

Brockenhurst Wastewater System - Outline Options Appraisal												
Generic Option	Location of Risk	Planning Objective and Description of Risk	Option Reference	Description	Further Description	Unconstrained Option?	Constrained Option?	Feasible Option?	Net Benefits	Estimated Cost	Preferred Option	Best value / Least cost or Reasons for Rejection
Control/ Reduce surface water entering the sewers	Upstream of catchment	PO4, PO5 - Hydraulic Drivers	BROC.SC01.1	Natural Flood Management	Attenuation of flows upstream - current ongoing project.	No						Do customer support it
Control/ Reduce surface water entering the sewers	Catchment Wide	PO4 ,PO5 - Hydraulic Drivers & PO8 Dry Weather Flow	BROC.SC01.2	Rain Water Harvesting	Use of rain water harvesting techniques using, for example, water butts, rain gardens and ponds in residential gardens to help alleviate summer storm events across the catchment.	No						Risk and uncertainty - future resilience
Control/ Reduce surface water entering the sewers	Site of New Forest Show	PO4 ,PO5 - Hydraulic Drivers & PO8 Dry Weather Flow	BROC.SC01.3	Natural Flood Management	Study / Investigation: Identify suitable location/s for surface water separation on the grounds of New Forest Show (update hydraulic model) Use site of the New Forest Show to install natural flood management techniques - attenuation of flows upstream of catchment - in the wetter winter months.	Yes	Yes	Yes	Moderate Positive ++	£TBC - With Partners	No	Best Value
Control/ Reduce surface water entering the sewers	Catchment Wide	PO4 ,PO5 - Hydraulic Drivers & PO8 Dry Weather Flow	BROC.SC01.4	Changes in Rural Land Drainage	Using results of option BROC.	No						Technically feasible
Control/ Reduce surface water entering the sewers	Catchment Wide	PO4 ,PO5 - Hydraulic Drivers & PO8 Dry Weather Flow	BROC.SC01.5	Surface Water Separation	Using results of option BROC.	No						Technically feasible
Control/ Reduce surface water entering the sewers	Catchment Wide	PO4 ,PO5 - Hydraulic Drivers & PO8 Dry Weather Flow	BROC.SC01.6	SuDS	Using results of option BROC.	No						Technically feasible
Control / Reduce groundwater infiltration												
Improve quality of wastewater entering sewers (inc reducing FOG, RAG, pre-treatment, trade waste)												
Control / Reduce the quantity / flow of wastewater entering sewer system	Catchment Wide	PO8 (2050) - Dry Weather Flow	BROC.SC04.1	Water Efficient Measures	Southern Water aims to reduce water consumption to 100 l/h/d by 2040.	Yes	No					Environmental - Strategic Environmental Assessment
Control / Reduce the quantity / flow of wastewater entering sewer system	Catchment Wide	PO4 ,PO5 - Hydraulic Drivers & PO8 Dry Weather Flow	BROC.SC04.2	Water Efficient Appliances	Promotion of water efficient appliances.	No						Deliver the required outcome
Control / Reduce the quantity / flow of wastewater entering sewer system	Catchment Wide	PO4 ,PO5 - Hydraulic Drivers & PO8 Dry Weather Flow	BROC.SC04.3	Grey water Reuse	Reuse of wastewater from sinks, baths, washing machines and other kitchen appliances for use in flushing toilets.	Yes	No					Performance and Sustainability
Control / Reduce the quantity / flow of wastewater entering sewer system	Campsite @ Hollands Wood	PO8 (2050) - Dry Weather Flow	BROC.SC04.4	Water Efficient Measures	Southern Water aim to reduce water consumption to 100 l/h/d by 2040.	No						Deliver the required outcome
Control / Reduce the quantity / flow of wastewater entering sewer system	Campsite @ Hollands Wood	PO4 ,PO5 - Hydraulic Drivers & PO8 Dry Weather Flow	BROC.SC04.5	Water Efficient Appliances	Promotion of water efficient appliances - removing excess flows that are a particular challenge on bank holidays.	No						Deliver the required outcome
Control / Reduce the quantity / flow of wastewater entering sewer system	Campsite @ Hollands Wood	PO4 ,PO5 - Hydraulic Drivers & PO8 Dry Weather Flow	BROC.SC04.6	Grey water Reuse	Reuse of wastewater from sinks, baths, washing machines and other kitchen appliances for use in flushing toilets.	No						Technically feasible
Control / Reduce the quantity / flow of wastewater entering sewer system	Catchment Wide	PO4 ,PO5 - Hydraulic Drivers & PO8 Dry Weather Flow	BROC.SC04.7	Customer Incentive Programme	Incentivise customers to reduce their consumption rate through bill reduction and voucher schemes.	No						Cost Effective, Environmental risk mitigatable and Risk and uncertainty - future resilience
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO4 ,PO5 - Hydraulic Drivers	BROC.PW01.1	Separate Flows (WfL-H)	Construction of new surface water sewers to channel excess flow away from combined/foul sewers, instead utilising water to assist in capture of further water for WfL-H project.	No						Technically feasible
Network Improvements (eg increase capacity, storage, conveyance)	Catchment Wide	PO4 ,PO5 - Hydraulic Drivers	BROC.PW01.2	Separate Flows	Separating surface water flows from sewers.	No						Technically feasible
Network Improvements (eg increase capacity, storage, conveyance)	Targeted locations resulting from results of BROC.OT01.1	PO4 ,PO5 - Hydraulic Drivers & PO8 Dry Weather Flow	BROC.PW01.3	Additional Storage Capacity	Based on results of new hydraulic model (option BROC.	No						Deliver the required outcome and Risk and uncertainty - future resilience
