Fuel utilisation may be reduced by strategic timing of transport vehicles e.g. avoid driving tankers in rush hour.	0	0	0	-
	Avoid negative effects on built assets and infrastructure	0	0	0	-	Depending on the number of tankers required for the operation, there may be an increase in congestion on roads. This option is only to be implemented in severe circumstances therefore negative effects will only be temporary.	Can be mitigated by strategic timing of transport of tankers e.g. avoiding driving tankers in rush hour.	0	0	0	-
SEA Metrics		Positive 1 Negative -15				Positive 1 Negative -8					

SWS_SWZ_EF-CRE_ALL_ALL_do_di_res_regi											
Restriction to non-essential use; Sussex Worthing											
Southern Water											
Drought Option: The Company has recourse to a range of restrictions to Non-Essential Use. However, it can take a significant time to apply for and then implement a Drought Order. The Company might decide not to exercise all its powers until severe drought conditions are reached. Can be applied on a WRZ basis. Level of intervention for this option: Severe drought conditions.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. There are no N2K sites within the Sussex Worthing WRZ (HRA Tols 2020). No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Non-essential use restrictions may marginally impact soil quality, however the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Non-essential use restrictions are not anticipated to affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicates short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	By reducing the amount of water required for supply through restrictions to non-essential use, the option maintains resilience of water for essential services.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	There is no carbon data available for this option. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of gardens, and use of ornamental fountains for example, may be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	--	Restrictions on non-essential use is likely to have moderate negative effects on the community and social well-being as there may be imposed restrictions on irrigation of gardens and allotments and outdoor plants, restrictions of use of water for swimming pools, restriction of washing vehicles and non-domestic property exteriors. Restrictions may apply to all customers, domestic and commercial so potential for economic impacts.	Ensuring high level of communication with customers before, during and following the implementation of the measure.	0	0	0	--
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation sites dependant on public water supply may be affected due to non-essential restrictions.		0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -6				Positive 4 Negative -6					

SWS_HAZ_EF-LKR_ALL_ALL_dmp swz high											
Demand Management Strategy											
Southern Water											
Demand Management Strategy includes: CR - Metering - smart CR - Tariffs / fees CR - Water efficiency (education / communication)											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+++	0	Strategy not expected to negatively impact biodiversity due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Strategy not expected to impact soils due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Strategy not expected to increase flood risk due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+++	0	Strategy not expected to negatively impact water resources due to only involving consumption reduction strategies and no leak reduction works. Major positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+++	0
	Deliver reliable and resilient water supplies	0	0	+++	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	Minor impacts for water efficiency sub-categories due to use of vans to complete metering.	Consider use of electric vehicles to complete metering.	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	+	0	Carbon will be generated from materials used to manufacture infrastructure associated with metering (embodied carbon). Minor positive effects upon operation due to repairing existing infrastructure.	N/A	0	-	+	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	Major positive effects upon operation due to water being kept within the environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	+	0	Strategy not expected to negatively impact landscape due to only involving consumption reduction strategies and no leak reduction works. Minor positive effects upon operation due to water efficient sub-categories and leakage works resulting in water being kept within the environment.	N/A	0	0	+	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Strategy not expected to negatively impact historic environment due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	0	Metering installation may cause disruption however this will have neutral effects. Positive operational effects identified for increasing awareness through education and metering.	N/A	0	0	+	0
	Maintain and enhance tourism and recreation	0	0	0	0	Strategy not expected to negatively impact tourism and recreation due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Metering involves production of materials and may generate waste.	N/A	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Strategy not expected to negatively impact built assets and infrastructure due to only involving consumption reduction strategies and no leak reduction works.	N/A	0	0	0	0
SEA Metrics		Positive 28 Negative -3				Positive 28 Negative -2					

SWS_SWZ_HI-DES_ALL_ALL_aru10											
Tidal River Arun Desalination (10MI/d)											
Southern											
This option proposes a desalination plant to treat estuarine water from the tidal River Arun to supply treated water to the Sussex Worthing WRZ. It is assumed that the water could be used during drought conditions to meet demand in Sussex Worthing WRZ. There is bi-directional transfer between Sussex Worthing WRZ and Sussex North WRZ which means this option could have result in additional benefit to Sussex North WRZ. An investigation in AMP4 indicated that land adjacent to Ford WwTW showed the greatest potential for a new desalination site because of the existing land use, the availability of services (access roads, power, etc.) and the potential savings if it is possible to use Ford's existing long-sea outfall.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	--	The option is located within a SSSI risk zone. The site is surrounded by woodland which may be affected during construction. Brine discharge from the desalination plant during operation may negatively impact the immediate marine environment. The HRA ToLS identifies uncertain effects on the Solent and Dorset Coast SPA located 5.1km from the option due to the option having hydrological connection with the English Channel, of which the SPA sits 5km west of. Therefore, pollutants and sedimentation are possible depending on direction of current during construction and operation phases. Low INNS construction phase risk. Moderate operational phase risk via potential INNS transfer through pipe bursts.	Best practicable means during construction, ensure no impacts on woodland where possible. HRA ToLS identified uncertain impacts on the Solent and Dorset Coast SPA. Due to the scope for a saline plume, or alterations to salinity which will affect the designated features of the proposed SPA, uncertain effects cannot be mitigated at this stage, HRA AA required.	0	--	0	--
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The desalination plant is to be located on primarily ALC grade 1, permanent loss of soil and potential impacts on soil quality from construction. Historic landfill site immediately adjacent to plant therefore potential for contamination.	Best practice techniques likely to be implemented for construction work in landfill.	0	--	0	0
Water	Increase resilience and reduce flood risk	0	-	0	-	The option is located in Flood Zone 1 but there are areas of Flood Zones 2 and 3 adjacent to the site which may have an impact on construction and operation of the plant.	Measures to reduce the impact on flooding during the construction phase is likely to be implemented, however potential residual flood risk likely to remain.	0	-	0	-
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	The option will require abstraction of brackish sea water during operation with potential to deteriorate water quality/flow. Option located on WFD Ground water; Littlehampton Anticline West and within close proximity to Surface water. WFD screening (2020) states two waterbodies require further assessment.	Best practicable means to prevent potential impacts on surface water receptors during construction. Ensure no deterioration of water quality associated with abstraction through monitoring during operation.	0	-	0	--

	Deliver reliable and resilient water supplies	0	0	+	0	Option will provide a positive impact on water supply resilience through desalination plant on operation, particularly during drought conditions. Bi-directional transfer between Sussex Worthing WRZ and Sussex North WRZ which means this option could have result in additional benefit to Sussex North WRZ.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	-	There will be an increase in emissions during construction of plant. Desalination plant likely to produce a significant amount of emissions during operation.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The option may have a positive effect on the resilience of the local environment to climate change as it will reduce the amount of water required from the freshwater environment by utilising brackish waters.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	-	The option area intersects South Coast Plain NLCA, there will be impact on visual amenity, due the construction phase and the permanent above ground infrastructure will result in operational effects. The site was determined to be appropriate given current land-uses.	Landscape screening and best practice mitigation measures will likely be implemented to minimise effects during construction and operation. Opportunity for enhancement of visual amenity. However, minor and temporary effects are likely to still occur.	0	-	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are several listed building within 500m of proposed pipeline and two conservation area within 2km. Excavation will be required during construction, there may be impacts on archaeological artifacts.	Best practice construction methods to minimise impacts on the setting of historic assets. Archaeological watching brief may be required.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The option is located within IMD decile 5. There are two playing fields and a church located within 500m of option There may be minor and temporary disturbances to the community and users of these community facilities during construction.	Best practicable means to minimise disturbance to sensitive receptors i.e. noise management, however some disruption likely to remain.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	Due to the location this, option is unlikely to have negative or positive effects on tourism. However, there is potential for minor impacts on playing fields and there may be diversions to public rights of way during the construction phase.	N/A	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for option which will use materials and generate waste, however, there may be a possibility for the plant to use Ford's existing long-sea outfall reducing materials required. Brine waste will be produced during desalination.	Seek opportunity to implement sustainable design measures, such as reuse and recycling of materials to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	-
	Avoid negative effects on built assets and infrastructure	0	-	0	0	The desalination Plant is to be located within 2km of one major road (A 259) potential for increased risk of congestion during construction of plant.	Best practicable means to manage traffic through TMP.	0	-	0	0
SEA Metrics		Positive 2 Negative -31				Positive 2 Negative -31					

SWS_SWZ_HI-DES_ALL_ALL_aru20											
Tidal River Arun Desalination (20MI/d)											
Southern											
This option proposes a desalination plant to treat estuarine water from the tidal River Arun to supply treated water to the Sussex Worthing WRZ. It is assumed that the water could be used during drought conditions to meet demand in Sussex Worthing WRZ. There is bi-directional transfer between Sussex Worthing WRZ and Sussex North WRZ which means this option could have result in additional benefit to Sussex North WRZ. An investigation in AMP4 indicated that land adjacent to Ford WwTW showed the greatest potential for a new desalination site because of the existing land use, the availability of services (access roads, power, etc.) and the potential savings if it is possible to use Ford's existing long-sea outfall.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	--	The option is located within a SSSI risk zone. The site is surrounded by woodland which may be affected during construction. Brine discharge from the desalination plant during operation may negatively impact the immediate marine environment. The HRA ToLS identifies uncertain effects on the Solent and Dorset Coast SPA located 5.1km from the option due to the option having hydrological connection with the English Channel, of which the SPA sits 5km west of. Therefore, pollutants and sedimentation are possible depending on direction of current during construction and operation phases. Low INNS construction phase risk. Moderate operational phase risk via potential INNS transfer through pipe bursts.	Best practicable means during construction, ensure no impacts on woodland where possible. HRA ToLS identified uncertain impacts on the Solent and Dorset Coast SPA. Due to the scope for a saline plume, or alterations to salinity which will affect the designated features of the proposed SPA, uncertain effects cannot be mitigated at this stage, HRA AA required.	0	--	0	--
	Soil	0	--	0	0	The desalination plant is to be located on primarily ALC grade 1, permanent loss of soil and potential impacts on soil quality from construction. Historic landfill site immediately adjacent to plant therefore potential for contamination.	Best practice techniques likely to be implemented for construction work in landfill.	0	--	0	0
Water	Increase resilience and reduce flood risk	0	-	0	-	The option is located in Flood Zone 1 but there are areas of Flood Zones 2 and 3 adjacent to the site which may have an impact on construction and operation of the plant.	Measures to reduce the impact on flooding during the construction phase is likely to be implemented, however potential residual flood risk likely to remain.	0	-	0	-
	Protect and enhance the quality of the water environment and water resources	0	-	0	--	The option will require abstraction of brackish sea water during operation with potential to deteriorate water quality/flow. Option located on WFD Ground water; Littlehampton Anticline West and within close proximity to Surface water. WFD screening (2020) states two waterbodies require further assessment.	Best practicable means to prevent potential impacts on surface water receptors during construction. Ensure no deterioration of water quality associated with abstraction through monitoring during operation.	0	-	0	--

