Hampshire Water Transfer and Water Recycling Project

Environmental Statement – Appendix 3.1 Primary mitigation

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Contents

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1 Primary mitigation

1.1 Introduction

1.1.1 This appendix summarises the primary (embedded) mitigation intended to avoid or reduce potential environmental impacts that have been identified as part of the design process. These primary mitigation measures are reflected within the design documentation submitted to represent the Proposed Development as part of the Development Consent Order (DCO) application, including:

1. Works Plans (Document reference 2.3, DCO Volume 2),
2. Design Principles Document (DPD) (Document reference 5.11, DCO Volume 5),
3. Outline Construction Environmental Management Plan (Outline CEMP) (Document reference 7.1, DCO Volume 7), and
4. Outline Landscape and Ecology Management Plan (Outline LEMP) (Document reference 7.5, DCO Volume 7).

1.1.2 The DCO application is accompanied by the Environmental Statement (ES) Appendix 5.5 Commitments Register (Document reference 6.2, DCO Volume 6) which includes a complete list of mitigation (i.e. primary, secondary, and tertiary) and associated monitoring commitments, and confirms how each is secured through the DCO.

1.2 Primary mitigation

1.2.1 The measures embedded within the design of the Proposed Development have been carefully considered through the design decisions which have been taken based on multidisciplinary input to avoid constraints. The future detailed design of the Proposed Development will be guided by the DPD (Document reference 5.11, DCO Volume 5).

1.2.2 A summary of overarching primary mitigation commitments applicable to the design of the Proposed Development is provided in Table 1-1. Mitigation within this table is secured either by the Works Plans (Document reference 2.3, DCO Volume 2), DPD (Document reference 5.11, DCO Volume 5), or Outline CEMP (Document reference 7.1, DCO Volume 7) – specific securing mechanisms are presented in the ES Appendix 5.5 Commitments Register (Document reference 6.2, DCO Volume 6).

1.2.3 A summary of the location-specific primary mitigation measures is provided in Table 1-2. Environmental Mitigation and Enhancement Areas (EMEA) that are partially or totally comprised of mitigation are considered primary mitigation and they are also presented in Table 1-2. In the case of EMEA that are partially comprised of mitigation and partially comprised of enhancement, the mitigation elements of the EMEA would be committed to through the DCO, whereas the enhancement elements of the EMEA, although also seeking consent through the DCO, will only be implemented subject to securing voluntary agreements with landowners. Given that environmental enhancements fall outside the scope of the

EIA, they are not reported with the ES. EMEA that are only used for enhancement are therefore omitted from this primary mitigation appendix. EMEA are set out spatially on the Works Plans (Document reference 2.3, DCO Volume 2), and the contents of EMEA are presented in the DPD (Document reference 5.11, DCO Volume 5).

1.2.4 A schedule of the locations where trenchless and tunnelled construction methods are proposed is provided in Table 1-3. This schedule is secured by the Outline CEMP (Document reference 7.1, DCO Volume 7).

1.2.5 A schedule of areas of reduced working width is provided in Table 1-5. This schedule is secured by the Outline CEMP (Document reference 7.1, DCO Volume 7). The justification for each location of reduced working width is to limit habitat loss and vegetation removal. There may be multiple reduced working width locations within the same general area, as a means of limiting the impact of the crossing of multiple adjacent receptors.

1.2.6 Each item in the Trenchless Crossing and Tunnelling Schedule (Table 1-3) and the Reduced Working Width Schedule (Table 1-5) includes “Crossing ID” to facilitate spatial identification.

Table 1-1 Primary mitigation measures – overarching commitments

Theme	Measure description	Justification
Avoidance of sensitive designations		
Statutory and non-statutory designated sites	Avoid all direct impacts to statutory designated nature conservation sites. Where this is not possible, trenchless installation methods would be used for the Pipeline through these sites.	To avoid direct impacts on statutory designated nature conservation sites.
	Design the Proposed Development to avoid non-statutory designated nature conservation sites, where reasonably practicable.	To minimise direct impacts on non-statutory designated nature conservation sites.
Habitats	Design the Proposed Development to avoid, where practicable, priority habitats especially those where there is uncertainty around the effectiveness of reinstatement, such as wetland habitats.	To avoid, where practicable, direct impacts on priority habitats, especially those where there is uncertainty around the effectiveness of reinstatement, such as wetland habitats.
	Minimise interaction with marine priority habitats, avoiding those with no or little capacity to recover.	To minimise impacts on marine priority habitats, including avoiding those with little or no capacity to recover.
	Design the Proposed Development to utilise, where practicable, existing gaps in vegetation, to reduce vegetation loss and reduce the creation of new (albeit temporary) gaps in linear vegetation features.	To minimise impacts on vegetation.
	Design the Proposed Development to avoid, where practicable, known ecological features.	To minimise impacts on known ecological features.
	To mitigate for habitat loss, specific reinstatement measures would be delivered within EMEAs.	To mitigate for habitat loss.
Ancient woodland	No loss or deterioration of ancient and veteran trees.	To avoid loss or deterioration of ancient and veteran trees.
	Avoid ancient woodland, veteran trees, and any potential ancient woodland sites not included in the ancient woodland inventory, where reasonably practicable.	To avoid direct impacts on ancient woodland, veteran trees, potential ancient woodland, and associated root protection areas.

