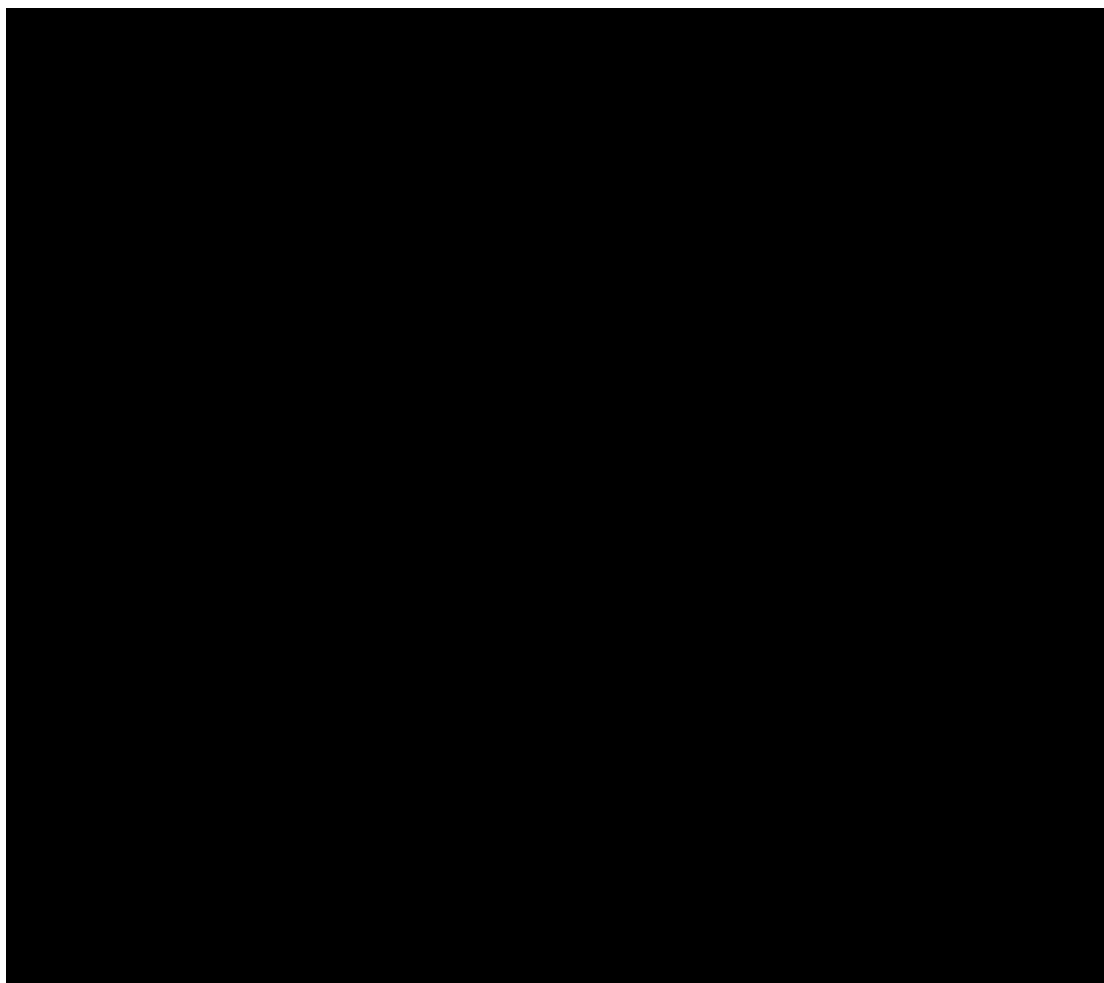
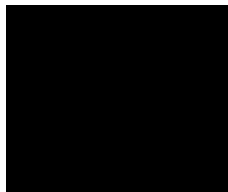




Whitfield Growth

Annex A3 - Environmental Appraisal

September 2025

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Whitfield Growth

Annex A3 - Environmental Appraisal

September 2025

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1 Introduction

1.1 Purpose

This report presents an environmental appraisal of feasible options identified for Wastewater Treatment solutions to meet the demand from planned housing growth of as part of the Whitfield Urban Expansion in Kent. Southern Water (SWS) have a statutory duty to accommodate the demands of urban growth.

The wider environmental benefits of treating wastewater are generally accepted. The alternative which is to do nothing would have serious environmental consequences. For these reasons the background to this project has accepted that upgrading or developing a new treatment works would be the most appropriate way to deal with the urban growth in the most environmentally sensitive way. This report has been developed to support the first submission to OFWAT under the Large Scheme Gated Process. This report is based on the scheme descriptions as set out below.

1.2 Scheme description

Optioneering to accommodate growth at Whitfield was initially undertaken to inform the PR19 submission. The optioneering process was described as part of evidence to support the Cost Adjustment Claim on Growth – Whitfield⁹, setting out six options for providing wastewater treatment services to the Whitfield development:

- Option 1: Pumping flows approximately 10km to the existing Broomfield Bank Wastewater Treatment Works (WTW), with an associated upgrade at the WTW.
- Option 2: Pumping flows approximately 14kms to the Dambridge Wingham WTW, with a rebuild of the works to accommodate the increase in flows.
- Option 2a: Pumping flows approximately 14kms to the Dambridge Wingham WTW, with the development of a new Membrane Bioreactor (MBR) side stream treatment.
- Option 3: Development of a new WTW with a discharge to groundwater.
- Option 4: Development of a new WTW with a coastal discharge.
- Option 5: Development of a new WTW with an inland river discharge.

At PR24, solutions and costs for two options were taken from the proposals at PR19 and re-costed for PR24. These two options were:

- Option 1: Pumping flows approximately 10km to the existing Broomfield Bank WTW, with an associated upgrade at the WTW; and
- Option 4: Development of a new WTW with a coastal discharge.

At PR19 and PR24 the preferred option was Option 4. The option was considered to have a similar cost to other options, had the best whole life cost of the viable options, carried a greater chance of permitting success, whilst offering strong levels of long-term resilience.

Further details on the options are set out in Annex A2 Feasible Options Review.

2 Methodology

2.1 Introduction

An environmental appraisal of the six feasible options identified at PR19 (please see section 1.2) has been carried out using the environmental topics used in Strategic Environmental Assessments (SEA). It should be noted that this document is not a formal SEA under The Environmental Assessment of Plans and Programmes Regulations 2004.

A SEA was undertaken to support Southern Water's Drainage and Wastewater Management Plan (DWMP)¹. For consistency, the same SEA topics and indicators of environmental and social performance have been used in this review. As this is a project level appraisal – where the feasible options could require a project level Environmental Impact Assessment – some of the topics and issues outlined in Schedule 4, paragraph 4 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017² have been included. This provides consistency of approach and additional confidence in identifying applicable environmental and social impacts.

The appraisal has been carried out as best practice and to help inform the development of options. This is a desktop appraisal only and no site surveys have been undertaken.

2.2 Environmental and Social topics

2.2.1 Topics

The topics appraised and the main information sources are described in the table below.

Table 2.1: SEA criteria used to inform the environmental appraisal of options

SEA Topic	Environmental and social information to inform assessment of option performance
Biodiversity, Flora and Fauna	<u>Internationally designated sites</u> Special Areas of Conservation (SAC), Special Protection Areas (SPA) and Ramsar Sites. <u>Nationally designated sites</u> Sites of Special Scientific Interest (SSSIs), National Nature Reserves (NNRs) and Marine Conservation Zones (MCZs). <u>Non – designated sites</u> Local Nature Reserves (LNRs), Local Wildlife Sites (LWS), ancient woodland, priority habitat and Green Belt. Risk of Invasive and Non Native Species (INNS).
Soil and Geology	Agricultural Land Classifications (ALC). Registered Landfill Sites and Historic Landfill sites.
Cultural Heritage	<u>Protected structures</u> Listed buildings, scheduled monuments and protected wrecks. <u>Designated sites</u> Conservation areas, registered parks and gardens, registered battlefields, heritage coasts and World Heritage Sites.
Water	Groundwater source protection zones (SPZs). Areas of fluvial and coastal flood risk. Water Framework Directive (WFD) waterbodies. Bathing Waters.
Air	Air Quality Management Areas (AQMAs).

¹ Southern Water (2023). Drainage and Wastewater Management Plan Strategic Environmental Assessment Final Environmental Report. Available at: [b0064-sws-dwmp-sea-final-environmental-report_210423.pdf](#) [Accessed July 2025]

² UK Government (2025). The Town and Country Planning (Environmental Impact Assessment) Regulations 2017. Available at: [The Town and Country Planning \(Environmental Impact Assessment\) Regulations 2017](#) [Accessed July 2025]

	Clean Air Zones (CAZs).
Climatic Factors	██████████ capital carbon model library, including the following datasets on emissions factors used in the carbon models: Inventory of Carbon and Energy (ICE), Civil Engineering Standard Method of Measurement – Carbon and Cost Price Book (CESMM4) and Environmental Product Declarations (EPDs). These models have been used to assess: • Carbon embodied within the construction materials used within project design. • The transportation of these materials from assumed factory locations to site. • An estimation of onsite construction emissions, including waste disposal. Area of flood risk to identify areas at risk of climate change.
Landscape	National Landscapes, heritage coasts and national trails.
Population, Communities and Human Health	Existing settlements. National and regional recreation facilities.
Material Assets	Existing infrastructure (roads, railways, water and waste facilities).

2.2.2 Study areas

The following study areas have been used to identify designations and environmental sensitivities that could be affected by each option:

- 1km centred around an indicative source location for Whitfield new growth flows (which is assumed to be an indicative location for a new WTW) and 1km centred around locations of existing WTW (Dover to Folkestone ((Broomfield Bank)) and Dambridge Wingham).
- 500m corridor centred along indicative pipeline route corridors.
- 500m centred around indicative locations of new discharge points and locations of existing discharges. Note that the outfall location for Options 3, 4 and 5 is not known. For the purposes of the appraisal, it is assumed Option 3 will discharge to ground at the location of a new WTWs, Option 4 will discharge to coast somewhere between Walmer and Dover and Option 5 will discharge to the headland of the River Dour.

The study areas have been selected to identify a comparison of the most likely environmental considerations of the different options. As the scheme progresses the environmental appraisal will be developed to consider environmental effects within the ZoI for each environmental topic.

3 Environmental appraisal

3.1 Introduction

This section provides an appraisal of the issues, constraints and opportunities for each feasible option under the SEA criteria.

Annex A2: Feasible Options Review sets out the design assumptions for the six feasible options. Table 3.1 provides a summary of these.