	Deliver reliable and resilient water supplies	0	0	+	0	Option will provide a positive impact on water supply resilience through desalination plant on operation, particularly during drought conditions. Bi-directional transfer between Sussex Worthing WRZ and Sussex North WRZ which means this option could have result in additional benefit to Sussex North WRZ.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	-	There will be an increase in emissions during construction of plant. Desalination plant likely to produce a significant amount of emissions during operation.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	--	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and moderate operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	--
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The option may have a positive effect on the resilience of the local environment to climate change as it will reduce the amount of water required from the freshwater environment by utilising brackish waters.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	-	The option area intersects South Coast Plain NLCA, there will be impact on visual amenity, due the construction phase and the permanent above ground infrastructure will result in operational effects. The site was determined to be appropriate given current land-uses.	Landscape screening and best practice mitigation measures will likely be implemented to minimise effects during construction and operation. Opportunity for enhancement of visual amenity. However, minor and temporary effects are likely to still occur.	0	--	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	There are several listed building within 500m of proposed pipeline and two conservation area within 2km. Excavation will be required during construction, there may be impacts on archaeological artifacts.	Best practice construction methods to minimise impacts on the setting of historic assets. Archaeological watching brief may be required.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The option is located within IMD decile 5. There are two playing fields and a church located within 500m of option There may be minor and temporary disturbances to the community and users of these community facilities during construction.	Best practicable means to minimise disturbance to sensitive receptors i.e. noise management, however some disruption likely to remain.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	Due to the location this, option is unlikely to have negative or positive effects on tourism. However, there is potential for minor impacts on playing fields and there may be diversions to public rights of way during the construction phase.	N/A	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	-	New infrastructure required for option which will use materials and generate waste, however, there may be a possibility for the plant to use Ford's existing long-sea outfall reducing materials required. Brine waste will be produced during desalination.	Seek opportunity to implement sustainable design measures, such as reuse and recycling of materials to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	-
	Avoid negative effects on built assets and infrastructure	0	-	0	0	The desalination Plant is to be located within 2km of one major road (A 259) potential for increased risk of congestion during construction of plant.	Best practicable means to manage traffic through TMP.	0	-	0	0
SEA Metrics		Positive 2 Negative -37				Positive 2 Negative -37					

SWS_SWZ_HI-LRE_ALL_ALL_har1											
Pulborough winter transfer: Improvements to turbidity/sludge handling processes at Pulborough											
Southern water											
<p>During the winter there is surplus water available at Pulborough WSW. Pulborough Winter Transfer involves 4 stages, each of which provides cumulatively increasing benefit in terms of DO. Implementation of all stages would enable transfer from Pulborough WSW to Tenants Hill WSR in Sussex Worthing, which would then gravitate to Sussex Brighton. This option considers the potential for excess surface water that may be available within the River Rother during the winter to be used (either within the existing licence, or using an extended winter licence at Pulborough WSW) to supply Sussex Coast. This would allow coastal groundwater sources to be rested, which would help Southern Water’s Source Drought Management Strategy (SDMS) and hence increase groundwater capabilities during the summer and autumn of a drought year.(1) This stage addresses turbidity and sludge handling issues at Pulborough which would otherwise constrain the DO that can be achieved following the implementation of the Hardam to Stopham transfer (ASS_IJT_Wei). Improvements at Pulborough WSW would allow increased transfer capacity to 7 MI/d, providing a DO benefit of 2 MI/d for the Brighton Block (SB). Constrained by V6 Worthing-Brighton transfer main. To achieve further DO benefit to Brighton, it would be necessary to alleviate pressures in the V6 main. (2) New main between Shoreham WSW/North Shoreham WSW and Brighton A WSR. This would allow 7 MI/d to be pumped via a different route and relieve pressure issues in the existing V6 main. Additional water from Pulborough is only available during winter, so the benefit comes from resting groundwater sources in the Brighton Block during winter. The 7 MI/d capacity increase would only result in a 4 MI/d DO increase. (3) New main between Tenants Hill WSR and Shoreham WSW (completing the pipeline between Tenants Hill and Brighton A. This would allow an increase of the winter supply and resting strategy (resting the Brighton groundwater sources). (4) Pulborough to Sussex Brighton transfer - 4 MI/d. Details unknown at this stage. Introduced following WRSE meeting 17/10/11.</p>											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	--	0	0	The pipeline for the option is within 500m of Adur Estuary SSSI (25.41% favourable, 74.59% unfavourable- declining). No direct impacts but there may be disturbance effects during construction. The pipeline intersects Benfield Hill and Mill Hill LNRs and is within 500m of Withdean & Westdene Woods LNR. The option is within SSSI Impact Risk Zones. The pipeline intersects woodland and Priority Habitat including deciduous woodland, good quality semi-improved grassland and lowland calcareous grassland. The HRA Tols (2021) identified no likely significant effects on N2K sites. There is not anticipated to be additional risk for the transfer / spread of INNS as a result of this option.	Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid woodland habitat, in particular deciduous woodland Priority Habitat. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys.	0	-	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	The option intersects predominantly grade 3 and grade 4 agricultural land, there is likely to be direct impacts on soil during construction phase as excavation will be required for laying of the pipeline. Option intersects a historic landfill site- potential risk of contamination during construction. The pipeline follows existing roads which may limit the impact therefore minor effects identified.	Ground will be reinstated therefore residual effects unlikely. Best practice methods for working in historic landfill sites.	0	0	0	0

Water	Increase resilience and reduce flood risk	0	-	0	0	The majority of the option is within Flood Zone 1 with the exception of one section, which passes through Flood Zones 2 and 3, and may have an impact on construction. Impacts on operation unlikely given the pipeline is buried. The pipeline is unlikely to increase the risk of flooding.	Measures to reduce the impact on flooding during the construction phase are likely to be implemented, to minimise risk of flooding.	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	--	+	--	The option enables resting of groundwater sources in the Brighton Block during winter and increase groundwater resilience during the summer and autumn of a drought year. Pipeline intersects WFD groundwater and SPZ1,2 and 3, potential for impacts on water quality during construction. The WFD Screening Assessment (2021) identified that further WFD assessment is required due to construction and operational effects.	Best practice construction measures will likely be implemented, however possibility for impacts to remain. Further WFD assessment is required therefore moderate negative effects remain for both construction and operation.	0	--	+	--
	Deliver reliable and resilient water supplies	0	0	+	0	The option will result in a 4Ml/d increase in water supply and helps to create resilience with in the network during drought.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	The option does not pass through any AQMAs although there are three to the south within 2km (Shoreham AQMA, Southwick AQMA and Brighton and Hove AQMA 1). Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The option may increase the resilience of the supply network in periods of drought.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option is within the South Downs National Park and NCA. Minor negative effects during construction likely as excavation will be required for the transfer pipeline. However, pipeline will be buried and ground will be reinstated so no operational effects identified.	Ground will be reinstated following pipeline construction therefore residual effects unlikely. Measures to reduce the visual impact during construction e.g. screening could be implemented, however residual effects likely to remain.	0	-	0	0

Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The option is within 500m of two conservation areas, a scheduled monument and several listed buildings. Construction may affect the setting of these historic assets, however this is likely to be temporary and minimal. There is potential for the excavation of the pipeline to impact buried archaeology.	Best practice measures to be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The pipeline intersects a golf course and is within 500m of a hospital, schools, sports facilities, play spaces and a public parks. There is likely to be minimal and temporary disturbance effects on the local community and users of these facilities during construction. IMD deciles along the pipeline route include 1, 9 and 7.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction and land will be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The option is within the South Downs National Park. The pipeline intersects a golf course and there are several green spaces that may be used for recreation within 500m of option. The option also crosses habitat areas/woodland that could be used for recreation, therefore there may be some temporary effects on recreation during the construction phase. There may be temporary disturbance to users of a national cycle route, footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction and land will be reinstated. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The pipeline is in close proximity to one major road (A27) along its length and crosses it in two locations. The option also crosses a national cycle route. There is likely to be moderate and temporary impacts during the construction phase from disruption for users (e.g. road closures, diversions).	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under the A27 is likely to be required.	0	-	0	0
SEA Metrics		Positive 3 Negative -29				Positive 3 Negative -18					

SWS_SWZ_HI-TFR_SNZ_ALL_Pulborough-tenant p 10											
Pulborough to Tenants Hill Worthing: 10MI/d											
Southern Water											
Additional pipeline to provide extra capacity.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	<p>The option is immediately adjacent to Parham Park SSSI (95.90% favourable, 4.10% unfavourable - declining) / GWDTE, therefore potential for direct effects. Pulborough Brooks SSSI (100.00% favourable) / GWDTE, Amberley Wild Brooks SSSI (1.95% favourable, 98.05% unfavourable - recovering), Amberley Mount to Sullington Hill SSSI (34.61% favourable, 61.66% unfavourable - recovering, 3.74% unfavourable - declining) / GWDTE, and Cissbury Ring SSSI (19.19% favourable, 80.81% unfavourable - recovering) are all within 500m of the pipeline route, and there are also additional SSSIs within 2000m, therefore potential for indirect effects. The option lies within several SSSI Impact Risk Zones. The option also intersects coastal and floodplain grazing marsh, deciduous woodland and lowland calcareous grassland priority habitat amongst others. Ancient woodland within 500m but no direct effects anticipated. Physical transfer of treated water between two locations (assumed currently unconnected). No INNS risk as treated water will be free from INNS). Construction is considered to be a low risk.</p> <p>HRA ToLS (2021) identifies likely significant effects for Arun Valley Ramsar, SPA and SAC (230m south of the option) during construction. Noise, air, light and dust pollution has the potential to impact qualifying features. The HRA for Arun Valley N2K sites states that it is unlikely that operation of the scheme will affect the site. No likely significant effects are identified for Duncton to Bignor SAC and The Mens SAC sites as they are considered to be located at a sufficient distance.</p>	Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. HRA ToLS identified LSE for Arun Valley Ramsar, SPA and SAC which are considered partially mitigatable. Construction impacts can be partially mitigated via use of best practice guidelines such as a robust CEMP however during construction phase there is still a possibility of noise and visual disturbance for species which may use habitats. HRA AA required to address uncertain effects for Arun Valley Ramsar, SPA and SAC.	0	--	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	<p>Pipeline passes through predominately Grade 3 and Grade 4 agricultural land, however there is a small section of Grade 2 along the route. These soils are likely to be disturbed during construction. There are historic landfill sites within 500m, however no direct impacts anticipated.</p>	Reinstate soil following construction.	0	0	0	0