Theme	Measure description	Justification
	Implement a minimum of 15m horizontal buffer between ancient woodland and all construction works and permanent infrastructure.	To align with the buffer zone recommendations in the Natural England and Forestry Commission guidance on ancient woodland and veteran trees [1] to ensure that direct impacts on ancient woodland and associated root areas would be avoided.
	Implement a minimum 4m vertical buffer between ancient or veteran trees and ancient woodlands and all trenchless excavations. For all other trees to be retained, a minimum 3m vertical buffer, subject to site location, soil type and proximity to tree centres would be implemented.	To align with the buffer zone recommendations in the Natural England and Forestry Commission guidance on ancient woodland and veteran trees [1] to ensure that direct impacts on ancient woodland and associated root areas would be avoided.
South Downs National Park (SNDP) and Chichester Harbour National Landscape	Defining the Order Limits to avoid physical impacts on the nationally designated landscapes of the SDNP and the Chichester Harbour National Landscape.	To avoid impacts to the special qualities and scenic beauty of the SDNP and Chichester Harbour National Landscape.
Heritage assets and archaeology	Avoid designated heritage assets where reasonably practicable.	To minimise impacts to designated heritage assets.
	Avoid non-designated heritage assets and areas of higher archaeological potential where reasonably practicable.	To minimise impacts to non-designated heritage assets and areas of higher archaeological potential.
	Minimise disturbance within historic parkland, particularly of mature planting, earthwork remains and water features.	To avoid direct impacts to historic parklands.
	Restore land and planting disturbed during pipeline construction or temporary works to pre-existing condition where possible.	To minimise impacts to archaeological assets where possible.
	Use screening bunding, planting, noise and light controls and other landscape treatments at Above Ground Plant (AGP) and the Water Recycling Plant (WRP) site.	To minimise impacts to archaeological and cultural heritage assets.
	Use appropriate surface treatments and finishes on AGP where appropriate.	To minimise impacts to archaeological and cultural heritage assets.

Theme	Measure description	Justification
Mineral assets	Avoid safeguarded sites for mineral extraction listed under the Hampshire Minerals and Waste Plan 2013 and the Local Aggregate Assessment 2023, where reasonably practicable.	To minimise impacts to safeguarded mineral sites.
Avoidance of sensitive ecology		
Ecological sensitivity	Maintain appropriate buffer distances around known protected species features, where reasonably practicable and required by licencing.	To minimise vegetation removal, habitat loss and impact to protected species.
	Avoid direct impact on category A trees, where reasonably practicable.	To minimise vegetation removal, habitat loss and impact to protected species.
Avoidance of risk to and from the water environment		
Watercourses	Where trenchless construction methods would be used under watercourses, the pipeline would be installed at a minimum depth of 2.5m below the watercourse be; this includes all Main Rivers and many Ordinary Watercourses. The pipeline would be installed at least 1.5m below all other watercourses (dependent on local geology and geomorphological risks); this would avoid interaction with active bed sediments and geomorphology of watercourses. This includes some Ordinary Watercourses.	To avoid direct impacts to the watercourses and minimise indirect impacts to the watercourse.
	All Main Rivers, and those detailed within the Trenchless Crossing Schedule contained in Table 1-3, would be crossed using trenchless techniques.	To minimise impacts to Main Rivers, including reducing the potential for contaminated material to enter surface water via surface run-off.
	All tunnels and trenchless construction methodologies under watercourses and other barriers would use a methodology that excludes groundwater and therefore any dependant ecological features.	To minimise the impacts on groundwater and dependent ecological features.
	Undertake hydrogeological impact assessments for each element of the Proposed Development.	To understand and minimise the impact on hydrogeology.
	AGP locations and route of the pipeline has been selected to avoid or minimise crossings of major rivers outside the chalk aquifer where practicable.	To avoid or minimise impacts to the chalk aquifer.