Table 3.1 Summary of the feasible options

Option Ref	Option Name	Option Description
Option 1	Dover & Folkestone WTW (Broomfield Bank)	New pumped rising main (10km) to an upgraded Dover & Folkestone WTW (also known as Broomfield Bank).
Options 2	Transfer to Dambridge Wingham WTW (Major Upgrades)	New pumped main (14km) to upgraded Dambridge Wingham WTW.
Options 2A	Transfer to Dambridge Wingham WTW (Side Stream)	New pumped main (14km) to Dambridge Wingham WTW (side stream).
Option 3	New WTW; Groundwater Discharge	New pumped rising main (3km) to new WTW with groundwater discharge.
Option 4	New WTW; Coastal Discharge	New pumped rising main (3km) to new WTW with coastal discharge. Discharge to coastal outfall via pipeline (approximately 10km)
Option 5	New WTW; Inland River Discharge	New pumped rising main (3km) to new WTW with river discharge. Discharge to river outfall via pipeline (approximately 5km)

3.2 Working Assumptions and Limitations

- The appraisal is constrained to reviewing the datasets identified in Table 2.1, using desktop data only and professional judgement.
- The environmental appraisal is based on pipeline route corridors, with identification of pipeline routes to form part of future site and route selection exercises. The environmental appraisal is based on pipeline route corridors, with identification of pipeline routes to form part of future site and route selection exercises.
- Assumed the point of treatment and discharge are the same as existing for Options 1, 2 and 2A.
- Uncertainty as to whether Option 1 would require an upgraded outfall at Dover.
- Location of a new WTW for Options 3,4 and 5 is unknown at this time. Options 3 and 4 are assumed to be east of Whitfield and Option 5 is assumed to be west of Whitfield. It is assumed a new WTW would be approximately 4ha in size.
- No assessment of the network required to take wastewater and sewage from Whitfield Growth area to central start point. An indicative transfer start point for the flows to be taken for treatment which is to the north of Whitfield is assumed.
- Assumed discharge to ground is at the location of the WTW for Option 3.
- The location of the sea outfall for Option 4 is unknown, however, it is assumed to be a single point somewhere between Dover and Walmer.
- The location of the WTW in Option 5 and the outfall discharge point into the River Dour are unknown.

3.3 Biodiversity, Flora and Fauna

3.3.1 Option 1

Broomfield Bank WTW is located adjacent to priority habitat for deciduous woodland, which could be at risk from expanding the WTW. Further priority habitats for deciduous woodland, lowland calcareous grassland and semi-improved grassland are present within the study area, as well as areas of ancient woodland.

The pipeline corridor for this option includes the Lydden and Temple Ewell Downs SAC and SSSI and the Lydden Temple Ewell NNR, as well as sections of Alkham, Lydden and Swingfield Woods SSSI. It also includes areas of ancient woodland and priority habitats (good quality semi-improved grassland, lowland calcareous grassland and deciduous woodland). Depending on the final route, construction of the pipeline could result in the loss or damage to these habitats.

If the existing Broomfield Bank outfall at Dover requires upgrading as part of this option, the outfall location is adjacent to Folkestone Warren SSSI and areas of priority habitat (intertidal substrate foreshore, lowland calcareous grassland, and maritime cliffs and slopes). Construction works to upgrade the pipeline could result in the loss or damage to these habitats.

3.3.2 Options 2 and 2A

There are no designated sites within the study area for these options.

Dambridge Wingham WTW is adjacent to priority habitats (coastal and floodplain grazing marsh and deciduous woodland), which could be at risk from expanding the WTW. Further areas of these habitats are present within the study area.

The pipeline route corridor includes ancient woodland, as well as several areas of priority habitat (deciduous woodland, good quality semi-improved grassland, coastal and floodplain grazing marsh, and traditional orchards). Depending on the final route, construction of the pipeline could result in the loss or damage to these habitats.

Dambridge Wingham WTW discharges into the Wingham River, a chalk stream which flows to the River Stour via the Little Stour. The additional discharge could result in impacts to aquatic and riparian species and habitats resulting from changes in river flow and composition.

3.3.3 Option 3

The area within which a new Whitfield WTW could be constructed and the associated pipeline corridor includes areas of priority deciduous woodland habitat. Construction works could result in the loss or damage to this habitat. In addition to the loss of habitat, the discharge could result in impacts to habitats through changes in groundwater and soil composition.

3.3.4 Option 4

The area within which a new Whitfield WTW could be constructed includes areas of ancient woodland and several areas of priority deciduous woodland habitat.

The pipeline corridor and section of coast within which the discharge location could be located (between Walmer and Dover) includes the coastal designations Dover to Kingsdown Cliffs SAC and SSSI, Dover to Deal MCZ and Kingsdown and Walmer Beach LWS. This stretch of coast also contains nationally and locally identified priority habitats (intertidal chalk and vegetated shingle). Depending on the final design, construction of the pipeline and outfall could result in loss and damage to these protected sites and habitats.

3.3.5 Option 5

The area within which a new Whitfield WTW could be constructed in this option includes areas of ancient woodland and of priority deciduous woodland habitat.

The pipeline corridor includes the Lydden and Temple Ewell Downs SAC and SSSI and the Lydden Temple Ewell NNR as well as areas of ancient woodland. Within the study area is also Alkham, Lydden and

Swingfield Woods SSSI and priority habitats (lowland calcareous grassland and good quality semi-improved grassland).

This option includes a new discharge to the River Dour which is a rare chalk stream habitat. Construction of the outfall is likely to result in direct riparian habitat loss, and changes to water flow and quality could impact aquatic and riparian species.

3.4 Soil and Geology

3.4.1 Option 1

Broomfield Bank WTW is situated in an area of Grade 2 ALC, which could be lost due the WTW expansion. The pipeline route corridor includes multiple grades of agricultural land, up to Grade 1 ALC, which would need to be avoided or otherwise protected.

There are two historic landfills (Mount Ararat and Brickletons Wood) within the pipeline corridor and no authorised landfill sites present in the study area. Excavation within the landfill and disposal of the material would require a permit.

3.4.2 Options 2 and 2A

Dambridge Wingham WTW is situated in an area of Grade 2 ALC, which could be lost due expansion of the WTW. The pipeline route corridor includes multiple grades of agricultural land, up to Grade 1 ALC, which would need to be avoided or otherwise protected.

There are no authorised or historic landfill are present within the study area.

3.4.3 Option 3

Under this option, the new Whitfield WTW would likely be situated in an area of Grade 2 ALC. The wider study area and pipeline route corridor includes multiple grades of agricultural land, up to Grade 3.

The new discharge to ground could impact soil quality, depending on the location, processing requirements and permitting conditions.

There are no authorised or historic landfill sites in the study area.

3.4.4 Option 4

Under this option, the new Whitfield WTW would likely be situated in an area of Grade 2 ALC. The pipeline route corridor to the Kent coast includes multiple grades of agricultural land, up to Grade 1 ALC, which would need to be avoided or otherwise protected.

There is one historic landfill () within the pipeline corridor, but otherwise no authorised or historic landfill sites in the study area. Excavation within the landfill and disposal of the material would require a permit.

3.4.5 Option 5

Under this option, the new Whitfield WTW would likely be situated in an area of Grade 2 ALC, and the pipeline corridor includes multiple grades of agricultural land, up to Grade 3 ALC.

There are no authorised or historic landfill sites are in the study area.

3.5 Cultural Heritage

3.5.1 Option 1

There are two scheduled monuments (Fortifications, Roman lighthouse and medieval chapel on Western and Archcliffe Fort) adjacent to the location of the Broomfield Bank outfall,

Upgrade works could impact on buried archaeology associated with the scheduled monument.

The proposed pipeline corridor includes 21 Grade II and two Grade I listed buildings as well as a scheduled monument (Bowl barrow 200m south west of Little Watersend) and two conservation areas (Alkham and Church Hougham).

3.5.2 Options 2 and 2A

There is one Grade I and 55 Grade II and five Grade II* listed buildings, within the study area of Dambridge Wingham WTW, the closest being a Grade II listed building within

The pipeline corridor includes 27 Grade II, six Grade II*, two Grade I listed buildings as well as a scheduled monument (Rectangular earthwork in Shingleton Wood), two further conservation areas (Tilmanstone and Chillenden) and a registered park (Waldershare Park). Depending on the final pipeline route, excavation could impact buried archaeology associated with the scheduled monument.

3.5.3 Option 3

The area within which a new Whitfield WTW could be constructed includes two Grade II listed buildings, and the proposed pipeline route corridor includes one Grade II* listed building. There are no other designated assets within the study area for this option.

3.5.4 Option 4

The area within which a new Whitfield WTW could be constructed includes two Grade II listed buildings.

The pipeline route corridor includes 37 Grade II and 7 Grade II* listed buildings as well as a scheduled monument (Medieval manor house, Walmer), five conservation areas (East Langdon, Martin, Upper Walmer, South Barracks Deal and Walmer Seafront) and a registered park (Walmer Castle).

In addition, depending on the final location of the outfall, 5 Grade II and one Grade II* listed building and a scheduled monument (A pair of acoustic mirrors at Fan Bay) could be affected.

Depending on the final pipeline route and outfall location, construction works could impact buried archaeology associated with the scheduled monuments, and/or affect the setting.

3.5.5 Option 5

The area within which a new Whitfield WTW could be constructed includes two Grade II listed buildings.

The pipeline route corridor and its outfall to the River Dour includes four Grade II and one Grade II* listed buildings, as well as a conservation area (Temple Ewell)

3.6 Water

3.6.1 Option 1

Within the areas that the expanded WTW is likely to be constructed, there are no areas of flood zone 2 or 3.

The pipeline route corridor for this option is located partially within areas designated as SPZ2 and 3.

The additional discharge from the existing Broomfield Bank outfall would enter the South Kent Coast WFD waterbody (GB640704540001). This water body is at 'moderate ecological status' with no identified risks from water industry related activities. WFD compliance would be a permitting consideration, although the risk of non-compliance is not considered high at this stage.

3.6.2 Options 2 and 2A

There are areas of flood zone 2 and 3 adjacent to the Dambridge Wingham WTW that would need to be avoided in any expansion, in order to avoid increasing fluvial flood risk.

The pipeline route corridor for these options is located partially within regions designated as SPZ, including areas designated as SPZ1.

The additional discharge through an existing outfall at the Dambridge Wingham WTW would be into the Wingham and Little Stour Water Body (GB107040019570). This waterbody is at 'moderate ecological status', with activities linked to the water industry noted as a reason for not achieving good status. The risk of WFD compliance would be a key consideration and may present a risk to permitting.

3.6.3 Option 3

Within the areas that the new WTW is likely to be constructed, there are no areas of flood zone 2 and 3.

The pipeline route corridor for this option is located wholly within regions designated as SPZ3.

The option would involve the discharge of treated effluent to ground within a SPZ3 and the East Kent Chalk - Stour Water Body (GB40701G501500). This groundwater body holds a 'poor' overall status with water industry activities noted as a reason for not achieving good status.

The impact on WFD compliance and drinking water quality would be a key consideration and may present a risk to permitting.

3.6.4 Option 4

Within the areas that the new WTW is likely to be constructed, there are no areas of flood zone 2 and 3.

The proposed pipeline route is located wholly within regions designated as SPZ, up to a maximum designation of SPZ1.