Water	Increase resilience and reduce flood risk	0	-	0	0	Pipeline predominately within FZ1, however it does pass through FZ2 and FZ3 which may impact construction. Operational effects not anticipated given the pipeline is buried.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	The option lies within SPZ1/2 and intersects two WFD groundwater bodies. The option also intersects one WFD river waterbody and intersects nitrate vulnerable zones. There is potential for the construction phase to impact water quality. WFD assessment (2021) indicates no further WFD assessment is required.	Implement pollution prevention and control measures and ongoing water monitoring. Use of appropriate bedding material and directional drilling where possible to minimise disturbance.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	The option will increase transfer capacity, therefore improving resilience of supplies.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	-	0	0	Construction will likely produce dust and other air pollution. The option does not pass through any AQMAs, but there are a number of AQMAs within 2000m (Horsham AQMA No1 and Worthing AQMA).	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	There is not anticipated to be any effects on the resilience of the natural environment as water levels are not likely to be significantly affected as a result of this option.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option is located within the South Downs National Park and Wealden Greensand National Landscape Character Area. Construction will likely cause visual disturbance. The pipeline will be buried once operational.	Implement screening to minimise visual impact and reinstate to original landscape once pipeline is buried.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	The option intersects one conservation area and the Parham Grade II Registered Park and Garden. There are also listed buildings and scheduled monuments within 500m. There is potential for	Re-route the pipeline or utilise trenchless techniques to prevent direct impacts on the	0	-	0	0

						the construction phase to impact the setting of the historic assets. The pipeline excavation as the potential to impact archaeology, if present.	Registered Park and Garden. Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are churches and religious grounds and a school within 500m of the pipeline route. The option intersects a public park or garden, and a golf course. There is potential that the construction phase will disrupt the local community and users of these community facilities, however this is likely to be minor and temporary. IMD deciles range from 4 to 10 along the pipeline route.	Implement traffic management measures and best construction measures. Use directional drilling to minimise disturbance.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The option intersects a public park or garden, a golf course, national trails, national cycle ways, and is also within the South Downs National Park. There is also potential that the construction phase will lead to the diversion of public rights of way. Minor negative effects have been identified.	Implement screening and provide appropriate trail diversions or space to pass the construction area safely.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Construction will require materials and resources. Waste will likely be generated, including excavated materials.	Source materials locally and reinstate dug materials where possible.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The pipeline intersects major roads, railways, national cycle route and national trails. There is likely to be moderate and temporary disruption during the construction phase.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics		Positive 1 Negative -29		Positive 1 Negative -14							

Pulborough to Tenants Hill Worthing: 30MI/d											
Southern Water											
Additional pipeline to provide extra capacity.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	<p>The option is immediately adjacent to Parham Park SSSI (95.90% favourable, 4.10% unfavourable - declining) / GWDTE, therefore potential for direct effects. Pulborough Brooks SSSI (100.00% favourable) / GWDTE, Amberley Wild Brooks SSSI (1.95% favourable, 98.05% unfavourable - recovering), Amberley Mount to Sullington Hill SSSI (34.61% favourable, 61.66% unfavourable - recovering, 3.74% unfavourable - declining) / GWDTE, and Cissbury Ring SSSI (19.19% favourable, 80.81% unfavourable - recovering) are all within 500m of the pipeline route, and there are also additional SSSIs within 2000m, therefore potential for indirect effects. The option lies within several SSSI Impact Risk Zones. The option also intersects coastal and floodplain grazing marsh, deciduous woodland and lowland calcareous grassland priority habitat amongst others. Ancient woodland within 500m but no direct effects anticipated. Physical transfer of treated water between two locations (assumed currently unconnected). No INNS risk as treated water will be free from INNS). Construction is considered to be a low risk. HRA ToLS (2021) identifies likely significant effects for Arun Valley Ramsar, SPA and SAC (230m south of the option) during construction. Noise, air, light and dust pollution has the potential to impact qualifying features. The HRA for Arun Valley N2K sites states that it is unlikely that operation of the scheme will affect the site. No likely significant effects are identified for Duncton to Bignor SAC and The Mens SAC sites as they are considered to be located at a sufficient distance.</p>	Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. HRA ToLS identified LSE for Arun Valley Ramsar, SPA and SAC which are considered partially mitigatable through use of construction best practice such as use of a robust CEMP. However, there is still a possibility of noise and visual disturbance for species which may use habitats near the pipeline's construction. Undertake HRA AA to address residual effects for Arun Valley Ramsar, SPA and SAC.	0	--	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	Pipeline passes through predominately Grade 3 and Grade 4 agricultural land, however there is a small section of Grade 2 along the route. These soils are likely to be disturbed during construction. There are historic landfill sites within 500m, however no direct impacts anticipated.	Reinstate soil following construction.	0	0	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	Pipeline predominately within FZ1, however it does pass through FZ2 and FZ3 which may impact construction. Operational effects not anticipated given the pipeline is buried.	Measures to reduce the impact on flooding during the construction phase. Flood risk during	0	-	0	0

							construction may still occur.				
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	The option lies within SPZ1/2 and intersects two WFD groundwater bodies. The option also intersects one WFD river waterbody and intersects nitrate vulnerable zones. There is potential for the construction phase to impact water quality. WFD assessment (2021) indicates no further WFD assessment is required.	Implement pollution prevention and control measures and ongoing water monitoring. Use of appropriate bedding material and directional drilling where possible to minimise disturbance.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	++	0	The option will increase transfer capacity, therefore improving resilience of supplies.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	Construction will likely produce dust and other air pollution. The option does not pass through any AQMAs, but there are a number of AQMAs within 2000m (Horsham AQMA No1 and Worthing AQMA).	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	There is not anticipated to be any effects on the resilience of the natural environment as water levels are not likely to be significantly affected as a result of this option.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option is located within the South Downs National Park and Wealden Greensand National Landscape Character Area. Construction will likely cause visual disturbance. The pipeline will be buried once operational.	Implement screening to minimise visual impact and reinstate to original landscape once pipeline is buried.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	The option intersects one conservation area and the Parham Grade II Registered Park and Garden. There are also listed buildings and scheduled monuments within 500m. There is potential for the construction phase to impact the setting of	Re-route the pipeline or utilise trenchless techniques to prevent direct impacts on the Registered Park and Garden. Best practice	0	-	0	0

						the historic assets. The pipeline excavation as the potential to impact archaeology, if present.	measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are churches and religious grounds and a school within 500m of the pipeline route. The option intersects a public park or garden, and a golf course. There is potential that the construction phase will disrupt the local community and users of these community facilities, however this is likely to be minor and temporary. IMD deciles range from 4 to 10 along the pipeline route.	Implement traffic management measures and best construction measures. Use directional drilling to minimise disturbance.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The option intersects a public park or garden, a golf course, national trails, national cycle ways, and is also within the South Downs National Park. There is also potential that the construction phase will lead to the diversion of public rights of way. Minor negative effects have been identified.	Implement screening and provide appropriate trail diversions or space to pass the construction area safely.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Construction will require materials and resources. Waste will likely be generated, including excavated materials.	Source materials locally and reinstate dug materials where possible.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The pipeline intersects major roads, railways, national cycle route and national trails. There is likely to be moderate and temporary disruption during the construction phase.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics		Positive 4 Negative -29				Positive 4 Negative -14					

SWS_SWZ_HI-TFR_SNZ_ALL_Pulborough-tenant p 60											
Pulborough to Tenants Hill Worthing: 60MI/d											
Southern Water											
Additional pipeline to provide extra capacity.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	<p>The option is immediately adjacent to Parham Park SSSI (95.90% favourable, 4.10% unfavourable - declining) / GWDTE, therefore potential for direct effects. Pulborough Brooks SSSI (100.00% favourable) / GWDTE, Amberley Wild Brooks SSSI (1.95% favourable, 98.05% unfavourable - recovering), Amberley Mount to Sullington Hill SSSI (34.61% favourable, 61.66% unfavourable - recovering, 3.74% unfavourable - declining) / GWDTE, and Cissbury Ring SSSI (19.19% favourable, 80.81% unfavourable - recovering) are all within 500m of the pipeline route, and there are also additional SSSIs within 2000m, therefore potential for indirect effects. The option lies within several SSSI Impact Risk Zones. The option also intersects coastal and floodplain grazing marsh, deciduous woodland and lowland calcareous grassland priority habitat amongst others. Ancient woodland within 500m but no direct effects anticipated. Physical transfer of treated water between two locations (assumed currently unconnected). No INNS risk as treated water will be free from INNS). Construction is considered to be a low risk.</p> <p>HRA ToLS (2021) identifies likely significant effects for Arun Valley Ramsar, SPA and SAC (230m south of the option) during construction. Noise, air, light and dust pollution has the potential to impact qualifying features. The HRA for Arun Valley N2K sites states that it is unlikely that operation of the scheme will affect the site. No likely significant effects are identified for Duncton to Bignor SAC and The Mens SAC sites as they are considered to be located at a sufficient distance.</p>	Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys. HRA ToLS identified LSE for Arun Valley Ramsar, SPA and SAC which are considered partially mitigatable through use of construction best practice such as use of a robust CEMP. However, there is still a possibility of noise and visual disturbance for species which may use habitats near the pipeline's construction. Undertake HRA AA to address residual effects for Arun Valley Ramsar, SPA and SAC.	0	--	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	<p>Pipeline passes through predominately Grade 3 and Grade 4 agricultural land, however there is a small section of Grade 2 along the route. These soils are likely to be disturbed during construction. There are historic landfill sites within 500m, however no direct impacts anticipated.</p>	Reinstate soil following construction.	0	0	0	0

Water	Increase resilience and reduce flood risk	0	-	0	0	Pipeline predominately within FZ1, however it does pass through FZ2 and FZ3 which may impact construction. Operational effects not anticipated given the pipeline is buried.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	The option lies within SPZ1/2 and intersects two WFD groundwater bodies. The option also intersects one WFD river waterbody and intersects nitrate vulnerable zones. There is potential for the construction phase to impact water quality. WFD assessment (2021) indicates no further WFD assessment is required.	Implement pollution prevention and control measures and ongoing water monitoring. Use of appropriate bedding material and directional drilling where possible to minimise disturbance.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+++	0	The option will increase transfer capacity, therefore improving resilience of supplies.	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	Construction will likely produce dust and other air pollution. The option does not pass through any AQMAs, but there are a number of AQMAs within 2000m (Horsham AQMA No1 and Worthing AQMA).	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	--	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has minor construction and moderate operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	--
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	There is not anticipated to be any effects on the resilience of the natural environment as water levels are not likely to be significantly affected as a result of this option.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option is located within the South Downs National Park and Wealden Greensand National Landscape Character Area. Construction will likely cause visual disturbance. The pipeline will be buried once operational.	Implement screening to minimise visual impact and reinstate to original landscape once pipeline is buried.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	The option intersects one conservation area and the Parham Grade II Registered Park and Garden. There are also listed buildings and scheduled monuments within 500m. There is potential for	Re-route the pipeline or utilise trenchless techniques to prevent direct impacts on the	0	-	0	0

						the construction phase to impact the setting of the historic assets. The pipeline excavation as the potential to impact archaeology, if present.	Registered Park and Garden. Best practice measures will likely be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.				
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	There are churches and religious grounds and a school within 500m of the pipeline route. The option intersects a public park or garden, and a golf course. There is potential that the construction phase will disrupt the local community and users of these community facilities, however this is likely to be minor and temporary. IMD deciles range from 4 to 10 along the pipeline route.	Implement traffic management measures and best construction measures. Use directional drilling to minimise disturbance.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The option intersects a public park or garden, a golf course, national trails, national cycle ways, and is also within the South Downs National Park. There is also potential that the construction phase will lead to the diversion of public rights of way. Minor negative effects have been identified.	Implement screening and provide appropriate trail diversions or space to pass the construction area safely.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	Construction will require materials and resources. Waste will likely be generated, including excavated materials.	Source materials locally and reinstate dug materials where possible.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The pipeline intersects major roads, railways, national cycle route and national trails. There is likely to be moderate and temporary disruption during the construction phase.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
SEA Metrics		Positive 8 Negative -32						Positive 8 Negative -17			