Theme	Measure description	Justification
Flood zones	Use trenchless construction methods to avoid flood zones, where reasonably practicable.	To avoid risks associated with fluvial flood zones.
	Avoidance of identified flood risk zones and floodplain habitat when siting temporary construction compounds, where reasonably practicable.	To avoid construction phase risks associated with fluvial flooding and minimise impacts to floodplain habitat.
Aquifers	Trenchless and tunnelling shafts would avoid the chalk aquifer (particularly in Source Protection Zones), where reasonably practicable.	To minimise impacts to groundwater bodies.
	Avoid the siting of the pipelines between Budds Farm Wastewater Treatment Works (WTW) and the WRP site within the chalk aquifer where practicable.	To avoid or minimise impacts to the chalk aquifer.
Minimisation of landscape disturbance (physical and visual)		
Working width	The maximum working width for trenched open-cut construction of the Pipeline would be 40m within agricultural land or other undeveloped land.	To minimise landscape and ecological impact of habitat loss and vegetation removal.
	Working width would be reduced to 20m at certain locations when intersecting sensitive constraints, including vegetation crossings and other features. Locations of reduced working width are set out in the Reduced Working Width Schedule, Table 1-5. Where a reduced working width of 20m is used, there would be no space available to store excavated material. Therefore, in these areas, the working width either side of the length that is reduced may need to be widened up to 50m for a maximum length of up to 42m.	
Landscape	Use existing landform and planting to provide screening of the Proposed Development. At the AGP and the WRP site, use screening bunding, planting, noise and light controls and other landscape treatments.	To minimise permanent impacts to landscape, visual amenity, and the setting of heritage assets.
	Site the Proposed Development in the landscape to avoid or reduce the loss of existing vegetation and site the permanent AGP to relate to existing landform and vegetation patterns to maximise landscape integration.	To avoid or reduce the loss of existing vegetation and maximise landscape integration.

Theme	Measure description	Justification
	Conserve and respond positively to landscape, ecology and historic features of value, including below-ground features, across the Order Limits.	To minimise impacts to landscape, ecology and historic features of value.
	Use trenchless construction methods for crossings chosen to avoid or reduce impacts on the environment, communities, or key transport infrastructure.	To minimise impacts from construction to the environment, communities and key transport infrastructure.
	Reinstate the existing landscape pattern following construction in line with the design principles.	To minimise impacts to the landscape pattern.
	Identify the Green Infrastructure focus areas where there are opportunities to enhance the wider network.	To avoid fragmentation and reduce long term landscape and visual effects through integrated design responses.
	Trees removed to facilitate construction would be reinstated.	To mitigate the impacts to trees.
	New trees would be planted to mitigate tree loss and reinforce the existing landscape structure, and assist with visual screening.	To mitigate the impacts to trees.
	New hedgerows would be created, existing hedgerows would be enhanced with infill planting and sections of hedgerow removed to facilitate construction would be reinstated.	To provide visual mitigation and restore ecological connectivity.
Avoidance of traffic disruption		
Key transport links	All motorways, A roads and railways would be crossed using trenchless construction at a minimum depth of 1.5m below surface level.	To avoid direct impacts to the transport network in Hampshire.
Temporary road closures	Avoid temporary closures on national trails, the National Cycle Network or other Rights of Way where there are not deemed to be suitable alternatives where reasonably practicable.	To minimise direct impacts to the transport network in Hampshire.
	Avoid temporary road closures on roads used for journeys at a regional or national level.	To minimise impacts to journeys at a regional or national level.
	Temporary and permanent transport infrastructure, such as new accesses, would be designed in accordance with the relevant standards.	To ensure alignment with the relevant infrastructure standards.
	Public Rights of Way (PRoW) impacted by the Proposed Development would be reinstated to their previous condition.	To minimise impacts to existing PRoW.

Theme	Measure description	Justification
Other Proposed Development design measures		
Major accidents and disasters	Protective strips over the entire alignment of the pipelines constructed using open-cut methods would be required to: ensure space and access to enable maintenance and repair, protect the integrity of the pipeline from external influences, for example loading, and protect third party assets from potential damage in the event of a burst. The protective strip would restrict the landowner or occupier from undertaking certain activities that would restrict access to or affect the integrity of the pipeline. This includes restricting the following activities: erecting, constructing or placing any building wall or other structure whether permanent or temporary, undertaking of any piling or percussive works, alteration of ground levels, planting of trees, shrubs or other species other than as set out by the Applicant's 'Guide to Tree Planting near Mains and [2]OBJ or other relevant standards and construction or laying of new pipe duct or cable across the pipeline at an angle of less than forty-five degrees formed by the pipeline and the new pipe duct or cable. Relevant landowners would be advised of the extent of the protective strip on their land. This would be determined by the depth and location of the pipeline.	To ensure space and access to enable maintenance and repair, protect the integrity of the pipeline from external influences and protect third party assets from potential damage in the event of a burst.
	Isolation valves would be installed on the Pipeline to reduce flooding in the event of a pipe leak.	To minimise flooding in the event of a pipe leak.
	All the pumps and equipment in the pumping stations at the WRP site would be equipped with remote monitoring and control which would indicate an issue with water quality were there to be a problem. The WRP site would be operational 24 hours a day and it is assumed that operatives would be in attendance 24 hours a day with approximately five operatives during the day and three during the night. An emergency generator would be provided as part of the WRP site which would be used when required. The emergency generator would be a fuel powered generator used to create electrical power in an emergency situation, for example	To mitigate the risk of water quality issues and a mains power outage.