The option would the transfer of treated effluent for discharge into Kent South Coastal water body (GB640704540001). This waterbody holds a 'moderate ecological status' with no identified risks from water industry activities. Subject to the final chosen location, the sea outfall may affect a bathing area (Deal Castle and St Margeret's Bay in within the study area). Deal Castle bathing water's latest annual classification was 'poor', while St Margeret's Bay was classed as 'excellent'. Effects on bathing water quality and risk to WFD compliance will be key considerations for permitting.

3.6.5 Option 5

Within the areas that the new WTW is likely to be constructed, there are no areas of flood zone 2 and 3.

The pipeline route corridor is located wholly within regions designated as SPZ, up to a maximum designation of SPZ1.

This option may present a risk to WFD compliance. The discharge would be upstream of the Upper Dour WFD water body (GB107040019490), which is currently at bad ecological status, and the Dour from Kearsney to Dover water body status (moderate ecological status). The River Dour is in hydraulic continuity with the groundwater and flows through a SPZ1. The risk to ground water quality and surface water quality could present difficulties for obtaining a discharge permit.

3.7 Air

3.7.1 Option 1

The existing outfall for Broomfield Bank WTW is in proximity to an AQMA. There is potential for increased HGV movements during the construction phase which may impact this AQMA.

3.7.2 Options 2 and 2A

Options 2 and 2A are not anticipated to intercept any AQMAs or CAZs. Increase in traffic and effects on air quality during construction will be a consideration for this option.

3.7.3 Option 3

Option 3 is not anticipated to intercept any AQMAs or CAZs. Increase in traffic and effects on air quality during construction will be a consideration for this option.

3.7.4 Option 4

Option 4 is not anticipated to intercept any AQMAs or CAZs. Increase in traffic and effects on air quality during construction will be a consideration for this option.

3.7.5 Options 5

Option 5 is not anticipated to intercept any AQMAs or CAZs. Increase in traffic and effects on air quality during construction will be a consideration for this option.

3.8 Climatic Factors

Carbon will be generated from materials used to construct the pipeline (embodied carbon), construction activities and from operation (e.g. pumping stations). All options have been reviewed to understand their potential carbon footprint. Annex E presents an analysis of the anticipated carbon emissions from construction of the six options with a summary of results included here. In addition, all options will need to consider climate resilience and adaptation through design as discussed below.

3.8.1 Option 1

The total capital carbon emissions for this option are estimated at 2,200tCO₂e. The majority of the capital carbon emissions result from the new 10km rising main, accounting for 65% of the total carbon emissions. Other carbon hotspots include the new preliminary treatment building and storm tank.

With respect to climate resilience, the reliance on and upgrade of an existing WTW and associated infrastructure provides less opportunity to ensure climate resilience, compared to a 'new build'.

3.8.2 Option 2 and 2A

The total capital carbon emissions for this option are estimated at 3,300tCO₂e. The majority of the capital carbon emissions are associated with the new 14km rising main, accounting for 62% of the total carbon emissions. Other carbon hotspots include the new final settlement tanks and storm tanks. The approximate carbon emissions for Option 2A are slightly higher due the difference in treatment infrastructure requirements.

With respect to climate resilience, the reliance on and upgrade of an existing WTW and associated infrastructure provides less opportunity to ensure climate resilience, compared to a 'new build'. In addition, these options lie adjacent to flood zones 2 and 3 and would be more susceptible to the risks of climate change through increased storm events.

3.8.3 Option 3

The total capital carbon emissions for this option are estimated at 1,700tCO₂e. This option has the lowest capital carbon emissions due to the comparatively shorter rising main length of 3.1km. Carbon hotspots include three new final settlement tanks, an aeration plant and a storm tank.

The development of a new WTW presents more potential to design features that are resilient to the effects of climate change. Design factors could include choice of materials to consider temperature variation resilience in structures and pipelines, avoiding flood zones and ensuring pipe design and cover is enough to withstand seepage from flooding into the pipes.

3.8.4 Option 4

The total capital carbon emissions for this option are estimated at 4,100tCO₂e. This option has the highest capital carbon emissions due to the construction of a new 3km sea outfall pipe, a rising main with a total length of approximately 7km as well as 2km gravity sewer, all of which account for 70% of the total carbon emissions. Other carbon hotspots include three new final settlement tanks and an aeration plant.

The development of a new WTW presents more potential to design features that are resilient to the effects of climate change. Design factors could include choice of materials to consider temperature variation resilience in structures and pipelines, avoiding flood zones, ensuring pipe design is enough to withstand seepage from flooding, and factoring in sea level rise when constructing the outfall.

3.8.5 Option 5

The total capital carbon emissions for this option are estimated at 2,000tCO₂e. The total capital carbon emissions for this option are one of the lowest due to the shorter 2.5km rising main, although it also includes a 2.7km gravity sewer. Other carbon hotspots include three new final settlement tanks and an aeration plant.

The development of a new WTW presents more potential to design features that are resilient to the effects of climate change. Design factors could include choice of materials to consider temperature variation resilience in structures and pipelines, avoiding flood zones and ensuring pipe design and cover is enough to withstand seepage from flooding into the pipes.

3.9 Landscape

No UNESCO Biosphere Reserves, UNESCO Global Geoparks or National Parks are present within the study area of any of the options.

3.9.1 Option 1

The Broomfield Bank WTW and outfall are located within the Kent Downs National Landscape, as is a large proportion of the pipeline route corridor. Upgrading the WTW in this location is likely to have significant impacts to the National Landscape and will likely need to be built underground (as with the existing WTW) to avoid permanent impact.

3.9.2 Options 2 and 2A

The study area for these options does not include the National Landscape.

The pipeline corridor crosses the North Downs Way National Trail, which will likely need to be closed and/or diverted during construction.

3.9.3 Option 3

This option is not anticipated to affect a National Landscape. However, the new WTW will be a sizeable new structure in the landscape, and depending on its confirmed location, could be visible from the North Downs Way National Trail that runs to the east of Whitfield new growth area. Mitigation for the effects on landscape character and visual amenity should be included in the design.

3.9.4 Option 4

The new WTW will be a sizeable new structure in the landscape, and depending on its confirmed location, could be visible from the North Downs Way National Trail that runs to the east of Whitfield new growth area. Mitigation for the effects on landscape character and visual amenity should be included in the design. The pipeline route will likely cross the National Trail and could also cross the Kent Downs National Landscape and Heritage Coast, which are located on the coast to the east of Whitfield.

3.9.5 Options 5

While avoiding the National Landscape, the new WTW will be a sizeable new structure in the landscape and mitigation for the effects on landscape character and visual amenity should be included in the design. Depending on the chosen location, the WTW could affect the setting of Temple Ewell conservation area.

3.10 Population, Communities and Human Health

3.10.1 Option 1

Upgrading the existing WTW which lies within a rural location is unlikely to affect any settlements. The 10km pipeline corridor includes multiple protected open spaces and should be designed to avoid these and in addition to avoiding settlements. Upgrading the sea outfall may lead to disruption to communities living on, working in or visiting this section of the coast.

3.10.2 Options 2 and 2A

The pipeline route corridor does not include any settlements or protected open spaces.

3.10.3 Option 3

Construction of the new WTW should be located so as to minimise impact on the settlement of Whitfield and its protected open spaces. The associated pipelines should, where possible, be designed to avoid Whitfield, periphery villages and hamlets and protected open spaces.

3.10.4 Option 4

Construction of the new WTW should be located so as to minimise impact on the settlement of Whitfield and its protected open spaces. The pipeline corridor for this option includes multiple protected open spaces and settlements and should be routed to avoid these. The area within which the outfall could be constructed includes a mixture of built-up towns and environmental designations. The Dover to Kingsdown SSSI and SAC lies between the outskirts of Dover and Kingsdown with the settlement of St Margaret's Bay lying in the middle. Avoiding these built-up areas could result in impacts to designated sites, and vice versa, and therefore the risk to these sensitivities should be carefully considered in design development.

3.10.5 Options 5

Construction of the new WTW should be located so as to minimise impact on the settlement of Whitfield and its protected open spaces. The associated pipelines should, where possible, be designed to avoid Whitfield, periphery villages and hamlets and protected open spaces.

3.11 Material Assets

All options originate from the 'Whitfield Growth' area which requires works to connect the area to the wider region's sewer system. These works are anticipated to have a relatively small resource requirement when compared to the overall options due to the small scale of these works.

3.11.1 Option 1

Option 1 requires the construction of 12km of new rising main and the expansion of a wastewater pumping station. The pipeline involved will cross one railway and one major road [REDACTED] with no crossings of main rivers.

Resource use will increase with the expansion of the WTW, and some waste is anticipated from the construction of new infrastructure. Where possible, this waste material will be re-used or recycled to reduce impacts.

3.11.2 Options 2 and 2A

Options 2 and 2A require the construction of 14km of new rural rising main and one new wastewater pumping station. Pipelines of options 2 and 2A do not involve the crossings of any railways, major roads or main rivers.

Resource use will increase with the rebuild of the WTW and some waste is anticipated from the construction of new infrastructure. Where possible, this waste material will be re-used or recycled to reduce impacts.

3.11.3 Option 3

Option 3 requires the construction of 2.3km of new rising main and one new wastewater pumping station. The option involves one major road crossing ██████████ and no rail or main river crossings.

Resource use will increase with the construction of the new WTW and some waste is anticipated from this process. Where possible, this waste material will be re-used or recycled to reduce impacts.

3.11.4 Option 4

Option 4 requires the construction of 2.3km of new rising main; 9.5km of new transfer main ██████████ ██████████; one new wastewater pumping station; and one new treated effluent pumping station. This option would involve extensive works along a major road ██████████ and crosses a railway.

Resource use will increase with the construction of the new WTW, pipeline and outfall, and some waste is anticipated from this process. Where possible, this waste material will be re-used or recycled to reduce impacts.

3.11.5 Option 5

Option 5 requires the construction of a 2.5km new wastewater rising main; one new wastewater pumping station; one new treated effluent pumping station; a 2.7km transfer to the River Dour; and a river outfall. This option would involve five major road crossings, ██████████. No rail or main river crossings would take place, but this option would intercept the River Dour for discharge.

Resource use will increase with the construction of the new WTW and some waste is anticipated from this process. Where possible, this waste material will be re-used or recycled to reduce impacts.

3.12 Summary of environmental appraisal of options

The following section summarises the key environmental risks and uncertainties associated with the options.

3.12.1 All options

The appraisal has identified the following risks that are common across all options:

- Risk of loss or damage to habitat and risk to protected species from construction of the new or upgraded WTW, pipeline and network infrastructure, and risks to designated sites.
- Risk of changes to water quality and flow resulting from additional discharge (at new or existing locations), with associated risk to ecology and water resources such as drinking water and to bathing waters. All options will require a new or amended permit.
- Risk to the historic environment from construction of a new or upgraded WTW, pipeline and outfall. Includes risk to designated and non-designated sites and archaeological remains.
- Risk of loss of the Best Most Versatile agricultural land.
- All options will require the use of material assets and generate material, which will require re-use or disposal.
- Construction of all options will result in carbon emissions, with key determining factors being the length of new pipeline and requirement for a new outfall.