SWS_SWZ_RE-DRO_ALL_ALL_di-sw											
TUBS and NEU Ban - SW WRZ											
Southern water											
Temporary use bans and Non-essential use bans											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Temporary use bans and non-essential use bans in the Sussex Worthing area may help protect GWDTE and priority habitat by conserving water in the environment. The HRA Tols (2021) indicated the following Natura sites that may be affected: Duncton to Bignor Escarpment SAC; Arun Valley SAC; Arun Valley Ramsar; Arun Valley SPA. The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to sites which ecosystems are dependent upon ground and surface water. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	A temporary use ban and non-essential use ban may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of several water bodies. No further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	By reducing demand through temporary use band and non-essential use ban, option maintains resilience of water for essential services.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	The option is for a temporary use ban and non-essential use ban. By reducing demand and potentially reducing abstraction the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented in drought conditions, it will not result in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have some minor temporary effects on visual amenity as watering of private gardens, and use of ornamental fountains etc will be restricted.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	The option is a temporary use ban and non-essential use ban and is therefore not likely to have a significant effect on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Temporary use ban and non-essential use ban is likely to have minor negative effects on the community and social well-being as there will be restrictions on irrigation of gardens and allotments and use of water for recreational purposes. There may also be a small increased risk of fires in allotments as vegetation dries out.	Allowing allotments limited supplies of water. Ensuring high levels of communication before, during and following the implementation of these measures.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Assuming commercial properties including gardens are exempt from bans and restrictions there is likely to be only a minor effect on tourism and recreation. Non-commercial tourism sites may be affected.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effect on waste production or resource use.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Temporary use ban and non-essential use ban therefore unlikely to have effects on built assets and infrastructure.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -3				Positive 4 Negative -3					

SWS_SWZ_RE-DRO_ALL_ALL_do_di_eme_regi											
Emergency restrictions: Sussex Worthing											
Southern water											
Drought Option: Emergency Drought Orders allow water companies to restrict supplies to customers through the imposition of rota cuts and/or the introduction of standpipes. These measures exist to deal with the very remote possibility of a drought much worse than any seen in the last century or more in the UK. Emergency Drought Orders have not been put in place in the UK since 1976. Ministers have made it clear that such measures should be avoided at all costs and introduced only as a last resort. The Company will make full use of all other measures before considering whether the severity of drought conditions mean that Emergency Drought Orders might be required. The full range of measures available under Emergency Drought Order include powers: To limit the use of water for such purposes as it considers necessary (i.e. further measures not specified in the Drought Direction 2011); To introduce rota cuts; and To set up, and supply water by means of, stand-pipes or water tanks. Level of intervention for this option: Unprecedented drought conditions. We intend the need for these to only arise in conditions of civil emergency and as such our emergency plan covers this in more detail.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option will reduce water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) indicated the following Natura sites that may be affected: Duncton to Bignor Escarpment SAC; Arun Valley SAC; Arun Valley Ramsar; Arun Valley SPA. The HRA Tols indicate the option is unlikely to have a negative impact on any N2K sites within the WSZ zone and may be of benefit to sites which ecosystems are dependent upon ground and surface water. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Emergency restrictions may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is only to be used in severe drought circumstances so is therefore not likely to affect flood risk or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply, therefore resulting in a reduction in abstraction. WFD assessment (2020) indicate short term benefit to WFD as imposed usage reduction should allow for recovery in the river or aquifer which may improve WFD status from pre restriction status of assessed water bodies. No further WFD assessments required.	N/A	0	0	+	0

	Deliver reliable and resilient water supplies	0	0	++	0	Option maintains resilience of water for essential services.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	There is no carbon data available for this option. Neutral effects identified at this stage.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during extreme drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Option may have temporary effects on visual amenity as restricted water use may impact parks and gardens reliant on public water supply.	N/A	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	---	Emergency restrictions such as rota cuts and imposition of standpipes may have major negative effects on social well-being, with the potential for breakdown of social cohesion and impacts on public health. Imposition of standpipes will particularly effect people with limited mobility or other disabilities. Businesses that use water and do not have access to private water supply will be largely affected with the potential for substantial economic losses. There may also be an increased risk of fires as public access to water is restricted.	Ensure high level of communication with customers before, during and after the restrictions have been imposed.	0	0	0	---
	Maintain and enhance tourism and recreation	0	0	0	--	Tourism and recreation is likely to be affected as water restrictions may force some tourist attractions and recreational activities to temporarily close.	N/A	0	0	0	--
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 7 Negative -13				Positive 7 Negative -13					

SWS_SWZ_RE-DRO_ALL_ALL_si_mad_2											
North Arundel Drought Permit/Order (2025 onwards)											
Southern water											
Drought Option: Under more severe droughts, where resources in Sussex Coast themselves are under threat, and drought measures in Sussex North (such as the Pulborough MRF reduction) are not sufficient or suitable to address the situation, then a drought permit/order may be sought to increase licensed abstraction at North Arundel											
Proposed drought option expected yield/gains (MI/d): 2.5 MI/d											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	The location is unknown at the time of the assessment. There may be potential for impacts on GWDTEs in proximity to the abstraction points, it is not known how far the effects an increase in abstraction will be seen therefore minor operational effects have been identified. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress. The HRA Tols (2021) identified no likely significant effects. There is not anticipated to be any additional risk for the transfer / spread of INNS.	Monitor abstraction.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Increased abstraction may impact local soil quality, however effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is not likely to affect flood risk or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	--	Given this option is only to be implemented under drought conditions when groundwater resources are vulnerable, the option may have negative impacts on resilience of the water environment. WFD assessment (2020) indicate further assessments required to assess impacts on the following water bodies: Chichester Chalk.	Further assessments required.	0	0	0	--
	Deliver reliable and resilient water supplies	0	0	+	0	Option will increase water supply under a drought order with an assumed drought action duration. Proposed drought option expected yield/gains (MI/d): 2.5 MI/d	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	There may be some negative effects from an increase in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	There is no carbon data available for this option. Neutral effects have been estimated at this stage. There may be some negative effects from an increase in carbon emissions associated with	N/A	0	0	0	0

						water supply / treatment, however this is not anticipated to be significant.					
	Reduce vulnerability to climate change risks and hazards	0	0	0	-	Increased abstraction during period of drought will reduce the water environment's ability to recover and may increase ground water resources vulnerability to drought in the future.	Monitor abstraction.	0	0	0	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	Option unlikely to have effect on landscape, townscape and seascape character and visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option unlikely to have effect on the historic environment.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	Option is unlikely to have significant effects on the local community.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	Option unlikely to have any impact on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	-	Potential for increased resources required and waste produced from increased water treatment.	N/A	0	0	0	-
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure.	N/A	0	0	0	0
SEA Metrics		Positive 1 Negative -7				Positive 1 Negative -7					

SWS_SWZ_RE-DRP_ALL_ALL_ass_dp_nor_cent											
East Worthing - licence variation											
Southern water											
East Worthing PS is located within SWS's Sussex Worthing Water Resource Zone and the source consists of 2 operational boreholes of ~61m depth. The source is located in Worthing, approximately 2 km north of the coast, with the source of supply being the Chichester-Worthing-Portsdown Chalk Block. It is part of the Worthing group licence (10/41/310210) and is subject to this group's aggregate constraints. The annual group licence is 26,000 MI, whilst the daily abstraction limit from East Worthing PS is 7 MI/d from January-September. This is reduced to 4.5 MI/d between October and December. The purpose of this seasonal constraint is unclear, but it may have been to protect flows at the end of the groundwater recession into cress beds. These no longer exist, but used to be located on the southern boundary of the East Worthing PS site. This option is a GW Drought Permit to remove the seasonal restrictions between Oct and Dec and enable the daily abstraction to increase from 4.5 to 7MI/d (can operate at 7MI/d for the remaining months). SWS would only consider applying for a Drought Order / Permit at this site in a severe drought, such as a third dry winter (with an assumed drought action duration of 92 days).											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	There are no designated sites within 2000m of the abstraction points. The abstraction points are located within SSSI Impact Risk Zones. Though there are no GWDTEs in close proximity to the option, it is not known how far the effects of increased abstraction will be seen therefore minor operational effects have been identified. These measures are to be implemented during extreme drought and therefore ecosystems may already be under severe stress. The HRA Tols (2021) identified no likely significant effects on N2K sites. There is likely to be a very low risk of the spread / transfer of INNS associated with this option.	N/A	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Increased groundwater abstraction may impact local soil quality, however effects are not anticipated to be significant. Abstraction point located on urban land, some grade 1,2 and 3 agricultural land within 2km.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is only to be used in severe drought circumstances so is therefore not likely to affect flood risk or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	-	At present abstraction is reduced to 4.5 MI/d from October to December giving groundwater supplies a chance to replenish after the summer months. Given this option is only to be implemented under drought conditions when groundwater resources are vulnerable, the option may have negative impacts on resilience of the water environment. WFD assessment (2020) indicate further assessments required to assess impacts on the following water bodies: Worthing Chalk.	N/A	0	0	0	-

	Deliver reliable and resilient water supplies	0	0	+	0	Option will increase supply by 2.5MI/day with an assumed drought action duration of 92 days.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	There may be some negative effects from an increase in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	There may be some negative effects from an increase in carbon emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
	Reduce vulnerability to climate change risks and hazards	0	0	0	-	Increased abstraction during period of drought will reduce the water environments ability to recover and may increase groundwater resources vulnerability to drought in the future.	Monitor groundwater flows.	0	0	0	-
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	Option unlikely to have effect on landscape, townscape and seascape character and visual amenity	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option unlikely to have effect on the historic environment	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	May benefit wellbeing by providing additional water for public during drought. However, only an increase on 2.3 MI/day therefore only minor effects identified.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	Option unlikely to have any impact on tourism and recreation.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	Potential for increased resources required and waste produced from increased water treatment however this in not likely to be significant.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure.	N/A	0	0	0	0
SEA Metrics		Positive 1 Negative -3				Positive 1 Negative -3					