Theme	Measure description	Justification
	during lack of power. In these events, the emergency generator would run until power to the WRP site is returned.	
Discharge of water	Use washout management measures for isolation valves, air valves and washout valves.	To avoid the discharge of water from the pipeline to the surrounding environment.
	Washout valves would be used during the commissioning process and are anticipated to be tested approximately every six months during normal operation. All discharge of water from washouts would be collected directly in a tanker for disposal at an appropriately licenced facility, with no discharge of water from washouts discharged to the environment.	To avoid the discharge of water from the pipeline to the surrounding environment.
	Leak detection would be present on the pipeline transfer, either via flow and pressure monitoring or active acoustic monitoring. This has been designed to automatically shut the pipeline system down in the event a leak starts.	To minimise the impact in the event of a leak.
Utility constraints	Avoid known utilities within the design process, where reasonably practicable.	To minimise interaction within the Order Limits.
Odorous sites	Avoid any known odorous sites when excavating for Pipeline, where reasonably practicable.	To minimise interaction within the Order Limits.
Ground conditions	Cast piles for the WRP site in situ to ensure 'intimate contact' between the pile and the surrounding landfill waste.	To minimise the risk of creating pathways for contamination to migrate into underlying Principal Aquifers and adjacent surface water features.
	Ground gas protection measures would be incorporated into the design of the WRP site.	To minimise risks associated with ground gas.
	Preference has been given to the shortest Proposed Development.	To minimise the overall footprint, the number of receptors that would be affected, the overall quantity of waste generation and to avoid known risk areas with respect to ground contamination as far as practicable.
Land and agriculture	Avoid settlements, commercial property and land, property and major housing allocations, tourism receptors, PRoW, and Best	To minimise the risk of disruption to property, land and access.

Theme	Measure description	Justification
	and Most Versatile (BMV) agricultural land where reasonably practicable.	
	Avoid populated areas where reasonably practicable.	To avoid impacts on residential receptors.
Lighting	Lighting design to avoid permanent lighting on dark landscapes and nature conservation locations, and to avoid illuminating the lagoons and the coastal habitat.	To avoid impacts on dark landscapes, nature conservation locations, lagoons and the coastal habitat.
	Operational lighting design would follow good practice to reduce illuminating hedgerows and ecologically sensitive habitats, to avoid disruption to retained vegetation and the species using these features for resting places, foraging or commuting routes.	To avoid impacts on hedgerows, ecologically sensitive habitats, retained vegetation and species using these features for resting places, foraging or commuting routes.
Sustainable Drainage Systems (SuDS) outfall	Design of the hard infrastructure comprised in the SuDS outfall would seek to reduce disturbance of the existing scour protection on the banks of Hermitage Stream and not protrude into Hermitage Stream more than existing outfalls. The design would retain existing transitional habitats (including gravel bars and mudflats that are exposed during low tide) at the foot of the banks and avoid operational disturbance to these habitats. To deter the passage of eels inside the SuDS outfall pipe, a step would be placed within the SuDS outfall pipe. The step would be a minimum of 0.3m in height and have an overhang/lip.	To minimise impacts to the existing scour protection on the banks of the Hermitage Stream and not protrude into Hermitage Stream more than existing outfalls. To minimise impacts to the existing transitional habitats and to eels.
Water quality	Designing the WRP process to ensure that the recycled water discharged to Havant Thicket Reservoir complies with water quality requirements. This includes measures for phosphorus reduction where phosphorus would be removed using membranes within the WRP site.	To mitigate the risk of water quality issues.
Invasive Non-Native Species (INNS) Treatment at Otterbourne Water Supply Works	Including INNS Treatment at Otterbourne WSW that would treat the waste flows of the existing treatment process at Otterbourne WSW to ensure any INNS in the source water would be removed and not further spread. The INNS Treatment at Otterbourne WSW would produce sludge, which would be disposed of via a suitably licensed facility.	To mitigate the risk of INNS.

Theme	Measure description	Justification
Noise	Avoidance of sensitive receptors through the site/route selection process.	To minimise the impacts to sensitive receptors.
	The Contractor would ensure that operational noise levels at noise sensitive receptors do not exceed the Lowest Observed Adverse Effect Level (LOAEL). Mitigation measures would be adopted according to the following mitigation hierarchy: a. Avoidance of noise and vibration by, for example, selection of quiet/low vibration plant. b. Control of noise and vibration at source by, for example, maximizing the distance from sources of potentially high noise and vibration levels to NVSRs where possible, utilising screening from existing landforms or structures, introducing additional silencers or enclosures, and upgrades to the fabric of buildings with high indoor noise levels. c. Implementation of good practice environmental noise management measures. d. Introduction of additional screening to obstruct line of sight between the source and receptor, for example boundary screening.	To ensure operational noise levels at noise sensitive receptors do not exceed the LOAEL.
Carbon	The pipelines between the WRP site and Bedhampton Springs have been designed so that one section utilises Portsmouth Water's pipelines between Bedhampton Springs and Havant Thicket Reservoir (which are subject to a separate planning consent), therefore reducing the quantity of materials, fuel consumption in on-site construction activities and vehicle movements required for the Proposed Development.	To reduce the quantity of materials, fuel consumption in on-site construction activities and vehicle movements required for the Proposed Development.
	The implementation of SuDS at both the WRP site and the AGP is anticipated to reduce carbon emissions compared to traditional drainage solutions through a reduction of fuel consumption in on-site construction activities and road vehicle movements.	To reduce carbon emissions.