For all options taken forward, the design needs to be developed alongside further environmental assessment to address the above risks and reduce uncertainties. This will include consideration of HRA and WFD compliance and permitting requirements, archaeology sensitivity, and carbon-reduction opportunities.

3.12.2 Option 1

The appraisal has identified the following key environmental risks associated with Option 1:

- Expanding the existing WTW has potential to impact ecological features located within the surrounding area to the site. The new 10km pipeline may intercept several statutory and non-statutory designations, depending on the final route. If the option requires an upgraded Broomfield Bank outfall at Dover at the current location, it could affect the Folkestone Warren SSSI and multiple areas of priority habitat (intertidal substrate foreshore, lowland calcareous grassland and maritime cliffs and slopes).
- Broomfield Bank WTW and outfall is located within the Kent Downs National Landscape. Upgrading the WTW and outfall in this location is likely to present risks to the National Landscape during construction. It is highly likely that, like the current WTW, the expansion would need to be constructed underground to minimise permanent impact.
- The expansion of Broomfield Bank WTW could result in the loss of ALC Grade 2 soil, and the pipeline route for this option may intersect ALC grade 1 soil which is 'excellent'.
- There are two historic landfills (Mount Ararat and Brickletons Wood) within the pipeline corridor, which should be avoided to avoid excavation of waste material.
- An additional discharge via the Broomfield Bank WTW could present a risk to water quality and WFD compliance for the South Kent Coast waterbody. There is a risk, but at this stage, it is considered moderate with mitigation established through permit conditions.
- The WTW expansion and pipeline and outfall construction could affect designated heritage assets, which the design should seek to avoid. The pipeline route should be designed to avoid the scheduled monument (Bowl barrow 200m south west of Little Watersend). If required, the upgrade of Broomfield Bank outfall will need to ensure the protection of nearby scheduled monuments, including Archcliffe Fort and the Fortifications, Roman lighthouse and medieval chapel on Western Heights.

The following activities should be undertaken to reduce environmental uncertainties associated with Option 1:

- Further assessment is required to understand the risk to biodiversity and seek to avoid or minimise significant impacts to designated site and priority habitat and species. Loss of habitat has consequences

for BNG delivery and is likely to result in higher overall project costs to accommodate the net gains required.

- The design should seek to avoid the cumulative loss of the Best Most Versatile agricultural land and protect soil quality through construction and operation. The pipeline route should be designed to avoid landfill sites.
- Further work to understand the WFD compliance risk associated with changes to the discharge at Broomfield Bank WTW, including consideration of permit requirements and engagement with the Environment Agency.
- Further work to understand risk to archaeology and heritage assets from the work, including setting risks to Church Hougham Conservation Area from the expanded WTW and risks to scheduled monuments at the outfall.

3.12.3 Options 2 and 2A

The appraisal has identified the following key environmental risks associated with Options 2 and 2A:

- The upgrades proposed to the Dambridge Wingham WTW have the potential to affect land with priority habitats, including coastal and floodplain grazing marsh and deciduous woodland. The pipeline route corridor also includes areas of priority habitat (deciduous woodland; good quality semi-improved grassland; coastal and floodplain grazing marsh; and traditional orchards).
- The options would include a substantial increase to the existing discharge to the Wingham River, which flows in the Great Stour via the Little Stour. The discharge could affect water quality and water flows and pose a risk to biodiversity and the water environment. The Wingham and Little Stour Water Body is at 'moderate' ecological status with pressures from water industry related activities noted as a reason for not achieving good status. The receiving water bodies may be hydrologically connected to the Stodmarsh SAC and Ramsar. This would need to be considered as part of any work to obtain a permit.
- The Dambridge Wingham WTW is located adjacent to Flood Zone 2 and 3. There is a risk that construction of new structures associated with the upgrade could result in increases to flood risk.
- The pipeline route will cross a National Trail (North Downs Way), which may result in the temporary closure or diversion of the National Trail during construction works.
- The WTW expansion and pipeline construction could pose a risk to designated and non-designated heritage assets, both built and below ground.

The following activities should be undertaken to reduce environmental uncertainties associated with Options 2 and 2A:

- Further assessment is required to understand the risk to biodiversity and develop the design to avoid or minimise significant impacts to priority habitat and species. Loss of habitat has consequences for BNG delivery and is likely to result in higher overall project costs to accommodate the net gains required.
- Further work to understand the WFD and HRA compliance risk associated with changes to the discharge at Dambridge Wingham WTW, including consideration of permit requirements and engagement with the Environment Agency.
- Works associated with upgrading the WTW would need to be designed to avoid increases in flood risk, with modelling undertaken if required.
- Further work to understand heritage assets potentially affected by the works. The pipeline route should be designed to avoid areas of high sensitivity, including those associated with the Scheduled Monument, rectangular earthwork in Shingleton Wood.

3.12.4 Option 3

The appraisal has identified the following key environmental risks associated with Option 3:

- Depending on its confirmed location, the site of the new WTW could result in loss or damage to ancient woodland and priority habitat, including deciduous woodland. The discharge to ground and associated pipeline would need consider risks to designated sites at Lydden and Temple Ewell Downs, including the SSSI, SAC and NNR, as well as areas of ancient woodland and priority habitats (Lowland Calcareous Grassland and good quality semi-improved grassland).

- The new discharge to ground could affect the geology and groundwater and impact the underlying East Kent Chalk WFD groundwater body, which is currently at Poor status. The discharge location could be within a Source Protection Zone 3 and nitrate vulnerable zone.
- The new WTW will be a sizeable new structure in the landscape, and depending on its confirmed location, could be visible from the North Downs Way National Trail that runs to the east of Whitfield new growth area.
- The new WTW and pipeline construction could pose a risk to designated and non-designated heritage assets, both built and below ground.

The following activities should be undertaken to reduce environmental uncertainties associated with Option 3:

- Further assessment is required to understand the risk to biodiversity and develop the design to avoid or minimise significant impacts protected sites and priority habitat and species. Loss of habitat has consequences for BNG delivery and is likely to result in higher overall project costs to accommodate the net gains required. A HRA assessment would be required to consider the risk to the SAC.
- The treatment process, discharge design will need to be developed alongside consideration for WFD and impacts to drinking water quality, with permitting requirements developed in consultation with the Environment Agency.
- The design should seek to avoid the cumulative loss of the Best Most Versatile agricultural land and protect soil quality through construction and operation.
- The design development of the WTW should consider landscape and visual impact, seeking a location and design which avoids or minimises effects on sensitive receptors, including the North Downs Way National Trail.
- Further work is required to understand heritage assets potentially affected by the works. The location of the new WTW and the pipeline route should be designed to avoid areas of high sensitivity, including where the setting of heritage assets could be affected by permanent structures.

3.12.5 Option 4

The appraisal has identified the following key environmental risks associated with Option 4:

- Depending on its confirmed location, the site of the new WTW could result in loss or damage to ancient woodland and priority habitat, including deciduous woodland. Depending on the final route of the approximately 10km pipeline, it could intercept several designations on the east Kent coast, including Dover to Kingsdown Cliffs SAC and SSSI, Dover to Deal MCZ and Kingsdown and Walmer Beach LWS. Construction of the outfall could cause loss or damage to nationally and locally identified priority habitats (intertidal chalk and vegetated shingle). Further considerations are required to understand the effects of this, including a HRA and WFD assessment.
- While the exact location of the new discharge to sea between Walmer and Dover is unconfirmed, the outfall could pose a risk to a designated bathing water, either Deal Castle (latest annual classification of 'Poor') or St Margaret's Bay (latest annual classification of 'Excellent'). The risk of impact to the WFD coastal waterbody due to the discharge will also need to be considered, although mitigation would be developed via the permitting process.
- Depending on the location of the new outfall, construction could also affect towns and built-up areas causing disruption to residents.
- Construction of the new WTW could result in the loss of ALC Grade 2 soil and the pipeline corridor for this option includes ALC Grade 1 soil which is 'excellent'.
- There is one historic landfill () within the pipeline corridor, which should be avoided to avoid excavation of waste material.
- The new WTW, pipeline and outfall construction could pose a risk to designated and non-designated heritage assets, both built and below ground. This includes Grade II listed buildings potentially close to the new WTW, and a scheduled monument (Medieval manor house, Walmer), five conservation areas (East Langdon, Martin, Upper Walmer, South Barracks Deal and Walmer Seafront) and a registered park (Walmer Castle) within the pipeline corridor and section of Kent coast where the outfall could be.

- The new WTW will be a sizeable new structure in the landscape, and depending on its confirmed location, could be visible from the North Downs Way National Trail that runs to the east of Whitfield new growth area. The pipeline route will likely cross the National Trail and could also cross the Kent Downs National Landscape and Heritage Coast, which are located on the coast to the east of Whitfield.

The following activities should be undertaken to reduce environmental uncertainties associated with Option 4:

- The design of the new outfall requires careful consideration supported by environmental information, to find the optimal location which minimises effects on biodiversity and designated sites, built-up areas of high population, bathing water areas and sensitive areas for landscape and heritage.
- Further assessment to understand the risk to biodiversity and develop the design to avoid or minimise significant impacts protected sites and priority habitat and species, including within the marine environment. The location and design of the outfall should consider HRA implications and seek to avoid impact to designated sites. Loss of habitat has consequences for BNG delivery and is likely to result in higher overall project costs to accommodate the net gains required.
- Further work to understand the WFD compliance risk and risk to Bathing Waters associated with the new coastal discharge between Walmer and Dover, including consideration of permit requirements and engagement with the Environment Agency.
- The design should seek to avoid the cumulative loss of the Best Most Versatile agricultural land and protect soil quality through construction and operation, including through the siting of the new WTW. The pipeline route should be designed to avoid landfill sites.
- Further work is required to understand heritage assets potentially affected by the works. The location of the new WTW, pipeline and outfall should be designed to avoid areas of high sensitivity, including where the setting of heritage assets could be affected by permanent structures.
- This is likely to result in the temporary closure of the National Trail during construction works and should be mitigated. In addition, visual impact associated with locating a new WTWs will need considering and mitigation sought where appropriate.
- Further assessment on the likely effects on landscape and visual amenity is required. The design development of the WTW, pipeline and outfall should seek a design which avoids or minimises effects on sensitive receptors, including the National Landscape and Heritage Coast and the North Downs Way National Trail.

3.12.6 Option 5

The appraisal has identified the following key environmental risks associated with Option 5:

- Depending on its confirmed location, the site of the new WTW could result in loss or damage to ancient woodland areas and priority deciduous woodland habitat. The pipeline corridor for Option 5 includes designated sites at Lydden and Temple Ewell Downs, including the SSSI, SAC and NNR, as well as areas of ancient woodland and priority habitats (lowland calcareous grassland and good quality semi-improved grassland).
- The new discharge for this option would be into the River Dour, a chalk stream, which is likely to result in risks to biodiversity from changes to water flow and quality impacting aquatic and riparian species.
- The discharge would be upstream of the Upper Dour WFD water body, which is currently at bad ecological status, and the Dour from Kearsney to Dover water body status (moderate ecological status). The River Dour is in hydraulic continuity with the groundwater and flows through a SPZ1. The risk to ground water quality and surface water quality could present difficulties for obtaining a discharge permit.
- Construction of the new WTW could result in the loss of ALC Grade 2 soil.
- The new WTW will be a sizeable new structure in the landscape. Depending on the chosen location, the location of the WTW could affect the setting of the Grade II listed buildings or Temple Ewell conservation area.