SWS_SWZ_RE-OTH_REP_ALL_bs_kmt_resil											
Reduce transfer to other commercial customers: Sussex Worthing											
Southern Water											
Drought Option: In the event of a drought the Company would hold discussions with a commercial customer with regards to the resources position and their supply.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Option may reduce the amount of water required for supply which may help protect biodiversity, GWDTE and priority habitat by conserving water in the environment. These measures are to be implemented during drought conditions and therefore ecosystems may already be under severe stress, additional water retained in the natural environment will be beneficial. The HRA Tols (2021) indicated no likely significant effect on Natura 2000 sites.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	There is not anticipated to be any effects on soil quality as a result of this option.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option is not likely to be affected by flooding or lead to the exacerbation of flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and is only to be implemented in drought conditions. Option aims to reduce the water required for supply to other commercial customers, therefore potentially resulting in a reduction in abstraction. WFD assessment (2020) states no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to commercial companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the resilience of supply for these commercial customers.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	No effect on air emissions is anticipated from this option.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data has been provided for this option. Neutral effects have been estimated for construction and operation at this stage.	N/A	0	0	0	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to commercial companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water within the natural environment. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	+	-	The reduction in the amount of water supplied to commercial customers may have an impact on the local economy if they are not able to carry out their business activity or have to operate at a reduced capacity. However, there is potential that the wider population will benefit from this option.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	+	-
	Maintain and enhance tourism and recreation	0	0	0	-	Given the option is to reduce the transfer of water for commercial customers, tourism and recreation could be affected if these customers rely on water to support these activities.	Ensure high levels of communication with the other water companies and commercial customers before, during and following the restrictions. Categorise commercial clients to allow for a proportionate reduction in transfer.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive		5				Positive		5	
		Negative		-3				Negative		-3	

SWS_SWZ_RE-OTH_REP_ALL_bs_vws_resil											
Reduce transfer to other water companies: Sussex Worthing											
Southern Water											
Drought Option: In the event of a drought the Company would hold discussions with neighbouring Companies with regards to their resources position and their supply. There are three main bulk transfers to the South East: its entitlement to 25% of the yield of the River Medway Scheme, the Sheldwich Scheme, and the Bewl-Darwell transfer. This option considers reduction of the transfer from Veolia Water Southeast to SWS Kent Thanet. The trigger for this would be when rainfall and groundwater level trigger is exceeded and/or if veolia Water Southeast is not affected as much as Kent Thanet WRZ.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Given the option reduces the transfer of water to other companies in the event of a drought, there is potential that water will be retained within the natural environment. Ecosystems may already be under severe stress therefore additional water retained in the natural environment will be beneficial. The HRA ToLS (2021) identified no N2K sites within Sussex Worthing WRZ. No INNS risk/transfer associated with this option.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	The option may marginally impact soil quality, however as it a temporary solution the effects are not anticipated to be significant.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	It is not likely the option will affect or be affected by flood risk.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	+	0	Option is temporary and only to be implemented in drought conditions. Option aims to reduce the water required for supply to other water companies, therefore may result in a reduction in abstraction. WFD assessment (2020) identified no further WFD assessments required.	N/A	0	0	+	0
	Deliver reliable and resilient water supplies	0	0	+	-	By reducing the amount of water transferred to other water companies, the resilience of Southern Water's supplies is likely to increase. However, there is likely to be wider impacts on the other water companies.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	+	-
Air	Reduce and minimise air emissions	0	0	0	0	This option is only to be to be implemented during severe drought conditions. There may be some positive effects from a reduction in emissions associated with water supply / treatment, however this is not anticipated to be significant.	N/A	0	0	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	0	No carbon data available for this option.	N/A	0	0	0	0

	Reduce vulnerability to climate change risks and hazards	0	0	+	0	By reducing the amount of water required for supply to other companies and therefore potentially reducing abstraction, the option may help reduce vulnerability to climate change by conserving water environments. However, given this is only to be implemented during drought conditions, it is not resulting in the long term resilience of the local environment.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	There is not anticipated to be impacts on the landscape, townscape or visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	Option is not likely to have an effect on the historic environment given it is a drought option with limited duration.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	The reduction in the amount transferred to other water companies may have some effects on the wider population outside of Southern Water's boundary. However, this will only occur where groundwater levels are exceeded and if the Veolia Water Southeast is not affected as much as SWS Kent Thanet WRZ.	Ensure high levels of communication with the other water companies before, during and following the restrictions.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Tourism and recreation has the potential to be affected if the reduction in water to other companies results in restrictions for water based activities.	N/A	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	0	Unlikely to have effect on waste production or resource use as it is a drought option.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	Unlikely to have effect on built assets and infrastructure as it is a drought option.	N/A	0	0	0	0
SEA Metrics		Positive 4 Negative -3				Positive 4 Negative -3					

SWS_SWZ_RE-TFR_CON_ALL_ass_dp_rgs2_cent											
Rest groundwater sources - Sussex Worthing											
Southern water											
Drought Option - Worthing - Use any spare winter/spring water available from the Pulborough river abstraction to supply customers in Worthing and in Brighton via the Rock Road transfer. This allows groundwater to be rested in key 'storage' sources, such as North Worthing and Worthing, which can improve drought resilience in those sources during the following summer and autumn, and help provide some protection against saline intrusion in sources down gradient											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	+	0	Pulborough Brooks SSSI and Arun Valley SAC and SPA, which are GWDTE, and the Upper Arun SSSI are all within 2000m. The option is within a SSSI risk zone. There is priority habitats and woodland within 500m, however effects are not anticipated. Depending on hydrological connections, the resting of groundwater sources may have positive effects for ecology. The HRA ToLS (2021) identified no likely significant effects as there are no N2K sites within 10km, and no pathways for likely significant effects to be felt. The option is anticipated to have very low risk for the additional transfer / movement of INNS.	N/A	0	0	+	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	It is not anticipated that this option will have any significant effect of soil quality. The option is within Grade 3 agricultural land. There are no historic or authorised landfills within 2000m.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	The option appears to be located within FZ2 and FZ3, however given the nature of the option, it is unlikely to be affected by flood risk. It is not anticipated the option will exacerbate the risk of flooding.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	++	0	Option facilitates resting period for key 'storage' sources of ground water, such as North Worthing and Worthing, which can improve drought resilience and help provide some protection against saline intrusion in sources down gradient. The option is within the Lower Greensand Arun & Western Streams WFD groundwater body and within SPZs. WFD assessment (2021) indicates that no further WFD assessment is required.		0	0	++	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option allows groundwater to be rested in key 'storage' sources, such as North Worthing and Worthing, increasing supply resilience. The option has a default benefit of 5MI/d therefore minor positive effects have been identified.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	0	It is not anticipated that this option will have a significant effect on air quality.	N/A	0	0	0	0

Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	-	There is no carbon data available for this option. The option is estimated to have neutral construction and minor negative operational carbon emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	0	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	+	0	This allows groundwater to be rested in key 'storage' sources, such as North Worthing and Worthing, which can improve drought resilience in those sources during the following summer and autumn. As the option utilises additional water from the Pulborough river abstraction, the resilience of the local environment to climate change no likely to be affected.	N/A	0	0	+	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	0	The option is within the South Downs National Park. However, the option unlikely to have effect on landscape, townscape and seascape character and visual amenity.	N/A	0	0	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	0	There are listed buildings, scheduled monuments and a conservation area within 500m. However, the option unlikely to have effect on the historic environment. The option is not anticipated to impact archaeology.	N/A	0	0	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	0	There are no community facilities within 500m. The option is not anticipated to affect the local community. The option is within IMD decile 7.	N/A	0	0	0	0
	Maintain and enhance tourism and recreation	0	0	0	0	It is not anticipated that there will be an impact on tourism or recreation as a result of this option.	N/A	0	0	0	0
Material Assets	Minimise resource use and waste production	0	0	0	0	Provided no new infrastructure is required for this option, it is anticipated that there will be minimal resource use and minimal waste produced.	N/A	0	0	0	0
	Avoid negative effects on built assets and infrastructure	0	0	0	0	It is not anticipated that there will be an impact on built assets and infrastructure as a result of this option.	N/A	0	0	0	0
SEA Metrics		Positive 7 Negative -1				Positive 7 Negative -1					

SWS_SWZ_RE-TFR_IKT_ALL_do_si_tan_resil											
Tankering: Sussex Worthing											
Southern											
Tankering water from adjacent WRZs or other water companies would be considered in severe droughts. Can be applied on a WRZ basis.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	0	0	-	Depending on the number of vehicles required for the operation, an increase in emissions may have negative impacts on nearby habitat.	Emission levels can be mitigated by using low emission vehicles (including electric vehicles) and strategic timing of transport e.g. avoiding driving lorries during rush hour.	0	0	0	-
Soil	Protect and enhance the functionality, quantity and quality of soils	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
Water	Increase resilience and reduce flood risk	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Protect and enhance the quality of the water environment and water resources	0	0	0	0	Option does not provide information as to the source of water.	N/A	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option will supply water to Worthing in an emergency circumstance of severe drought.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	0	0	--	Option will cause an increase in emissions during transportation of water. This option is only to be implemented in severe circumstances therefore an increase in emissions will only be temporary.	Emission levels can be mitigated by using low emission vehicles (including electric vehicles) and strategic timing of transport e.g. avoiding driving lorries during rush hour.	0	0	0	-
Climatic Factors	Reduce embodied and operational carbon emissions	0	0	0	-	There is no carbon data available for this option. There may be some negative effects from an increase in carbon emissions associated with tankering, however these are anticipated to be minor due to the temporary nature of the option.	Option only to be implemented in severe drought, emissions can be mitigated for by using low emission vehicles.	0	0	0	-

	Reduce vulnerability to climate change risks and hazards	0	0	0	0	This option is to be used only in severe drought and not a long term option. It will not affect resilience to climate change.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	0	0	-	Visual amenity may be affected by an increase in lorries on the roads. This option is only to be implemented in severe circumstances therefore effects on visual amenity will be temporary.	Can be mitigated by strategic timing of transport of tankers.	0	0	0	-
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	0	0	-	Increased traffic may impact on built heritage e.g. conservation areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	Can be mitigated by strategic timing of transport of tankers.	0	0	0	-
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	0	0	-	Noise from vehicles and increase in air pollution can cause disturbance in populated areas. This option is only to be implemented in severe circumstances therefore effects will be temporary.	Can be mitigated by using electric vehicles and strategic timing of transport of tankers e.g. avoiding driving tankers during rush hour.	0	0	0	-
	Maintain and enhance tourism and recreation	0	0	0	-	Increase in congestion on roads from tankers and effects on visual amenity may have an effect on recreation and tourism in Worthing. This option is only to be implemented in severe circumstances therefore effects on recreation and tourism will be temporary.	Best practice mitigation techniques to reduce impacts.	0	0	0	-
Material Assets	Minimise resource use and waste production	0	0	0	--	Use of fuel resources.	Fuel utilisation may be reduced by strategic timing of transport vehicles e.g. avoid driving tankers in rush hour.	0	0	0	-
	Avoid negative effects on built assets and infrastructure	0	0	0	-	Depending on the number of tankers required for the operation, there may be an increase in congestion on roads. This option is only to be implemented in severe circumstances therefore negative effects will only be temporary.	Can be mitigated by strategic timing of transport of tankers e.g. avoiding driving tankers in rush hour.	0	0	0	-
SEA Metrics		Positive 1 Negative -15				Positive 1 Negative -9					