Theme	Measure description	Justification
	Using resources sustainably across the Proposed Development through the development of strategies for the use of natural resources and material. This would include material reuse on-site in accordance with the waste hierarchy, and where practicable the use of sustainably sourced materials that meet technical requirements. Measures to ensure the use of sustainable resources would be secured through a Materials Management Plan and a Site Waste Management Plan.	To ensure resources are used sustainably across the Proposed Development.
	All infrastructure assets would be designed to be resilient for the anticipated climate conditions at the end of their operational life. The Proposed Development would use materials that provide sufficient thermal protection to mitigate the risk of increased high temperatures. For the below-ground components of the Proposed Development, including the underground pipelines, thermal insulation would be afforded.	To be resilient for anticipated climate conditions and mitigate the risk of increased high temperatures.
	The design of the Proposed Development includes consideration of the management of flood pathways and optimising the use of SuDS including climate change allowances to mitigate the impact of flooding from increased precipitation and rain intensity.	To mitigate the impact of flooding from increased precipitation and rain intensity.
	The new pumping station at the Budds Farm WTW would be designed to be resilient to the future flood risks, in line with the approach for all water infrastructure assets.	To mitigate the risk of future flood risks.
	Finished floor levels at the AGP would be a minimum of 150mm above-ground level, which is in line with standard UK Building Regulations. The Budds Farm WTW has been designed to account for the H++ climate change allowance and therefore has a floor level of 5.38m AOD.	To mitigate the risk of future flood risks.
	The use of Havant Thicket Reservoir provides inherent resilience during a drought, in terms of water storage and availability (approximately 100 days of supply). The WRP site provides further resilience by increasing inflow into the reservoir during drought conditions.	To provide resilience in the event of a drought.

Table 1-2 Primary mitigation measures – site-specific mitigation measures (primary mitigation polygons) and Environmental Mitigation and Enhancement Areas (EMEAs).

Note: only EMEAs that contain an element of mitigation have been included.

Commitments Register ID	Easting, Northing	Works Plans Sheet	Measure description
Mit-LP-001	446131, 122155	25	Implementation of a 15m buffer between temporary construction compound M-1 and ancient woodland at Otterbourne Park Wood.
Mit-LP-002	446497, 123129	26	Implementation of a 15m buffer between temporary construction compound M-3 and other construction working areas from floodplain grazing marsh priority habitat.
Mit-LP-003	446457, 123171	26	Avoidance of veteran tree root protection area (RPA).
Mit-LP-004	446401, 123034	26	Implementation of a 15m buffer between temporary construction compound M-2 and other construction working areas from floodplain grazing marsh priority habitat.
Mit-LP-005	446572, 121858	25	Use of trenchless construction under the River Itchen and associated designated environmental sites, as well as under the South Western Railway line.
Mit-LP-006	447124, 121484	25	Use of trenchless construction methods under a watercourse upstream of the River Itchen.
Mit-LP-007	446440, 123077	26	Use of trenchless construction methods between temporary construction compound M-2 and temporary construction compound M-3 under a watercourse upstream of the River Itchen.
Mit-LP-008	447145, 121477	25	Avoidance of veteran tree RPA using trenchless construction methods.
Mit-LP-009	447189, 121494	25	Avoidance of construction works within veteran tree RPA.
Mit-LP-010	448545, 120771	23	Use of trenchless construction methods under Bow Lake watercourse.
Mit-LP-011	448737, 120706	23	Implementation of a 15m buffer between the Bow Lake watercourse and pipeline construction works outside of temporary construction compound L-5, L-6 and L-7.
Mit-LP-012	448854, 120646	23	Use of trenchless construction methods under Winchester Road (B3354) and historic earthworks.