The following activities should be undertaken to reduce environmental uncertainties associated with Option 5:

- Further assessment to understand the risk to biodiversity and develop the design to avoid or minimise significant impacts protected sites and priority habitat and species. The location and design of the WTW, pipeline and river discharge will need to consider HRA implications and seek to avoid impact to designated sites. Loss of habitat has consequences for BNG delivery and is likely to result in higher overall project costs to accommodate the net gains required.
- The treatment process, discharge design will need to be developed alongside consideration for WFD and impacts to drinking water, with permitting requirements developed in consultation with the Environment Agency.
- The design should seek to avoid the cumulative loss of the Best Most Versatile agricultural land and protect soil quality through construction and operation, including through the siting of the new WTW.
- Further assessment on the risks to landscape and visual amenity is required, as well on the risks to heritage from construction of the WTW and pipeline, to minimise effects and inform design development.

4 Solution development

4.1 Introduction

This section sets out the additional work that has been undertaken in order to further understand the environmental and social performance of Option 4, referred to as the 'PR24 preferred option'.

4.2 Actions to manage environmental issues

The key environmental risks and activities to reduce environmental uncertainties have been identified for the PR24 preferred option (Section 3.10.5), Table 4.1 below provides a plan to manage these issues as well as some headline general issues that will steer effective consideration of environmental and social performance as the scheme develops. Consideration of potential impacts will inform the decision as to whether an Environmental Impact Assessment (EIA) is required. This process is EIA screening. More information on EIA is set out in Section 5.

Table 4.1: Management plan for environmental issues

Scheme element	Environmental constraint	How will this be managed	Next steps
General			
All	A number of environmental constraints have been identified to date in developing pipeline route corridors and feasibility for locating a WTW.	Undertake a Route and Site Selection exercise in order to identify sites and routes where environmental constraints can be avoided, managed or mitigated.	Develop Route and Site Selection exercise - see section 4.4
All	The size and scale of the development is likely to trigger the need for an Environmental Impact Assessment (EIA).	Assume that an EIA will be required for the purposes of programme. Engagement with local planning authority on screening opinion.	See section 5.2.1 – Environmental Impact Assessment
All	There is uncertainty as to whether the scheme would increase the risk of Invasive and Non-Native Species.	As the design develops, keep the need for a risk assessment under review.	See section 5.6 – Invasive and Non-Native Species
Outfall	A key constraint is likely to be the discharge permit for the final effluent.	Discussions with the Environment Agency	See section 5.7 - Permits
Biodiversity			
WTW	Could result in loss or damage to ancient woodland and priority habitat, including deciduous woodland.	Scheme design to avoid designated sites wherever practicable. A BNG assessment will be undertaken as the Scheme develops, and the calculations backed by policy drivers used to inform scheme design. Appendix B	Consideration of effects from WTW to inform EIA screening. Preliminary Ecological Appraisal and site surveys to inform presence of notable habitats and species. The appraisal will consider direct loss, as well as indirect impacts as a result of the scheme.

		sets out the approach in more detail.	Protected species licensing requirements considered where relevant. BNG assessment of the Scheme to achieve 10% net gain.
Pipeline	Depending on the final route of the approximately 8km pipeline, it could intercept several designations on the east Kent coast, including Dover to Kingsdown Cliffs SAC and SSSI, Dover to Deal MCZ and Kingsdown and Walmer Beach LWS. It is likely that the pipeline will cross agricultural fields and is likely to impact upon hedgerow and trees, as well as ponds and drainage ditches.	Scheme design to avoid designated sites wherever practicable. Consultation with Natural England and Kent District Council specific mitigation. A BNG assessment will be undertaken as the Scheme develops, and the calculations backed by policy drivers used to inform scheme design. Appendix B sets out the approach in more detail.	Undertake HRA and WFD Stage 1 screening, see section 5.2.2 and 5.2.3 for more information. Consideration of effects from WTW to inform EIA screening. Preliminary Ecological Appraisal and site surveys to inform presence of notable habitats and species. The appraisal will consider direct loss, as well as indirect impacts as a result of the scheme. Protected species licensing requirements considered where relevant. Works potentially affecting trees and works within the root protection zone should be informed by an arboricultural assessment and a check for Tree Preservation Orders/Conservation Area status which will identify any required mitigation measures.
Outfall	Construction of the outfall could cause loss or damage to nationally and locally identified priority habitats (intertidal chalk and vegetated shingle). Dover to Deal Marine Conservation Zone lies on the coast between Langdon Bay near Dover and Kingsdown.	Scheme design to consider avoiding designated sites. Parts of the scheme will be below mean high water level and therefore a Marine Licence will be required. Consultation with the MMO, Natural England and the Environment Agency to understand effects of LSO location and discharge.	Review if Marine Conservation Zone Assessment is required. Marine Licence application required, with supporting assessments including HRA and WFD. Consideration of effects from outfall to inform EIA screening.
Soil and Geology			
WTW and pipeline	Construction of the new WTW could result in the loss of ALC Grade 2 soil and the pipeline corridor for this option includes ALC Grade 1 soil which is 'excellent'.	Scheme design to avoid Best Most Versatile land where possible.	Consideration of effects from WTW and pipeline to inform EIA screening.
Cultural Heritage			
WTW, pipeline and outfall location	The new WTW, pipeline and outfall construction could pose a risk to designated and non-designated heritage assets, both built and	Scheme to avoid designated and protect historic assets wherever practicable. Consultation with specialist	When carrying out capital projects SWS policy is to engage archaeological specialists and follows their advice. Archaeological desktop study and site surveys likely to required.

	below ground. This includes Grade II listed buildings potentially close to the new WTW, and a scheduled monument (Medieval manor house, Walmer), five conservation areas (East Langdon, Martin, Upper Walmer, South Barracks Deal and Walmer Seafront) and a registered park (Walmer Castle) within the pipeline corridor and section of Kent coast where the outfall could be.	archaeologists, potentially County Archaeologist, Historic England and Local Authority to understand any potential effects and likelihood for presence of unknown features.	
Water			
WTW and Pipeline	The proposed pipeline route for Option 4 is located wholly within regions designated as SPZ, up to a maximum designation of SPZ1. The coast between Dover and Walmer lies within Flood Zones 2 and 3 and the pipeline would intersect these.	WTW scheme design to avoid flood zones and source protection areas where possible. Best practice measures and flood alleviation methodologies should be considered to reduce the impacts on local flood risk, with the undertaking of a flood risk assessment for the chosen option advised. The risk of impact to WFD surface waterbodies that are deemed likely to be mitigated through permit conditions are anticipated. Consultation with the EA and potential mitigation may be required with regards to flood risk and SPZ.	Undertake WFD Stage 1 screening, see section 5.2.3 for more information. Potential impact on SPZs will be assessed and mitigated to ensure the development is acceptable. Flood Risk Assessment if located within Flood Zones 2 or 3. Consideration of effects from WTW and pipeline to inform EIA screening.
Outfall	While the exact location of the new discharge to sea between Walmer and Dover is unconfirmed, the outfall could pose a risk to a designated bathing water, either Deal Castle (latest annual classification of 'Poor') or St Margaret's Bay (latest annual classification of 'Excellent'. The risk of impact to the WFD coastal waterbody due to the discharge will also need to be	Scheme design to minimise risk to bathing areas and vulnerable WFD waterbodies.	Undertake WFD Stage 1 screening, see section 5.2.3 for more information. Consideration of effects from outfall to inform EIA screening. See section 5.7 - permits

	considered, although mitigation would be developed via the permitting process. As part of the proposed works will be below mean high water level.	A Marine Licence will be required. Additional licences may be required for works within the marine area.	
Air			
WTW, pipeline and outfall.	Not anticipated to intercept any AQMAs or CAZs.	Increase in traffic during construction will be a consideration for this option.	Consideration of effects from new WTW, pipeline and outfall to inform EIA screening.
Carbon and climate resilience			
Pipeline	The total capital carbon emissions have been estimated.	Design factors could include choice of materials to consider temperature variation resilience in structures and pipelines, avoiding flood zones when designing pipeline routes and ensuring pipe design and cover is enough to withstand seepage from flooding into the pipes.	Carbon and Climate Resilience assessment to be updated and inform scheme design as it progresses. A Carbon Reduction Plan will be established. Please see section 5.5 for more details. Consideration of effects from pipeline to inform EIA screening.
Outfall	The largest proportion of carbon from infrastructure assets comes from the 3km sea outfall.	Design factors will include choice of materials.	Carbon and Climate Resilience assessment to be updated and inform scheme design as it progresses. A Carbon Reduction Plan will be established. Please see section 5.5 for more details. Consideration of effects from outfall to inform EIA screening.
Landscape			
WTW	The new WTW will be a sizeable new structure in the landscape, and depending on its confirmed location, could be visible from the North Downs Way National Trail that runs to the east of Whitfield new growth area.	Scheme design to ensure visual impact will be as positive as practicable. Visual impact during construction and operation should be considered further.	Consideration of effects from WTW to inform EIA screening.
Pipeline	The pipeline route will likely cross the National Trail and could also cross the Kent Downs National Landscape and Heritage Coast, which are located on the coast to the east of Whitfield.	Scheme design to avoid protected landscapes. Visual impact during construction should be considered further. Consultation with the Kent Downs Unit. Construction methodology to ensure rapid reinstatement of the pipe route.	Consideration of effects from pipeline to inform EIA screening.
Population, communities and health			

WTW, pipeline and outfall	The pipeline route will likely cross several Public Right of Way (PRoW) and a National Trail. Depending on the location of the new outfall, construction could also affect towns and built up areas causing disruption to residents.	Scheme design to avoid protected open spaces and settlements where possible. Maintain access to PROWs and a National Trail during construction of the pipeline. Temporary closures to be obtained from the Local Authority.	Consideration of effects from WTW, pipeline and outfall to inform EIA screening.
Material assets			
WTW, pipeline and outfall	This option would involve extensive works along a major road (A256) and crosses a railway. Resource use will increase with the construction of the new WTW and some waste is anticipated from this process.	Consultations with National Rail will be required. A Waste Management Plan should be developed to identify best practices for dealing with waste, including re-use or recycling to reduce impacts.	Consideration of effects from WTW, pipeline and outfall to inform EIA screening. Waste Management Plan.

Section 5 identifies the further environmental assessments that are anticipated to be required.