SWS_TWD_HI-IMP_TWD_ALL_sww resource											
WCS SRO Poole Effluent Raw Transfer											
30MI/d discharge of effluent from Poole STW into R Stour and subsequent abstraction and transfer to Test Surface Water											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	-	<p>The pipelines intersect the Corfe Hills and Stour Valley LNRs, Dorset Heathlands Ramsar/SPA, Dorset Heaths SAC, River Avon SAC, Corfe and Barrow Hills SSSI 93% Unfavourable - Recovering), Hurn Common SSSI (100% Unfavourable - Recovering), Moors River System SSSI (23% Favourable, 33% Unfavourable - recovering, 32% Unfavourable no change, 12% Unfavourable - declining), Parley Common SSSI (7% Favourable, 22% Unfavourable - Recovering, 61% Unfavourable - no change, 9% Unfavourable - declining) and River Avon System SSSI (3% Favourable, 9% Unfavourable - Recovering, 85% Unfavourable - No change, 3% Unfavourable - Declining). There is potential for direct impacts on these sites based on the current alignment of the pipelines.</p> <p>The location of potential bankside storage and pipeline at the River Stour abstraction point would be in the vicinity of the Stour Valley LNR.</p> <p>Depending on the location of the bankside storage, there is potential for direct effects and/or indirect effects from disturbance during construction.</p> <p>Within 500m of the option there are five LNRs, the New Forest SAC/SSSI (55% Favourable, 42% Unfavourable - Recovering, 2% Unfavourable - No change, 1% Unfavourable - Declining); Avon Valley (Bickton to Christchurch) (59% Favourable, 27% Unfavourable - Recovering, 6% Unfavourable - no change, 8% Unfavourable - declining); Whiteparish Common SSSI (93% Favourable, 7% Unfavourable - Recovering), River Test SSSI (18% Favourable, 37% Unfavourable - recovering, 44% Unfavourable - no change, 1% Unfavourable - declining), St Leonards and St Ives Heaths SSSI (73% Unfavourable - recovering, 18% Unfavourable - no change, 9% Unfavourable - declining) and Breamore Marsh SSSI (100% Unfavourable - recovering). No direct impacts but there could be indirect impacts as a result of construction. The option is entirely within SSSI Impact Risk Zones.</p> <p>The following sites are within 2km of the site: Avon Valley Ramsar/SPA, Poole Harbour Ramsar/SPA, New Forest Ramsar/SPA, Solent and Southampton Water Ramsar/SPA and Solent Maritime SAC.</p> <p>The option also intersects three areas of Ancient Woodland and Priority Habitats including coastal</p>	<p>Best practice methods to be implemented to minimise disturbance effects and habitat loss including refining pipeline alignment to avoid designated sites and sensitive habitat, in particular Ancient Woodland. Habitat to be reinstated on completion, or if unavoidable compensatory habitat to be considered to replace damaged or lost habitat. Future design will need to undertake ecology surveys.</p> <p>Further information on the habitats affected by the option, and the geographical ranges of those qualifying species, would be needed before likely significant effects could be ruled out.</p> <p>Measures to eliminate the creation of sediment and/or other pollutants would be employed to ensure that they did not reach the sites, and hence did not have any likely significant effects. These measures should be detailed in a robust, comprehensive CEMP, and could include, but need not be limited to, silt curtains, directional drilling underneath watercourses, and effective pollution control measures throughout the construction areas. A detailed understanding of the</p>	0	--	0	0

				<p>and floodplain grazing marsh, deciduous woodland, good quality semi-improved grassland, lowland fens, lowland heath, purple moor grass and rush pastures and traditional orchard. Potential for habitat loss and disturbance during construction.</p> <p>The HRA ToLS identifies fifteen Natura 2000 sites: Dorset Heaths SAC (0.6km), Dorset Heathlands SPA (0.6km), Dorset Heathlands Ramsar (0.6km), Poole Harbour SPA (0.6km), Poole Harbour Ramsar (0.6km), River Avon SAC (0.25km), Avon Valley SPA (0.25km), Avon Valley Ramsar (0.25km), Great Yews SAC (5.9km), The New Forest SAC (50m), New Forest SPA (1.9km), New Forest Ramsar (1.9km), Solent Maritime SAC (0.5km), Solent and Southampton Water SPA (0.5km) and Solent and Southampton Water Ramsar (0.5km). For Dorset Heathlands SPA, Dorset Heathlands Ramsar and The New Forest SAC construction for this option is likely to cause disturbance, due to noise, vibration, human presence etc that would have likely significant effects on the qualifying bird species. The creation of light during constructing may also have effects on the bird species. Although no habitat is lost from the sites themselves, there is scope that this option could affect nearby habitats that are functionally linked to the sites, which also would have likely significant effects on the cited bird species. The Dorset Heathlands is spread over multiple sites, and the option appear to be threaded around between many of them, so this increases the scope for LSE. For River Avon SAC, Avon Valley SPA, Avon Valley Ramsar, Poole Harbour SPA, Poole Harbour Ramsar, Solent Maritime SAC, Solent and Southampton Water SPA and Solent and Southampton Water Ramsar sites the option crosses a large number of tributaries, streams, drainage ditches etc, the construction at which is likely to mobilise sediment and other pollutants that could easily flow into the site, with likely significant effects on qualifying feature habitats and species predicted. This length of exposure also means that disturbance to the qualifying bird species of the SPA is also likely to cause significant effects on the population here. Likely significant effects on some of the qualifying feature habitats, and hence possibly the qualifying snail species too, which is known to exist in damp, surface water-dependant habitats, is predicted. For Dorset Heaths SAC the construction of the pipeline may be sufficiently close to the SAC that the creation of dust and other airborne pollutants could have likely significant effects on the qualifying habitats present. The SAC is spread over multiple sites, and the option appear to be</p>	<p>drainage network in the area would be required.</p>				
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						threaded around between many of them, so there is potential that surface water connectivity between sites and the option exists. The creation of sediment and/or other pollutants could easily get washed into drainage systems and watercourses that then flow downstream to the SAC areas, where they would have likely significant effects on the qualifying habitats and species present. The creation of light during constructing may also have effects on the qualifying insect species. For New Forest SPA and New Forest Ramsar sites likely, significant effects are uncertain. There is scope that the option may bisect habitat that is functionally linked to the SPA, providing shelter etc to one or more of the qualifying bird species.						
						INNS...						
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The pipelines intersect Grades 2-5 agricultural land. Temporary disturbance to agricultural land associated with the new pipelines. There will potentially be permanent loss of agricultural land as a result of the bankside storage, depending on the location. The pipelines also intersect three historic landfills, with a further three authorised and 20 historic landfills within 500m, with potential to disturb contaminated material during construction.	Ground will be reinstated for along pipeline route however residual effects due to loss of agricultural land. Best practice techniques to prevent potential disturbance of contaminated material during construction.	0	-	0	0	
Water	Increase resilience and reduce flood risk	0	--	0	0	The pipelines are within areas of Flood Zones 2 and 3 which may have an impact on construction.	Measures to reduce the impact on flooding during the construction phase. Flood risk during construction may still occur.	0	-	0	0	
	Protect and enhance the quality of the water environment and water resources	0	--	0	-	<p>The option overlies nitrate vulnerable zones, SPZs 1-3 and seven WFD groundwater bodies: Central Hants Bracklesham Group, Central Hants Lambeth Group, Lower Dorset Stour and Lower Hampshire Avon, Lower Frome and Piddle, Reading Beds, River Test Chalk and Upper Hampshire Down - potential sensitive receptors. The option also intersects several surface waterbodies, including several stretches of Main River. The option requires discharge to and abstraction from a Main River and discharge into a surface water receptor with potential to impact water quality/flow during operation.</p> <p>WFD assessment completed in 2021 indicates a further assessment is required to assess impacts on the following water bodies: GB520804415800 (Poole Harbour), GB108043016052 (Stour: Middle d/s Pimperne Brook) and GB108043011040 (Stour: Lower).</p>	Regulate water flow in/out of the reservoir. Use of appropriate bedding materials and trenchless crossings. Best construction practices to minimise leaks and spills.	0	--	0	-	

	Deliver reliable and resilient water supplies	0	0	++	0	The option will improve transfer of raw water for treatment, improving water supplies.	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	The option is not within an AQMA nor are there any within 2km. Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures to be implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	---	0	-	Carbon will be generated from materials used to construct the new infrastructure (embodied carbon), construction activities and from operation. The relative carbon scale identified that the option has major construction and minor operation carbon emissions (relative to other WRSE Regional Plan options).	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	---	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	This option is not thought to result in a change in water levels. Therefore, no effect on vulnerability to climate change is anticipated.	Manage flows so as not to increase vulnerability of waterbodies downstream.	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option is within the Dorset Downs and Cranborne Chase, Dorset Heaths, New Forest, Salisbury Plain and West Wiltshire Downs and South Hampshire Lowlands NCAs and partly within the Bournemouth Greenbelt. Negative effects during construction likely as excavation will be required for the transfer pipeline. Permanent change to landscape due to bankside storage and other above ground infrastructure. Pipeline will be buried once operational.	Best practicable means to minimise potential visual impact during construction, however impacts are anticipated to remain. Bankside storage and other above ground infrastructure to be designed to minimise potential impacts, including planting.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	-	0	0	The option intersects seven conservation areas and is in close proximity to one grade II listed building, although it is aligned along an existing road in this location. There are two Grade II listed bridges along the River Stour although these are not anticipated to be impacted. The pipelines are within 500m of conservation areas, scheduled monuments, Breamore Grade II Registered Park and Garden and listed buildings. Construction may affect the setting of above ground historic assets, however this is likely to be temporary as the pipeline will be buried. There is potential for the excavation of the pipeline to impact buried archaeology if present.	Best practice measures to be implemented to minimise setting effects during construction. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0

Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	--	0	0	The pipelines are within close proximity to schools, a medical facility, a church, a sports facility and residential areas e.g. in Bournemouth and greenspaces. The pipelines are within 500m of other important community facilities and greenspaces, including playing fields and allotments. Part of the pipeline route is within a noise action important area along the A31. There is likely to be disturbance for local communities from dust, noise and vibration during construction. IMD deciles 4-9 along extent of the option.	Consider re-routing pipelines to avoid community infrastructure. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	--	0	0	The pipelines are located within the New Forest National Park. Potential for disruption during construction. Potential impacts on recreational use of the Test Surface Water Lakes during construction. The pipelines cross watercourses and habitat areas/woodland that could be used for recreation, therefore there may be some temporary effects on recreation, angling and other water based recreation during the construction phase. There may be temporary disturbance to users of three National Cycle Network routes, footpaths and other public rights of way during the construction phase.	Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	--	0	0	New infrastructure required for option which will use materials and generate waste.	Seek opportunity to implement sustainable design measures (design to reduce footprint, selection of materials) and reuse excavated material to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	-	The option intersects major roads including the M27 and A31 and is within proximity to Bournemouth Airport. There is the potential for disruption during construction but no assets should be impacted by the pipeline once operational. Depending on the location and design, potential for bankside storage areas to create bird strike risk as within proximity to the airport.	Best practice measures including a Traffic Management Plan to be implemented to minimise disturbance during construction. However, minor and temporary effects are likely to still occur. Directional drilling under major roads is likely to be required. Engagement with Bournemouth Airport to address potential bird strike risk from bankside storage areas.	0	-	0	0
SEA Metrics		Positive 4 Negative -54				Positive 4 Negative -27					