Commitments Register ID	Easting, Northing	Works Plans Sheet	Measure description
Mit-LP-013	449099, 120384	23	Implementation of a 15m buffer between Order Limits and ancient woodland.
Mit-LP-014	449006, 120458	23	Avoidance of impacts from temporary construction compound L-4 within veteran tree RPA at Fisher's Pond.
Mit-LP-015	452427, 119023	21	Avoidance of category A trees.
Mit-LP-016	449030, 120377	23	Avoidance of temporary construction compound L-4 within veteran tree RPA.
Mit-LP-017	449418, 120453	23	Implementation of a 15m buffer between construction works and Chestnut Gully Wood Site of Importance for Nature Conservation (SINC).
Mit-LP-018	449762, 120268	22	Avoidance of construction works within veteran tree RPA.
Mit-LP-019	447143, 121420	25	Avoidance of construction works within deciduous woodland priority habitat north of Wardle Road.
Mit-LP-020	446501, 123025	26	Use of trenchless construction methods under floodplain grazing marsh priority habitat.
Mit-LP-021	449553, 120459	23	Avoidance of construction works within category A tree RPA.
Mit-LP-022	449695, 120456	23	Avoidance of construction works within category A tree RPA.
Mit-LP-023	451688, 119965	21	Avoidance of veteran tree RPA.
Mit-LP-024	451021, 120133	22	Avoidance of mature trees.
Mit-LP-025	450876, 120087	22	Avoidance of mature trees.
Mit-LP-026	451847, 119536	21	Avoidance of trees.
Mit-LP-027	451929, 119351	21	Avoidance of category A tree RPA.
Mit-LP-028	452092, 119226	21	Avoidance of hedgerow.
Mit-LP-029	452353, 118979	21	Avoidance of category A tree.
Mit-LP-030	452881, 118678	20	Avoidance of category A tree.
Mit-LP-031	452950, 118154	20	Avoidance of veteran tree RPA.

Commitments Register ID	Easting, Northing	Works Plans Sheet	Measure description
Mit-LP-032	452882, 118272	20	Avoidance of category A trees.
Mit-LP-033	452979, 118105	20	Avoidance of category A trees.
Mit-LP-034	452924, 118086	20	Avoidance of category A tree RPA.
Mit-LP-035	452932, 118047	20	Avoidance of category A tree RPA.
Mit-LP-036	453000, 117895	20	Use of trenchless construction methods under Winters Hill and veteran trees in the parkland.
Mit-LP-037	453443, 117525	19	Implementation of flexibility via wide Order Limits to allow optimum construction location that reduces loss of vegetation, to be identified during construction once further tree survey information is available.
Mit-LP-038	453546, 117419	19	Implementation of flexibility via wide Order Limits to allow optimum construction location that reduces loss of vegetation, to be identified during construction once further tree survey information is available.
Mit-LP-039	453628, 117013	19	Implementation of a buffer zone between Order Limits and the Park Lug landscape and heritage feature.
Mit-LP-040	454159, 116233	18	Minimisation of construction works (except for environmental mitigation and enhancement) in Flood Zone 2 and 3 associated with the River Hamble.
Mit-LP-041	453919, 115900	18	Avoidance of construction works within veteran tree RPA.
Mit-LP-042	453997, 115890	18	Avoidance of construction works within veteran tree RPA.
Mit-LP-043	454414, 115614	18	Implementation of a buffer between the Order Limits and mature line of woodland to the east of Order Limits.
Mit-LP-044	454325, 115285	18	Avoidance of construction works within veteran tree RPA.
Mit-LP-045	454347, 115290	18	Selection of crossing point at the Park Lug to minimise direct impacts to category A trees, as far as reasonably practicable.
Mit-LP-046	454590, 115253	18	Implementation of flexibility via wider Order Limits at crossing point to allow optimum construction location to minimise impact to vegetation, to be identified during construction.

Commitments Register ID	Easting, Northing	Works Plans Sheet	Measure description
Mit-LP-047	455437, 114851	17	Order Limits located to align with field and paddock boundaries as far as practicable to minimise impacts on existing business/agricultural/equine uses.
Mit-LP-048	453743, 116882	19	Order Limits located to align with field boundaries as far as practicable to minimise effects on existing business and agricultural uses.
Mit-LP-049	454189, 115952	18	Use of trenchless construction methods under the River Hamble and Botley Road to avoid works in close proximity to the watercourse and minimise direct impacts to the transport network in Hampshire.
Mit-LP-050	454918, 115332	17	Order Limits located to align with field boundaries as far as practicable to minimise effects on existing business and agricultural uses.
Mit-LP-051	455622, 114861	17	Implementation of flexibility via wide Order Limits to allow optimum construction location for the avoidance of protected species to be identified during construction. Inclusion of EMEA-J-4 to provide protected species mitigation if required.
Mit-LP-052	456016, 114374	16	Implementation of flexibility via wide Order Limits to allow optimum construction location that reduces loss of vegetation and avoids protected species to be identified during construction.
Mit-LP-053	456902, 113662	16	Use of trenchless construction methods under High Street and access road to minimise direct impacts to the transport network in Hampshire.
Mit-LP-054	456929, 113513	16	Avoidance of RPAs within a line of woodland with category A trees.
Mit-LP-055	457074, 112913	15	Avoidance of veteran tree RPA.
Mit-LP-056	457163, 112929	15	Order Limits located to the west of dense line of trees to avoid impacts to vegetation.
Mit-LP-057	457085, 112987	15	Minimisation of impacts to watercourse/ditch by locating Order Limits to the west of watercourse/ditch, following a crossing to the south.
Mit-LP-058	457132, 112736	15	Order Limits located to pass between category A trees.
Mit-LP-059	457157, 112730	15	Avoidance of direct impacts to category A tree RPAs.
Mit-LP-060	457083, 112666	15	Avoidance of veteran tree RPA.