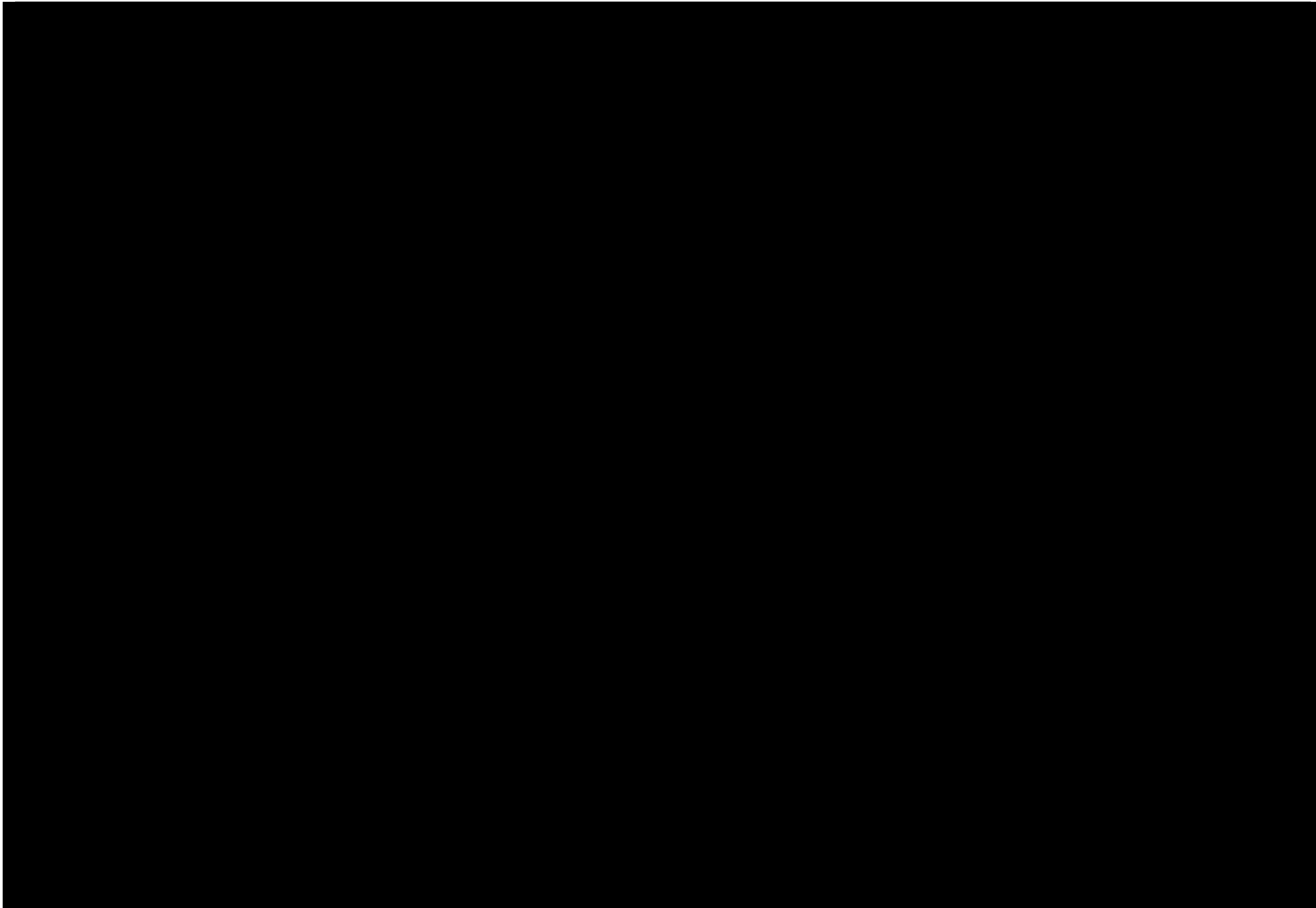
4.3 Route and Site Selection

Indicative work has been undertaken in considering potential locations for new infrastructure as part of scoping different options. This work has also helped to identify some of the environmental constraints that may influence the feasibility of different options.

In taking forward the preferred option, a comprehensive route and site selection exercise will be required. This will help to ensure that environmental constraints are considered from the outset, and as many of these are avoided as possible. Where it is not possible to avoid constraints, this approach will help to supplement work already undertaken to identify management and mitigation approaches. This work will also help to focus risk management exercises – specific investigations, surveys or stakeholder engagement – where key constraints exist.

Figure 4-1 below shows the results of overlaying a number of environmental constraints (see Appendix A) to identify those areas of land that are relatively free of environmental constraints (in green) and those areas of land that are more constrained (in red).

Figure 4.1: Whitfield Growth Environmental Constraints Mapping



4.4 Stakeholder Engagement

The approach to stakeholder engagement is set out in Annex E1: Stakeholder Engagement Plan. This includes engagement with key environmental organisations including:

- Environment Agency: Ongoing project updates, water and biodiversity, permits,
- Natural England: Potential effects on designated sites,
- Kent County Council (Planning Authority for waste development): biodiversity, including approach to Biodiversity Net Gain,
- Historic England and Local Authority: Potential effects on heritage and archaeological assets,
- Kent Downs National Landscape Unit: Potential effects on National Landscape.

5 Further assessment

5.1 Introduction

This section sets out the further environmental assessments that are expected to be required in progressing the PR24 preferred option.

5.2 Regulatory Assessments

5.2.1 Environmental Impact Assessment

A scheme that includes a new wastewater treatment works (exceeding 1ha), pipeline (long distance aqueduct) and long sea outfall falls under Schedule 2 of the Town and Country Planning (Environmental Impact Assessment) Regulations 2017 and may well be assessed as EIA Development.

EIA screening is required to determine if the works are Schedule 2 development. The need for an EIA will be determined by the local planning authority. For the purpose of the scheme delivery plan, it is assumed that an EIA will be required.

On the basis that an EIA is required, it is anticipated that an EIA Scoping Report would be produced once more certainty on the location, land requirements and capacity of the infrastructure is known. Surveys and assessments are often undertaken in advance of submitting an EIA Scoping Report, as results help to provide evidence on the likely significance of impacts which can allow scoping out of some topics.

Producing the EIA is likely to take between 12 and 18 months.

5.2.2 Habitat Regulations Assessment

A review of the Designated Sites found within a 10km Zone of Influence (Zol) of the PR24 preferred option identifies the following for consideration:

- Lydden & Temple Ewell Downs (SAC) UK0012834
- Dover to Kingsdown Cliffs (SAC) UK0030330
- Sandwich Bay (SAC) UK0013077
- Thanet Coast & Sandwich Bay (Ramsar site) UK11070
- Thanet Coast and Sandwich Bay (SPA) UK9012071
- Thanet Coast (SAC) UK0013107
- Outer Thames Estuary (SPA) UK9020309
- Margate and Long Sans (SAC) UK0030371

HRA takes a precautionary approach and therefore acknowledges the potential effects arising from construction activities and operational uncertainties associated with the proposed scheme. As such, assessment is required to determine the implications for Designated Sites listed above.

As the optioneering and design evolves, a HRA report will be prepared. This can then be shared with the relevant nature conservation authority, Natural England (NE), for consultation. Further iterations of the option and design will require revisions to this document, which may result in changes to the current conclusion.

5.2.3 Water Framework Directive Assessment

A WFD assessment will identify potential for negative effects on the water quality, ecological status and hydromorphology of WFD designated waterbodies under The Water Environment (WFD) (England and Wales) Regulations 2017.

An initial review of the potential for construction activities for the WTW, outfall pipeline and construction and operation of the LSO finds that there could be potential to impact the following waterbodies:

- North and South Streams at Northbourne – *river*,
- North and South Streams at Lydden Valley – *river*,
- Upper Dour – *river*,
- Dour from Kearsney to Dover – *river*,
- North and South Streams at Eastry – *river*,
- East Kent Chalk (Stour) – *groundwater*,
- Kent South – *coastal*,
- Kent North – *coastal*,
- Stour (Kent) – *transitional*.

WFD takes a precautionary approach and therefore acknowledges the potential effects arising from construction activities and operational uncertainties associated with the proposed LSO. As such, assessment is required to determine the implications for the WFD waterbodies listed above. Accordingly, as the Scheme progresses, WFD assessment at screening stage, is likely to be required.

5.3 Natural and Social Capital

Considering natural and social capital benefits is part of Southern Water's approach to identifying best value solutions (Risk and Value process). Natural and social capital value is calculated by rating the impact of the solution or solution options on ecosystem services and other priority factors:

- Waterbodies regulated by the Water Framework Directive and potential changes to their status'
- Designated bathing waters and potential changes to the expected level of bathing water quality
- Land use change (informed by the type of asset being proposed)
- Global climate regulation (carbon sequestration)
- Natural hazard regulation (flooding and erosion)
- Impacts on biodiversity
- The level of public trust / institutional support
- Engagement, networks and partnerships

5.4 Biodiversity Net Gain

The scheme will require specific planning permission under the Town and Country Planning Act 1990 and as such will be subject to the mandatory requirement to deliver a minimum of 10% Biodiversity Net Gain (BNG).

This is a waste scheme falls that within the responsibility of Kent County Council (KCC) as the minerals and waste planning authority. KCC will determine BNG considerations. Current policy within KCC's Local Plan³ requires all major development to achieve at least 10% BNG and should be supported by a draft Biodiversity Gain Plan and relevant supporting reports that demonstrate net gain can be achieved, implemented, managed and maintained.

If the scheme is located within the administrative boundary of Dover District Council then Dover District Council's – Local Plan to 2040 would be taken into consideration. Policy Natural Environment 1 Biodiversity Net Gain outlines the requirements which developments must undertake with regards to BNG. The Local Plan outlines that:

- Development proposals must provide a minimum of 10% BNG.
- Proposals for BNG should be delivered on-site, taking into account local green infrastructure priorities set out in the Local Nature Recovery Strategy, the Dover District Green Infrastructure Strategy and the Kent Biodiversity Strategy.

³ Kent County Council (2024). Kent Minerals and Waste Local Plan. Available online: [Minerals and waste planning policy - Kent County Council](#) [Accessed on 11th August 2025]

- Development proposals must provide sufficient BNG information to satisfy the Council that the BNG requirement is capable of being successfully discharged. This should include a draft Biodiversity Gain Plan and draft Habitat Management and Monitoring Plan.
- The Council will encourage BNG that helps deliver nature-based solutions to climate change as well as biodiversity loss.

The scheme will embed local policy requirements published by Dover District Council into the BNG Design thereby meeting any specific BNG requirements.

In the event that specific details of a project are unknown, high-level assumptions will be used to run the SBM to identify likely BNG scenarios for the scheme. Assumptions for the high-level BNG assessment could include the following:

- 100% of on-site habitats to be lost as a result of the scheme.
- All habitats assumed to be of a good condition and of high strategic significance. This would adopt a precautionary approach and a worst-case assessment for delivering BNG.
- Areas identified as woodland could be classified as lowland mixed deciduous woodland (high distinctiveness habitat) in the SBM. This would adopt a precautionary approach in the absence of field survey data.

These high-level assumptions will create conservative-case scenarios for BNG that can then be used to influence and refine the scheme designs. Future iterations of the BNG assessment will evolve this high-level assessment by collating additional information (as field surveys are undertaken and further data becomes available) as the design of the scheme develops.