SWS_TWD_HI-TFR_OTT_ALL_ott to test 30											
Raw water Transfer between Otterbourne WSW and Test Surface Water lakes - 30 MI/d.											
Southern water											
Raw water transfer (Pipe & Break tank) between Otterbourne WSW and Test Surface Water Lakes. Flow 30MI/d. This would discharge into Test Surface Water Lakes (400 MI) and utilise the existing raw water abstraction pumps and system at Test Surface Water. 22h/d operation assumed.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	<p>The proposed pipeline for the option intersects Solent & Southampton Water RAMSAR site, Solent & Southampton Water SPA, Lower Test Valley SSSI (65.15% favourable, 34.85% unfavourable recovering); River Test SSSI (17.91% Favourable,37.53% Unfavourable - Recovering, 43.52% Unfavourable - No change, 1.03% Unfavourable - Declining). There may be direct impacts with protected habitats resulting from construction as excavation will be required. Also, within 500m of pipeline there are three SACs: Solent Maritime; Emer Bog; River Itchen., one SPA: Solent and Dorset Coast. It is also within 500m of an additional SSSIs: Trodds Copse (13.76% favourable, 86.24% unfavourable - recovering); Ratlake Meadows (100.00% unfavourable); River Itchen (10.37% favourable, 55.74% unfavourable - recovering, 27.99% unfavourable - no change, 5.51% unfavourable - declining)). No direct impact to these sites but likely to be disturbance impacts from noise and dust pollution. Pipeline also intersects Oakwood Copse Ancient woodland and areas of priority habitat including Purple moor grass and rush pastures, Good quality semi-improved grassland, Coastal and floodplain grazing marsh, Lowland dry acid grassland. Likely to be direct impacts to local habitats. The option is within a SSSI risk zone.</p> <p>High risk of transfer of INNS as option includes a raw water transfer to lake.</p> <p>The HRA Tols (2021) identified likely significant effects for River Itchen SAC (500 m east of the option), Solent Maritime SAC (0km from the option), Solent and Southampton Water SPA and Ramsar (0km from the option). No likely significant effects identified for Emer Bog SAC (500m south of the option).</p>	<p>Re-route the pipeline where possible to avoid designated sites. Best practice mitigation to minimise impacts and reinstatement /compensation of habitats, but potential for residual effects to remain. Future design will need to undertake ecology surveys. HRA Tier 2 Screening identified that the likely significant effects for the River Itchen SAC are mitigable. A robust CEMP for use during construction should remove the scope for excessive mobilisation of sediment etc. The employment of suitable measures as screening nets, or methodologies that reduce or eliminate the need for works in the watercourses would ensure this were the case. The scope for directional drilling of the pipe runs underneath the watercourses should be fully explored. The likely significant effects for Solent Maritime SAC are not anticipated to be fully mitigable and uncertain effects remain. The effects on Solent and Southampton Water SPA and Ramsar are also not likely to be mitigable and likely significant effects remain as the disturbance to qualifying bird species is still likely to have significant effects.</p>	0	---	0	0

Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	Option intersects 2,3,4 and 5 agricultural land, there is likely to be direct impacts on soil during construction phase as excavation will be required for laying of pipeline. Option passes through historic landfill sites, risk of contamination during construction.	Ground will be reinstated therefore residual effects unlikely. Best practice methods for working in historic landfill sites.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The option passes through flood zones 2 and 3. There may be a temporary increased risk in flooding during construction when flood defences are compromised. Impacts on operation unlikely given the pipeline is buried. The pipeline is unlikely to increase the risk of flooding.	Measures to reduce the impact on flooding during the construction phase are likely to be implemented, to minimise risk of flooding.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	Potential impact on water quality at Test Surface Water lakes as is a raw water transfer. Pipeline crosses waterways in four locations; there is potential for water quality impacts as a result of construction which could impact WFD status. Pipeline passes through SPZs 1,2 and 3. The WFD Screening Assessment (2021) identified further WFD assessment is not required.	Best practice construction measures will likely be implemented.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	++	0	Water transfer between Otterbourne and Test Surface Water Lakes. Default benefit of 30MI/d therefore moderate effects identified. This would discharge into Test Surface Water Lakes (400 MI).	N/A	0	0	++	0
Air	Reduce and minimise air emissions	0	-	0	0	The option does not pass through any AQMAs. Eastleigh AQMA No.2 (M3) is within 2000m. Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	No carbon data available for this option. The option is estimated to have minor construction and minor operational carbon.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Water levels not predicted to be significantly affected therefore, unlikely to affect resilience of the local environment to climate changes.	N/A	0	0	0	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	Pipeline passes through two NLCA's: Hampshire Downs and South Hampshire Lowlands. South Downs National Park and New Forest National Park are both within 2000m. Minor negative effects on visual amenity during construction likely as excavation will be required for the transfer pipeline.	Ground will be reinstated following pipeline construction therefore residual effects unlikely. Measures to reduce the visual impact during construction e.g. screening could be implemented, however residual effects remain.	0	-	0	0
	Historic Environment	0	--	0	0	The pipeline appears to intersect two number of listed buildings. Several listed buildings, scheduled monuments, conservation areas and registered parks and gardens close to pipeline route, construction may affect the setting of historic assets, however this is likely to be temporary and minimal. There is potential for the excavation of the pipeline to impact buried archaeology.	Re-route the pipeline or use directional drilling to avoid direct effects on the listed buildings. Best practice mitigation measures will likely be implemented to minimise setting effects during construction. Archaeological Watching Brief may be required during the construction phase.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The pipeline intersects The Mountbatten Secondary School, pipeline to be buried but there may be potential disturbances to facilities during construction. The pipeline also intersects a golf course. There are a further 4 schools within 500m as well as religious buildings and green spaces, noise action areas, a golf course. There is likely to be minimal and temporary disturbance effects on the local community and users of these facilities during construction. IMD deciles along the pipeline are predominantly 10 and 6. Option also intersects a Noise Action Planning Important Area.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	South Downs national park is within 500m of option as well as several green spaces that may be used for recreation. The pipeline intersects a golf course and national cycle route. There may be diversions to public rights of way during construction. There is likely to be minimal and temporary disturbance effects on the local community and users of these areas during construction.	Best practice mitigation measures will likely be implemented to minimise effects during construction, however some disruption is likely to remain.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New pipeline infrastructure required for option which will use materials and generate waste, including excavated materials.	Opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The pipeline crosses major roads, and a multi-track railway and national cycle routes. There is likely to be moderate and temporary impacts during the construction phase from disruption for users (e.g. road closures, diversions).	Best practice mitigation measures will likely be implemented to minimise effects during construction and roads will be reinstated above the pipeline. However, minor and temporary effects are likely to still occur. Directional drilling under the railway is likely.	0	-	0	0

SEA Metrics		Positive	4			Positive	4
		Negative	-26			Negative	-19

SWS_TWD_HI-TFR_OTT_ALL_ott to test 60					
Raw water Transfer between Otterbourne WSW and Test Surface Water lakes - 60 MI/d.					
Southern water					
Raw water transfer (Pipe & Break tank) between Otterbourne WSW and Test Surface Water Lakes. Flow 60MI/d. This would discharge into Test Surface Water Lakes (400 MI) and utilise the existing raw water abstraction pumps and system at Test Surface Water. 22h/d operation assumed.					

SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	<p>The proposed pipeline for the option intersects Solent & Southampton Water RAMSAR site, Solent & Southampton Water SPA, Lower Test Valley SSSI (65.15% favourable, 34.85% unfavourable recovering); River Test SSSI (17.91% Favourable,37.53% Unfavourable - Recovering, 43.52% Unfavourable - No change, 1.03% Unfavourable - Declining). There may be direct impacts with protected habitats resulting from construction as excavation will be required. Also, within 500m of pipeline there are three SACs: Solent Maritime; Emer Bog; River Itchen., one SPA: Solent and Dorset Coast. It is also within 500m of an additional SSSIs: Trodds Copse (13.76% favourable, 86.24% unfavourable - recovering); Ratlake Meadows (100.00% unfavourable); River Itchen (10.37% favourable, 55.74% unfavourable - recovering, 27.99% unfavourable - no change, 5.51% unfavourable - declining)). No direct impact to these sites but likely to be disturbance impacts from noise and dust pollution. Pipeline also intersects Oakwood Copse Ancient woodland and areas of priority habitat including Purple moor grass and rush pastures, Good quality semi-improved grassland, Coastal and floodplain grazing marsh, Lowland dry acid grassland. Likely to be direct impacts to local habitats. The option is within a SSSI risk zone. High risk of transfer of INNS as option includes a raw water transfer to lake.</p> <p>The HRA Tols (2021) identified likely significant effects for River Itchen SAC (500 m east of the option), Solent Maritime SAC (0km from the option), Solent and Southampton Water SPA and Ramsar (0km from the option). No likely significant effects identified for Emer Bog SAC (500m south of the option).</p>	Re-route the pipeline where possible to avoid designated sites. Best practice mitigation to minimise impacts and reinstatement /compensation of habitats, but potential for residual effects to remain. Future design will need to undertake ecology surveys. HRA Tier 2 Screening identified that the likely significant effects for the River Itchen SAC are mitigable. A robust CEMP for use during construction should remove the scope for excessive mobilisation of sediment etc. The employment of suitable measures as screening nets, or methodologies that reduce or eliminate the need for works in the watercourses would ensure this were the case. The scope for directional drilling of the pipe runs underneath the watercourses should be fully explored. The likely significant effects for Solent Maritime SAC are not anticipated to be fully mitigable and uncertain effects remain. The effects on Solent and Southampton Water SPA and Ramsar are also not likely to be mitigable and likely significant effects remain the disturbance to qualifying bird species is still likely to have significant effects.	0	---	0	0

Soil	Protect and enhance the functionality, quantity and quality of soils	0	-	0	0	Option intersects 2,3,4 and 5 agricultural land, there is likely to be direct impacts on soil during construction phase as excavation will be required for laying of pipeline. Option passes through historic landfill sites, risk of contamination during construction.	Ground will be reinstated therefore residual effects unlikely. Best practice methods for working in historic landfill sites.	0	-	0	0
Water	Increase resilience and reduce flood risk	0	-	0	0	The option passes through flood zones 2 and 3. There may be a temporary increased risk in flooding during construction when flood defences are compromised. Impacts on operation unlikely given the pipeline is buried. The pipeline is unlikely to increase the risk of flooding.	Measures to reduce the impact on flooding during the construction phase are likely to be implemented, to minimise risk of flooding.	0	-	0	0
	Protect and enhance the quality of the water environment and water resources	0	-	0	0	Potential impact on water quality at Test Surface Water lakes as is a raw water transfer. Pipeline crosses waterways in four locations; there is potential for water quality impacts as a result of construction which could impact WFD status. Pipeline passes through SPZs 1,2 and 3. The WFD Screening Assessment (2021) identified further WFD assessment is not required.	Best practice construction measures will likely be implemented.	0	0	0	0
	Deliver reliable and resilient water supplies	0	0	+++	0	Water transfer between Otterbourne and Test Surface Water Lakes. Default benefit of 60MI/d therefore major effects identified. This would discharge into Test Surface Water Lakes (400 MI).	N/A	0	0	+++	0
Air	Reduce and minimise air emissions	0	-	0	0	The option does not pass through any AQMAs. Eastleigh AQMA No.2 (M3) is within 2000m. Construction likely to have minor and temporary impact on air quality.	Best practice mitigation measures likely to be implemented during construction phase, however minor and temporary impacts on air quality are likely to still occur.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	No carbon data available for this option. The option is estimated to have minor construction and minor operational carbon.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-
	Reduce vulnerability to climate change risks and hazards	0	0	0	0	Water levels not predicted to be significantly affected therefore, unlikely to affect resilience of the local environment to climate changes.	N/A	0	0	0	0

Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	-	0	0	Pipeline passes through two NLCA's: Hampshire Downs and South Hampshire Lowlands. South Downs National Park and New Forest National Park are both within 2000m. Minor negative effects on visual amenity during construction likely as excavation will be required for the transfer pipeline.	Ground will be reinstated following pipeline construction therefore residual effects unlikely. Measures to reduce the visual impact during construction e.g. screening could be implemented, however residual effects remain.	0	-	0	0
	Historic Environment	0	--	0	0	The pipeline appears to intersect two number of listed buildings. Several listed buildings, scheduled monuments, conservation areas and registered parks and gardens close to pipeline route, construction may affect the setting of historic assets, however this is likely to be temporary and minimal. There is potential for the excavation of the pipeline to impact buried archaeology.	Re-route the pipeline or use directional drilling to avoid direct effects on the listed buildings. Best practice mitigation measures will likely be implemented to minimise setting effects during construction. Archaeological Watching Brief may be required during the construction phase.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The pipeline intersects The Mountbatten Secondary School, pipeline to be buried but there may be potential disturbances to facilities during construction. The pipeline also intersects a golf course. There are a further 4 schools within 500m as well as religious buildings and green spaces, noise action areas, a golf course. There is likely to be minimal and temporary disturbance effects on the local community and users of these facilities during construction. IMD deciles along the pipeline are predominantly 10 and 6. Option also intersects a Noise Action Planning Important Area.	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	South Downs national park is within 500m of option as well as several green spaces that may be used for recreation. The pipeline intersects a golf course and national cycle route. There may be diversions to public rights of way during construction. There is likely to be minimal and temporary disturbance effects on the local community and users of these areas during construction.	Best practice mitigation measures will likely be implemented to minimise effects during construction, however some disruption is likely to remain.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New pipeline infrastructure required for option which will use materials and generate waste, including excavated materials.	Opportunity to implement sustainable design measures to reduce the impact, however it is likely that minor negative effects will remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The pipeline crosses major roads, and a multi-track railway and national cycle routes. There is likely to be moderate and temporary impacts during the construction phase from disruption for users (e.g. road closures, diversions).	Best practice mitigation measures will likely be implemented to minimise effects during construction and roads will be reinstated above the pipeline. However, minor and temporary effects are likely to still occur. Directional drilling under the railway is likely.	0	-	0	0

SEA Metrics	Positive	8	Positive	8
	Negative	-26	Negative	-19

SWS_WWD_HI-REU_RE1_ALL_env_cu_wei_conju											
Crawley WTW Recycling Conjunctive use with Weirwood Reservoir											
SWS											
New Resource. Effluent pipeline (14,560 m of pipeline with 7000 m of 600 mm diameter and 7560 m of 500 mm diameter pipeline) from Crawley WTW to Weirwood reservoir, which feeds Weirwood WSW. Additional tertiary treatment will be required at Crawley WTW and may require land purchase. 515 kW pump required. Pipe could benefit from throttling towards the latter lengths of the pipe to reduce the discharge head.											
SEA Topic	SEA Objective	Construction Effects		Operational Effects		Comment	Mitigation	Residual Construction Effects		Residual Operational Effects	
		+	-	+	-			+	-	+	-
Biodiversity, flora and fauna	Protect and enhance biodiversity, priority species, vulnerable habitats and habitat connectivity (no loss and improve connectivity where possible)	0	---	0	0	The intersects the Weir Wood Reservoir SSSI (25% Favourable, 75% Unfavourable - No change), which is a GWDTE, therefore potential for direct effects. The option also lies within SSSI impact risk zones and Weirwood Reservoir LNR is within 500m. Ashdown Forest SAC/SPA/SSSI (17% Favourable, 78% Unfavourable -Recovering, 5% Unfavourable - Declining), Wakehurst & Chiddingly Woods SSSI, and three additional LNRs are also found within 2000m. There is potential for indirect effects and disruption from dust, noise and vibration during construction. The option also intersects woodland, ancient woodland and priority habitat including deciduous woodland, good quality semi-improved grassland and traditional orchard, therefore potential for direct effects. The HRA ToLS identifies no likely significant effect as there is sufficient distance between the option and Natura 2000 sites. The risk of INNS is very low as the option involves the physical transfer of treated water which will likely be free from INNS).	Unlikely that the pipeline can be re-route as Weirwood reservoir is the end point of the route. Implement best practice methods to minimise effects on the SSSI, however potential for minor residual effects to remain. Ensure best practicable means to prevent loss of habitat during construction, reinstate habitat on completion or if unavoidable consider compensatory habitat to replace damaged or lost habitat. Future design will need to undertake ecology surveys.	0	-	0	0
Soil	Protect and enhance the functionality, quantity and quality of soils	0	--	0	0	The pipeline passes through agricultural land classed as Grade 3 and 4 as well as non-agricultural and urban land. There is potential for disturbance to these soils during the construction phase. The expansion of the WTW may result in permanent loss of soil. The option intersects the Compasses Crossing historic landfill. There are four further historic landfills within 500m. Potential for contamination	Reinstate land following construction phase, however there will be permanent loss from WTW expansion. Best construction practices for working within or within close proximity to landfills likely to be implemented to minimise impact.	0	-	0	0

						during construction but due to localised nature, effects are likely to be minimal.					
Water	Increase resilience and reduce flood risk	0	--	0	--	The pipeline is predominately within flood zone 1, however parts of the option lie within flood zones 2 and 3 therefore potential for risks during the construction phase. The option is unlikely to significantly affect flood risk. The option involves additional treatment at the existing Crawley WTW which may require site expansion. The site is within or within close proximity to flood 2 and 3 therefore potential for operational flood risk.	Measures to reduce the impact on flooding during the construction and operational phase. Flood risk may still occur.	0	-	0	-
	Protect and enhance the quality of the water environment and water resources	0	--	+	0	The option overlies nitrate vulnerable zones, the Adur and Ouse Hastings Beds, Copthorne Tunbridge Wells Sands and Kent Weald Western -Medway WFD groundwater bodies. The option also intersects several surface water bodies, including main rivers, therefore potential for leaks and spills during construction that could contaminate the water environment. Given the option is conjunctive use, there is potential for positive effects on the water environment as it may help to reduce pressures during dry periods. WFD Screening Assessment (2021) concluded one waterbody requires further assessment due to impacts identified at the construction phase.	Best practice mitigation measures likely to be implemented during construction such as use of appropriate bedding materials, trenchless crossings and directional drilling. Further WFD assessment is required therefore moderate negative effects identified.	0	--	+	0
	Deliver reliable and resilient water supplies	0	0	+	0	Option will facilitate water supply once operational, increasing water transfer and supply.	N/A	0	0	+	0
Air	Reduce and minimise air emissions	0	--	0	0	The passes through the Hazelwick AQMA. The construction phase is likely to have an impact on air quality, however this is likely to be minor and temporary.	Best practice mitigation measures implemented during construction, however minor and temporary impacts on air quality may remain.	0	-	0	0
Climatic Factors	Reduce embodied and operational carbon emissions	0	-	0	-	There is no carbon data available for this option. The option is estimated to have minor construction and minor operational emissions.	Investigate use of renewables during construction and operation for energy supply and use of materials with lower embodied carbon. Carbon footprint study could help identify areas for carbon savings or alternative materials. As the electricity grid is decarbonised, greener energy will be available.	0	-	0	-

	Reduce vulnerability to climate change risks and hazards	0	0	0	0	The option is not thought to result in a change in water levels. Therefore, no effect on water environment vulnerability to climate change anticipated.	N/A	0	0	0	0
Landscape	Conserve, protect and enhance landscape, townscape and seascape character and visual amenity	0	--	0	0	The option lies within the High Weald AONB and the High Weale and Low Weald NCLAs. There is potential for visual disturbance during construction. Crawley WTW expansion is unlikely to have a significant effect on the landscape given it is adjacent to an existing WTW site and within an industrial area.	Best practice measures will likely be implemented to minimise effects during construction such as use of construction, however minor and temporary impacts may remain. Land reinstated upon completion.	0	-	0	0
Historic Environment	Conserve, protect and enhance the historic environment, including archaeology	0	--	0	0	The option lies within the Turners Hill Conservation Area and also appears to intersect four Grade II listed buildings, however it may be a result of the GIS alignment. There are numerous listed buildings, scheduled monuments and the Standen Registered Park and Garden within 500m as well as additional assets within 2000m. The pipeline excavation has the potential to impact archaeology, if present.	Consider re-routing of pipeline to avoid listed building or utilise directional drilling if required. Best practice methods to minimise the effects on the setting of the historic assets. An Archaeology Watching Brief may be required during the construction phase. Further work likely to be required to determine significance of effect, depending on the presence or absence of buried archaeology. Residual effects may remain due to potential loss of archaeological remains due to construction.	0	-	0	0
Population and Human Health	Maintain and enhance the health and wellbeing of the local community, including economic and social wellbeing	0	-	0	0	The option intersects a Noise Action Planning Important Area. There are also public parks or gardens, schools, play spaces, sports facilities, allotments, churches and religious grounds within 500m. The option may cause temporary disturbance to local communities and users of these community facilities from dust, noise and vibration. IMD deciles 5-10 along extent of pipeline.	Consider re-routing of pipeline to avoid residential properties. Best practice mitigation measures e.g. noise management to be implemented to minimise effects during construction. However, minor and temporary effects are likely to still occur.	0	-	0	0
	Maintain and enhance tourism and recreation	0	-	0	0	The option is within 500m of play spaces, playing fields, a public park or garden and also intersects a national cycle route. There is potential for disruption from dust, noise, vibration and diversions during construction which could impact recreation.	Best construction practices and the implementation of appropriate diversions to minimise impact.	0	-	0	0
Material Assets	Minimise resource use and waste production	0	-	0	0	New infrastructure required for option which will use materials and generate waste, including excavated materials.	Seek opportunity to implement sustainable design measures and reuse excavated material on site, to reduce impact. Minor negative construction effects will likely remain.	0	-	0	0
	Avoid negative effects on built assets and infrastructure	0	--	0	0	The option intersects three major roads and a national trail. There is potential for moderate and temporary disruption effects	Best practice mitigation measures will likely be implemented to minimise effects during construction. However, minor	0	-	0	0

					on these assets during the construction phase.	and temporary effects are likely to still occur.				
SEA Metrics		Positive	2				Positive	2		
		Negative	-45				Negative	-17		