Commitments Register ID	Easting, Northing	Works Plans Sheet	Measure description
Mit-LP-061	457157, 112603	15	Avoidance of category A tree RPA.
Mit-LP-062	456740, 112105	15	Use of trenchless construction methods under Winchester Road and woodland to minimise direct traffic and transport impacts to the transport network in Hampshire and avoid vegetation loss.
Mit-LP-063	456776, 112109	15	Implementation of a buffer zone between the temporary construction compound and RPA associated with line of trees to the west, to reduce loss of vegetation.
Mit-LP-064	456496, 112041	15	Avoidance of veteran tree RPA.
Mit-LP-065	456631, 112082	15	The area of temporary construction compound G-7 that overlaps with the woodland belt adjacent to the southern side of Titchfield Lane (Work Number 6) will only be used for the temporary access route. Only the minimum area of woodland required for this access route will be cleared with the remainder demarcated to prevent unplanned incursions access and protect the woodland.
Mit-LP-066	456366, 111247	14	Implementation of flexibility via wide Order Limits at Wickham Park Golf Club to allow optimum construction location following further engagement with the golf club to minimise impacts on their operations.
Mit-LP-067	456807, 110795	14	Use of trenchless construction methods under River Meon to avoid works within or near the watercourse and associated habitats.
Mit-LP-068	456725, 110760	13	Use of trenchless construction methods under River Meon to avoid works within or near the watercourse and associated habitats.
Mit-LP-069	457746, 110708	13	Avoidance of veteran tree RPA.
Mit-LP-070	457515, 110804	13	Use of trenchless construction methods under Hoad's Hill to minimise direct impacts to the transport network in Hampshire.
Mit-LP-071	457972, 110381	13	Avoidance of veteran tree RPA.
Mit-LP-072	458049, 110043	12	Avoidance of habitat where protected species are present.
Mit-LP-073	457970, 109680	12	Implementation of a 15m buffer zone between construction works and ancient woodland.

Commitments Register ID	Easting, Northing	Works Plans Sheet	Measure description
Mit-LP-074	457907, 109571	12	Avoidance of construction works within veteran tree RPA.
Mit-LP-075	457907, 109571	12	Avoidance of block of woodland.
Mit-LP-076	458685, 108594	11	Use of trenchless construction under the River Wallington to avoid works within the watercourse and associated habitats.
Mit-LP-077	458779, 108519	11	Implementation of a 30m buffer zone between temporary construction compound F-1 and River Wallington where protected species are present.
Mit-LP-078	460025, 108053	10	Avoidance of woodland.
Mit-LP-079	461368, 107884	9	Avoidance of woodland.
Mit-LP-080	461542, 107741	9	Avoidance of woodland.
Mit-LP-081	462592, 107580	9	Implementation of flexibility via wide Order Limits to avoid impacts to protected species and to minimise vegetation loss.
Mit-LP-082	463939, 107343	8	Avoidance of woodland and trees.
Mit-LP-083	464391, 107238	8	Avoidance of woodland.
Mit-LP-084	464645, 106977	7	Implementation of a buffer between Order Limits and Second World War aircraft crash site at Pigeonhouse Farm.
Mit-LP-085	465258, 107029	7	Avoidance of woodland.
Mit-LP-086	465690, 106938	7	Avoidance of woodland. Order Limits located north of this woodland to provide screening from Fort Widley.
Mit-LP-087	466524, 106598	6	Avoidance of habitat where protected species are present.
Mit-LP-088	466305, 106679	6	Implementation of optionality for two pipeline routes within the Order Limits to provide flexibility for reducing impacts on habitat where protected species are present.
Mit-LP-089	468400, 106106	4, 5, and 6	Use of tunnelled construction methods between the WRP site and Portsdown Hill to reduce effects on communities in Drayton and Widley.
Mit-LP-090	470339, 105461	4	Use of trenchless construction methods between Budds Farm WTW and the WRP site to reduce effects on the Hermitage Stream.