Once the habitat baseline has been established, the data collected will be used in conjunction with the following list to consider the most suitable options for BNG delivery and to further aid with the design of the scheme:

- Avoidance of irreplaceable habitats,
- Reduction in the loss of on-site biodiversity units,
- Temporary impacts and reinstatement,
- Consideration of the current and future land use of the site,
- Consideration of local and wider biodiversity benefits,
- Environmental and non-environmental constraints,
- Off-site BNG delivery.

The approach to BNG Assessment is set out in Appendix B.

5.5 Carbon and Climate Resilience

A Carbon and Climate Resilience Assessment has been completed for the construction elements of the scheme. The assessment will require further refinement as the scheme progresses to improve the accuracy of the results and operational carbon will need to be taken account of. This will be an iterative process whereby measures identified to reduce carbon emissions and to build in climate resilience will inform design, and as designs progress the assessment will be updated to account for any changes.

Capital carbon opportunities for the scheme have been identified and should be informed by the following assessments:

- Review of whole life assessment of reinforced concrete vs steel to inform decisions to select the process unit tank, and any other alternatives (in the event that nature-based solutions are not applied).
- Review of pipework material choices to inform selection and whole life carbon impact of these.
- Initiate review and planning to set guidelines or potentially limits of carbon intensity for key materials (such as concrete, rebar, pipelines and structural steel elements).
- Initiate plan and review of key elements of construction.

Operational carbon will require assessment and could include:

- Inclusion of process emissions monitoring in design and review of options to utilise data to optimise processes which can reduce N₂O emissions from secondary treatment.
- Review and embedding of best practice guidance into designing for reduced fugitive emissions in sludge handling, storage and treatment facilities and into operational maintenance plans.
- Renewable power opportunities either through self-generation, Power Purchase Agreements (PPAs) or other procurement or co-development opportunities.
- Engagement with supply chain on chemicals to understand carbon intensity of production processes and potential to identify where production is lower carbon, and review of alternative lower carbon chemicals if available.
- Waste disposal plan review - there have been attempts to process grit and some screenings for beneficial reuse, such as into road construction, with variable results, but with potential to generate value from a waste product.

A Carbon Reduction Plan will be established to track design changes and demonstrate how carbon has been managed. The approach to carbon management will be aligned with SWS organisational commitments to PAS 2080 (whole life carbon management in infrastructure).

Climate resilience will need to be an ongoing consideration in the design evolution. This includes ensuring that climate change assumptions in capacity are taken into account, consistent with the approach adopted for all assets in Southern Water's Drainage and Wastewater Management Plan. In addition, considering how design components would be resilient to the effects of climate change will form part of the design process. This will also consider the potential for new infrastructure associated with the scheme to increase climate risks to surrounding land uses.

5.6 Permits

The table below identifies other potential consents and licences that may be required in addition to the planning permission, to manage environmental and social impacts.

The key permit for the development will be the Environmental Permit required for the new water discharge activity (discharging the final treated effluent to the sea). This will need to be discussed and agreed with the Environment Agency.

Table 5.1: potential consents and licences

Activity	Consent / Licence	Responsible body
Works that could disturb European Protected Species and non European Protected Species	European Protected Species Licence CRow Assent	Natural England
Works affecting an important hedgerow	Hedgerow Removal	Dover District Council
Works to trees with Tree Preservation Orders	Tree Preservation Order Consent	Dover District Council
Requirement to temporarily close a Public Right of Way (PRoW)	Temporary Closure Order	Dover District Council
Operating wastewater facility	Environmental Permit	Environment Agency
New water discharge activity	Standard or Bespoke Environmental Permit	Environment Agency
Approval for noise generating activities during construction	Section 61 consent (noise and / or vibration)	Dover District Council
Applications for road closures and other restrictions which	Temporary Traffic Regulation Order	Kent County Council

require a Temporary Traffic Regulation Order (TTRO)		
Works affecting Network Rail Land (Within 15m)	Asset Protection Agreement	Network Rail
Works within Common Land	Section 38 Consent	Planning Inspectorate (on behalf of DEFRA)
Marine activities within 12 miles of the UK coast	Marine Licence	Marine Management Organisation
Works involving physical interaction with the seabed or foreshore on Crown Estate Land	Crown Estate lease/licence/agreement	Crown Estate

Appendices

A Constraints Mapping

Table Error! No text of specified style in document..1: List of environmental datasets used to inform the constraints map

Constraint	Buffer (metres)
Air Quality Management Areas	None
Ancient woodland	15
Authorised landfill sites	None
Built-up extents	None
Country Parks	None
Countryside and Rights of Way Act 2000 - Section 15 Land	None
Flood defences	6
Flood Storage Areas	None
Flood Zone 2	None
Flood Zone 3	None
Functional Site (biodiversity)	None
Gas Pipeline SGN Low Pressure	10
Gas Pipeline SGN Medium	10
Grade 1 or 2 agricultural land	None
Green Belt	None
Greenspace	None
Historic landfill sites	None
Important Building	None
Listed Buildings	100
Local Nature Reserve	100
Main rivers	25
Marine Conservation Zone	None
National Landscapes (formerly Areas of Outstanding Natural Beauty (AONB))	100
National Nature Reserves (NNR)	100
Priority Habitat Inventory (Locally Identified)	None
Priority Habitat Inventory (National)	None
Protected Wrecks	None
Public Rights of Way	5
Rail	25
Ramsar Sites	100
Registered Battlefields	100
Registered Parks and Gardens	100
Road (A Road, B Road, Minor Roads)	20m A road, B Road, 10m minor road
S4 Conclusive Registered Common Land	None
Scheduled Monuments	100
Sites of Special Scientific Interest (SSSI)	100
Special Areas of Conservation (SAC)	100
Special Protection Areas (SPA)	100

Tree Preservation Orders	25
Waterbodies and Watercourses)	None
Waterlines	12
World Heritage Site	100
Zones 1 Source Protection Zone	None

B Biodiversity Net Gain Approach

B.1. National policy

The scheme is anticipated to require planning permission consent under the Town and Country Planning Act 1990 and as such will be subject to the mandatory requirement to deliver a minimum of 10% Biodiversity Net Gain (BNG).

Schedule 7A of the Town and Country Planning Act 1990 (as inserted by Schedule 14 of the Environment Act 2021) sets out the key components of mandatory BNG in England. The mandatory BNG requirement is for development to have a measurably positive impact (10% net gain) on biodiversity, compared to what was there before development. The Statutory Biodiversity Metric (SBM) is used to calculate biodiversity value for the purposes of demonstrating that a scheme will achieve BNG. The SBM uses habitat information to generate Biodiversity Units (BUs), a proxy measure for biodiversity value.

Under mandatory BNG, the Biodiversity Gain Hierarchy (set out in Articles 37A and 37D of the Town and Country Planning (Development Management Procedure) (England) Order 2015) sets out a list of priority actions:

- First, in relation to onsite habitats which have a medium, high and very high distinctiveness (a score of four or more according to the SBM), the avoidance of adverse effects from the development and, if they cannot be avoided, the mitigation of those effects; and
- then, in relation to all onsite habitats which are adversely affected by the development, the adverse effect should be compensated by prioritising in order, where possible, the enhancement of existing onsite habitats, creation of new onsite habitats, allocation of registered offsite gains and finally the purchase of statutory credits.

The Biodiversity Gain Hierarchy is a material consideration for Local Planning Authorities (LPAs) when determining whether to approve a Biodiversity Gain Plan (see Table **Error! No text of specified style in document.**2). Therefore, the project must clearly outline how the Biodiversity Gain Hierarchy has been applied at the planning application stage.

B.1.1 Local Policy

This is a waste scheme and falls within the responsibility of Kent County Council (KCC) as the minerals and waste planning authority. Current policy within KCC's Local Plan⁴ requires all major development to achieve at least 10% BNG and should be supported by a draft Biodiversity Gain Plan and relevant supporting reports that demonstrate net gain can be achieved, implemented, managed and maintained.

B.1.2 Overview

To inform BNG requirements, a high-level BNG assessment will be undertaken at the outset of the project. This high-level BNG assessment will use desk study data and will be undertaken prior to surveys in order help with the estimation of the requirements for habitat compensation and replacement.

B.1.3 Zone of Influence

The Zone of Influence (Zoi) for the high-level BNG assessment will be defined as the area likely to be altered or changed as a result of the scheme, resulting in a potential change to the existing habitats. For the high-level BNG assessment this will be defined as the likely planning application red line boundary for the scheme (hereafter referred to as the site).

⁴ Kent County Council (2024). Kent Minerals and Waste Local Plan. Available online: [Minerals and waste planning policy - Kent County Council](#) [Accessed on 11th August 2025]

B.1.4 Desk-Based Assessment

The high-level BNG assessment will primarily use desk-based resources such as Living England data, Ordnance Survey MasterMap and the Multi-Agency Geographic Information for the Countryside (MAGIC). A combination of these data sets will be used to compare and ascertain the most likely habitat types within the site.

To enable the SBM calculation of the site, the baseline UK Habitat Classification (UKHab) types identified during the desk-based assessment will be translated, where required, into the habitat types within the SBM.

If specific details of a project are unknown, high-level assumptions will be used to run the SBM to identify likely BNG scenarios for the scheme. Assumptions for the high-level BNG assessment could include the following:

- 100% of on-site habitats to be lost as a result of the scheme.
- All habitats assumed to be of a good condition and of high strategic significance. This would adopt a precautionary approach and a worst-case assessment for delivering BNG.
- Areas identified as woodland could be classified as lowland mixed deciduous woodland (high distinctiveness habitat) in the SBM. This would adopt a precautionary approach in the absence of field survey data.

These high-level assumptions will create worst-case scenarios for BNG that can then be used to influence and refine the scheme designs. Future iterations of the BNG assessment will evolve this high-level assessment by collating additional information (as field surveys are undertaken and further data becomes available) as the design of the scheme develops.

B.1.5 Detailed Biodiversity Net Gain Assessment

B.1.5.1 Overview

Once the design of the scheme has been developed further a more detailed BNG assessment will be undertaken which will build upon the high-level BNG assessment.

This stage of the BNG assessment is an iterative process. It is anticipated that the BNG Ecologist and Landscape Architect will work with the project design team to follow good practice for BNG and achieve BNG that is feasible over the minimum 30 years. Having regular interdisciplinary meetings will ensure the schemes design teams have a clear understanding of the BNG requirements of the scheme and will enable informed decision making that can reduce permanent impacts to biodiversity and reduce the loss of biodiversity units (BUs) throughout the scheme's development and construction.

B.1.5.2 Habitat Survey

To further build upon the high level BNG assessment a habitat survey of the site will be undertaken.

A habitat condition assessment survey using the SBM Technical Annex 1: Condition Assessment Sheets and Methodology and in accordance with the UKHabs Version 2.0 will be undertaken of the site by a suitably experienced ecologist. Habitat surveys will be undertaken at an appropriate time of year (e.g. grasslands ideally surveyed in May – July). Undertaking a desktop study outlined in the high level BNG assessment section above will help to identify the likely habitats present within the site to help with optimal survey timings.