Network Improvements (eg increase capacity, storage, conveyance)	Targeted locations resulting from results of BROC.OT01.1	PO4 ,PO5 - Hydraulic Drivers & PO8 Dry Weather Flow	BROC.PW01.4	Additional Conveyance Capacity	Based on results of new hydraulic model (option BROC.	No						Deliver the required outcome
Improve treatment (capacity and quality at existing works or develop new WTWs)	Brockenhurst WTW	PO8 (2050) - Dry Weather Flow	BROC.PW02.1	Permit Review	Increase capacity of the Wastewater Treatment Works (WTW).	Yes	Yes	Yes	Minor Positive +	£3,105K	Yes	Best Value
Improve treatment (capacity and quality at existing works or develop new WTWs)	Effectuated Designated Sites/Brockenhurst WTW	PO11 - Nutrient Neutrality	BROC.PW02.2	Install P removal tertiary plant	Remove more P from final effluent, past the currently allowed 1Mg/L permitted rate.	No						Risk and uncertainty - future resilience
Improve treatment (capacity and quality at existing works or develop new WTWs)	Effectuated Designated Sites/Brockenhurst WTW	PO11 - Nutrient Neutrality	BROC.PW02.3	Install N removal tertiary plant	Currently no Nitrate permit, although there is an Ammonia permit.	No						Risk and uncertainty - future resilience
Improve treatment (capacity and quality at existing works or develop new WTWs)	Brockenhurst WTW	PO11 - Nutrient Neutrality	BROC.PW02.4	Install UV removal tertiary plant	Install to remove from final effluent.	No						Cost Effective and Risk and uncertainty - future resilience
Improve treatment (capacity and quality at existing works or develop new WTWs)	Brockenhurst WTW	PO4, PO5 - PO4 ,PO5 - Hydraulic Drivers & PO8 - Dry Weather Flow & PO11 - Nutrient Neutrality	BROC.PW02.5	Centralisation of Treatment	As mentioned in the stakeholder meeting it could be possible to pump the effluent to a larger catchment treatment works - however, it was noted that issues would arise relating to levels of flow in the river in the summer months - so this would need to be modelled and potentially mitigated.	No						Risk and uncertainty - future resilience
Wastewater Transfer												
Mitigate impacts on Air Quality (e.g. Carbon neutrality, noise, odour)												Not included in the first round of DWMPs
Improve Land and Soils												Not included in the first round of DWMPs
Mitigate impacts on Water Quality	Effectuated Designated Sites	PO11 - Nutrient Neutrality	BROC.RC03.1	River enhancement and mitigation	Enhance river upstream of catchment to provide attenuation of flows, limiting unconsented spills from CSOs, and providing opportunity for natural nutrient removal.	No						Deliver the required outcome
Mitigate impacts on Water Quality	Effectuated Designated Sites/Brockenhurst WTW	PO11 - Nutrient Neutrality	BROC.RC03.2	Effluent re-use	Re-use of effluent from site - pumping of this effluent to potable process treatment works.	No						Cost Effective and Risk and uncertainty - future resilience
Mitigate impacts on Water Quality	Effectuated Designated Sites/Brockenhurst WTW	PO11 - Nutrient Neutrality	BROC.RC03.3	Catchment permits	Reduce consented permit levels for nutrients and solids in the final effluent from treatment works.	No						Deliver the required outcome, Do customer support it and Risk and uncertainty - future resilience

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Reduce consequences Properties (e.g. Property Flood Resilience)	Catchment Wide	PO4 - Hydraulic Drivers	BROC.RC04.1	Flood Mitigation for Flooding	Flooding mitigation to consider options (but not limited to); Non-return Values, Smart Airbricks, Flood Doors.	Yes	No					Operational
Study/ investigation to gather more data	Catchment Wide	PO4 ,PO5 - Hydraulic Drivers & PO8 - Dry Weather Flow	BROC.OT01.1	Improve Hydraulic Model	Study / Investigation: Update and re-verify the Brockenhurst Hydraulic Model to improve model confidence.	Yes	Yes	Yes	Minor Positive +	£325K	Yes	Best Value
Study/ investigation to gather more data	Catchment Wide	PO4 ,PO5 - Hydraulic Drivers & PO8 - Dry Weather Flow	BROC.OT01.2	Flooding Investigation	Study / Investigation: Identify suitable location/s for surface water separation in the Brockenhurst catchment (update hydraulic model) Collaborate to identify suitable location/s to separate foul and surface water systems.	Yes	Yes	Yes	Minor Positive +	£230K	No	Best Value
Study/ investigation to gather more data	Solent and Dorset Coast Solent & Southampton Water	PO11 - Nutrient Neutrality	BROC.OT01.3	Nutrient Budget	Study / Investigation: Develop a nutrient budget and investigate the risks and sources impacting these named Habitat sites In order to take forward any unconstrained option - BROC.	Yes	Yes	Yes	Minor Positive +	£75K	Yes	Best Value
Study/ investigation to gather more data	High Spilling CSOs - Brockenhurst WTW	PO5 - High Spilling CSOs	BROC.OT01.4	Further Study/Investigation	Surface water separation to reduce spills from Brockenhurst WTW storm overflow (average cost assumed to reduce CSO spills to Band 0) Collaborate to identify suitable location/s to separate foul and surface water systems.	Yes	Yes	Yes	Major Positive +++	£1,000K	Yes	Best Value