Each habitat within the site will be assigned a habitat condition score of 'Good', 'Moderate' or 'Poor' condition based on the number of condition assessment criteria passed. In addition, the application of local policy requirements and initiatives inform the strategic significance level of each habitat parcel. Strategic significance is the local significance of the habitat based on its location and the habitat type. Where a Local Nature Recovery Strategy (LNRS) has been published (draft LNRS for Kent has been published), this should be used to assign the strategic significance for each habitat parcel. If an LNRS has not yet been published,

the relevant LPA should specify alternative documents for assigning strategic significance which Kent County Council has published⁵.

Once this data has been collected, this data will be input into the SBM to establish an accurate baseline of the site and to further identify an appropriate BNG delivery route with the Project Team.

B.1.5.3 Additional BNG Considerations

Once the habitat baseline has been established, the data collected will be used in conjunction with the following list to consider the most suitable options for BNG delivery and to further aid with the design of the scheme:

Avoidance of Irreplaceable Habitats

Irreplaceable habitats are very difficult (or take a very long time) to restore, create or replace once it has been destroyed. Any irreplaceable habitats identified within a site which might be subject to potential adverse impacts as a result of a Proposed Development will be discussed with the project team at the design stage.

In addition, the 10% BNG requirement does not apply when there is loss of irreplaceable habitat because it would be impossible to achieve. Instead, adverse impacts would need to be minimised and a compensation strategy agreed with Kent County Council.

B.1.5.4 Reduction in the loss of On-Site biodiversity units

In line with best practice guidance outlined in both the Biodiversity Gain Hierarchy and the Mitigation Hierarchy⁶; the avoidance of impacts from development to on-site habitats should be the first priority when designing any scheme and should be the first step within the BNG design process. Once all reasonable alternatives have been exhausted, then only should mitigation and compensation for habitats be explored.

Avoidance to areas of statutory designated sites (e.g. SSSIs, SACs, SPAs) and areas of irreplaceable habitats should be prioritised.

The avoidance of impacts to habitat of very high, high and medium distinctiveness should also be prioritised where possible. Prioritising this hierarchy of habitat retention based on distinctiveness will ensure the design of the scheme adheres to the best practice and national policy guidance and will reduce the overall BU lost due to the construction of the scheme, which in turn will reduce the overall BU requirements needed for post-development compensation.

Where impacts to habitats cannot be avoided, the developing BNG approach should prioritise the enhancement of existing on-site habitats over the creation of new areas of compensatory habitat.

B.1.5.5 Temporary Impacts and Reinstatement

As per the SBM User Guide⁷, habitats that can be restored to both baseline habitat type within two years of the initial construction impact and baseline condition within two years of the initial construction impact can be captured as retained habitat within the SBM.

Therefore, land requirements of the site should identify components of the scheme where disturbance and reinstatement could occur within two years (i.e. arable land/modified grassland in poor condition), as this avoids permanently lost habitat.

The site habitat baseline will therefore be reviewed alongside the wider team to identify areas where temporary impacts could be classified and to help influence the design of the scheme.

A number of the habitats within the site could be of low distinctiveness and in sub-optimal conditions and will hence have a lower value for local biodiversity. In appropriate locations (e.g. where acceptable for pipeline maintenance) and where landowner agreements can be achieved (i.e. agreed that it is the landowner's responsibility to maintain reinstated habitat), opportunities should be explored to create habitats of a higher distinctiveness habitats or in greater conditions than their baseline condition. These areas of habitat

⁵ Available at: [BNG-Guidance-Note_Strategic-Significance_26.01.24.pdf](#)

⁶ Available at: [National Planning Policy Framework - GOV.UK](#)

⁷ Available at: [Statutory biodiversity metric tools and guides - GOV.UK](#)

enhancements will generate greater returns in BUs than reinstating the baseline habitats in lower distinctiveness habitat types and poorer condition scores. Additionally, the long-term management of these reinstated habitats in higher condition will bring far greater benefits to local biodiversity (e.g. more valuable habitat for protected species) and work to deliver wildlife-rich habitat throughout the site.

B.1.5.6 Consideration of the current and future land use of the site

Particular areas of the site might need to be continually used for operational purposes (or are planned for future development). Therefore, on-site BNG delivery might not be appropriate in these instances, as any significant on-site enhancements must be legally secured for a minimum of 30 years.

B.1.5.7 Application of the trading rules

The trading rules set minimum habitat creation and enhancement requirements to compensate for specific habitat losses, up to the point of no net loss. They are based on the habitat type, size and distinctiveness of the lost habitat. For example, the loss of 1 hectare (ha) of lowland mixed deciduous woodland must be replaced on a 'like for like' basis and as a minimum, its baseline condition.

B.1.5.8 Consideration of local and wider biodiversity benefits

The initial desk-study undertaken of BNG policies by Kent County Council and of local nature conservation priorities should be continually reviewed and discussed with the wider project team if required. This will enable BNG to be designed in a way which creates meaningful benefits for nature within the local area.

B.1.5.9 Environmental and non-environmental constraints

Environmental and non-environmental constraints are likely to influence BNG delivery, by, for example, limiting possibilities for on-site delivery. This includes soil structure, hydrological conditions, heritage features and landscape constraints. For example, it may be assumed that delivering on-site BNG on contaminated land is not feasible.

B.1.5.10 Off-site BNG delivery

Off-site BNG delivery is a possible route for BNG delivery if the previous steps of the Biodiversity Gain Hierarchy have been thoroughly investigated (i.e. on-site BNG delivery is not possible). This should focus on assessing whether the site-specific BNG requirement can be met by the available supply of third-party BUs. As BNG is an emergent market, not all demand for off-site BUs can likely be matched by equivalent supply currently (this is expected to change over time).

B.1.5.11 Stakeholder Engagement

The Proposed Development aims to involve a wide range of consultees, partners, and technical specialists in the delivery of BNG. Further stakeholder engagement will be required for:

- Awareness - to ensure that stakeholders continue to be made aware of the biodiversity (and connected) benefits that the project is providing and are in agreement with our proposed methodology.
- Best practice - to ensure that future BNG practices and assessments continue to meet evolving national and local good practice, policy and legislative requirements.
- Off-site contributions - to identify priorities (considering both ecological and wider environmental and social benefits) and review the potential availability of sites and/or initiatives, the potential costs of BUs and appropriate long-term management solutions.

B.1.5.12 BNG Deliverables

For the planning application, sufficient information (see Table **Error! No text of specified style in document.**2) will provide confidence to Dover District Council that BNG will be achieved if planning is granted and how the Biodiversity Gain Hierarchy has been followed.

Table Error! No text of specified style in document..2: BNG Deliverables

Deliverable	Description
Biodiversity Gain Plan (BGP)⁸	The BGP states how the development proposal meets the BNG statutory requirements and provides evidence. It is good practice to submit a draft BGP with a planning application, which should outline how BNG will likely be delivered and secured. The finalised BGP must then be submitted no earlier than the day after planning permission is granted. The local planning authority (LPA) must approve or refuse the BGP within 8 weeks. Development can commence once the BGP has been approved by the LPA. The BGP template⁹ published by Defra includes the following sections: • Submission details (e.g. planning application reference number, LPA, etc.) • Developer details • Responsible person details • BNG strategy • Irreplaceable habitats • On-site habitat gains • Off-site habitat gains • Statutory biodiversity credits
Statutory Biodiversity Metric (SBM)	The SBM is the way of measuring biodiversity value for the purposes of BNG. It measures all types of habitats, including grassland, woodland, hedgerows and watercourses. The SBM is used to calculate the pre-development and post-development biodiversity value of a development's on-site habitat, as well as the biodiversity value for offsite biodiversity gains and statutory credits. It uses habitat information to generate Biodiversity Units (BUs), a proxy measure for biodiversity value. The SBM data value inputs include habitat type, size, distinctiveness, condition, and strategic significance. The SBM is not intended to be a one-off step in the design and planning process. It is advisable to use it repeatedly as plans are modified and updated. A completed SBM is required as part of the BGP.
BNG reports	BNG Design Stage Report – Aimed at decision-makers, e.g., LPAs, at the design consent stage of a project (i.e. to form part of a planning application submission). Builds on the feasibility assessment to provide a robust assessment of how BNG will be achieved and delivered.
Pre-development and post-development plans	Pre-development and post-development plans (showing the location of on-site habitat, the direction of north and drawn to an identified scale)
Habitat Management and Monitoring Plan (HMMP)	A HMMP is a detailed plan that describes how the land will be managed over at least 30 years to create and enhance habitats for BNG and manage and monitor the BNG¹⁰. For significant on-site enhancements, the HMMP will outline how habitat enhancements are maintained and monitored. A draft HMMP should be submitted with a planning application. A finalised HMMP should then be submitted with the BGP. For off-site gains, the HMMP should be agreed with one of the following: • The LPA if securing gains through a planning obligation (section 106 agreement) • The responsible body if securing gains with a conservation covenant Retained habitats might also need enhancement and maintenance for the minimum 30-years of BNG under a HMMP.

⁸ Available at: < [Biodiversity gain plan - GOV.UK \(www.gov.uk\)](https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/65404/biodiversity_gain_plan.pdf)>

⁹ Available at: <https://assets.publishing.service.gov.uk/media/65df0c4ecf7eb16adff57f15/Biodiversity_gain_plan.pdf>

¹⁰ More information available at: <<https://www.gov.uk/guidance/creating-a-habitat-management-and-monitoring-plan-for-biodiversity-net-gain>>

Deliverable	Description
Compensation plan	Irreplaceable habitats are those that are very difficult (or take a very long time) to restore, create or replace once it has been destroyed. Irreplaceable habitats should be considered at the feasibility and design stage with the priority to avoid adverse impacts. Irreplaceable habitats are listed under the Biodiversity Gain Requirements (Irreplaceable Habitat) Regulations 2024 and include: • Ancient woodland • Ancient and veteran trees • Blanket bog • Limestone pavements • Coastal sand dunes • Spartina saltmarsh swards • Mediterranean saltmarsh scrub • Lowland fens The 10% BNG requirement does not apply when there is loss of irreplaceable habitat because it would be impossible to achieve. Instead, adverse impacts would need to be minimised and a compensation strategy agreed with the LPA.
Biodiversity gain sites register reference number	Only required if off-site BUs are purchased.
Legal Agreement	The legal agreement sets out the conditions to secure BNG habitats for at least 30 years. It is required for all registered off-site gains and for significant on-site enhancements.
Proof of purchase	Document that describes the number of statutory biodiversity credits purchased and their price tier. This proof of purchase must be included within the BGP.

B.1.5.13 Next Steps

The approach to delivering BNG will continue to be developed from the time of writing until the time of the submission of the planning application. The BNG approach for the scheme will be flexible and adaptable to changing conditions and circumstances at the time of project implementation and delivery, including the ability to respond to the rapidly changing BNG market.