Commitments Register ID	Easting, Northing	Works Plans Sheet	Measure description
Mit-LP-091	470210, 105954	4	Use of trenchless construction methods between the WRP site and west of Mill Lane to minimise direct impacts to on the A27, the transport network in Hampshire, and to areas of woodland located between the WRP site and Bedhampton Springs.
Mit-LP-092	470296, 106159	4	Use of trenchless construction methods under Mill Lane and woodland to avoid loss of vegetation.
Mit-LP-093	448041, 121013	24	Minimisation of impacts to existing business and agricultural use, by locating Order Limits in alignment with field boundaries as far as practicable.
Mit-LP-094	448548, 120788	23	Implementation of 15m buffer between Bow Lake watercourse and temporary construction compound L-8.
Mit-LP-095	448549, 120757	23	Implementation of 15m buffer between Bow Lake watercourse and temporary construction compound L-7.
Mit-LP-096	450317, 120208	22	Use of trenchless construction methods between temporary construction compound L-3 and L-4 under residential garden and equestrian paddocks.
Mit-LP-097	466419, 106501	6	Break Pressure Tank (BPT)/Intermediate Pumping Station E (IPS-E) located to the south of this field to reduce visual impacts and integrate with existing vegetation and built form.
Mit-LP-098	458234, 109002	12	Intermediate Pumping Station (IPS-F) located adjacent to existing woodland to provide opportunities for landscape integration.
Mit-LP-099	456389, 111708	14	Intermediate Pumping Station (IPS-G) located at the south-west of the field to integrate with existing vegetation and built form.
Mit-LP-100	466442, 106542	6	EMEA_E_1. Chalk grassland creation, hedgerow enhancement, landscape screening and integration planting.
Mit-LP-101	458178, 109024	12	EMEA_F_1. Woodland enhancement, landscape screening and integration planting.
Mit-LP-102	458140, 109378	12	EMEA_F_2. Tree mitigation planting.
Mit-LP-103	457948, 109576	12	EMEA_F_3. Woodland mitigation and enhancement.
Mit-LP-104	456649, 110894	14	EMEA_G_1. Woodland mitigation and enhancement.

Commitments Register ID	Easting, Northing	Works Plans Sheet	Measure description
Mit-LP-105	456587, 110990	14	EMEA_G_2. Woodland mitigation and enhancement.
Mit-LP-106	456390, 111707	14	EMEA_G_3. Landscape screening and integration planting.
Mit-LP-107	456005, 114377	16	EMEA_J_1. Woodland creation.
Mit-LP-108	455800, 114571	17	EMEA_J_2. Woodland creation.
Mit-LP-109	455635, 114808	17	EMEA_J_3 Woodland creation within grassland along woodland edge, to mitigate woodland removal.
Mit-LP-110	456005, 114377	17	EMEA_J_4. Woodland creation and mitigation.
Mit-LP-111	455800, 114571	17	EMEA_J_5. Woodland edge enhancement.
Mit-LP-112	455635, 114808	18	EMEA_K_1. Landscape mitigation and enhancement.
Mit-LP-113	452780, 118546	20	EMEA_K_6. Woodland mitigation, grassland enhancement, landscape screening and integration planting.
Mit-LP-114	450695, 120226	22	EMEA_L_1. Woodland creation.
Mit-LP-115	449505, 120459	23	EMEA_L_2. Woodland creation.
Mit-LP-116	449151, 120386	23	EMEA_L_3. Woodland creation.
Mit-LP-117	448956, 120595	23	EMEA_L_5. Grassland mitigation.
Mit-LP-118	470134, 105678	4	EMEA_WRP. Habitat mitigation and enhancement.

Table 1-3 Primary mitigation measures – Trenchless Crossing and Tunnelling Schedule

Crossing ID	Location/Features Crossed	Crossing Type	Justification
Pipelines between Budds Farm WTW and the WRP			
TC_C_1	Hermitage Stream	Trenchless	Trenchless construction would be used to avoid direct impacts and reduce indirect impacts to the watercourse and the A27.
	Harts Farm Way		
Pipelines between the WRP site and Bedhampton Springs			
TC_B_1	A27	Trenchless	Trenchless construction would be used to avoid disruption to the A27.
TC_B_2	Mill Lane	Trenchless	Trenchless construction would be used to avoid disruption to Mill Lane, vegetation and a watercourse.
Section D: The Water Recycling Plant site to Portsdown Hill			
TC_D_1	A27	Tunnel	Tunnelled construction would be used in Section D of the Pipeline between the WRP site and Otterbourne WTW to avoid surface works within Drayton, Farlington and Widley which is a densely populated area.
	Havant Road (A2030)		
	Farlington Avenue		
	London Road (A3)		
	Portsdown Hill Road (B2177)		
Section F: Boarhunt to Crockerhill			
TC_F_1	River Wallington	Trenchless	Trenchless construction would be used to avoid direct impacts and reduce indirect impacts to the watercourse.

Crossing ID	Location/Features Crossed	Crossing Type	Justification
Section G: Crockerhill to Wickham			
TC_G_1	Hoad's Hill (A32)	Trenchless	Trenchless construction would be used to avoid disruption to this road.
TC_G_2a	Mayles Lane River Meon	Trenchless	Trenchless construction would be used to avoid direct impacts and reduce indirect impacts to the watercourse.
TC_G_2b	Mayles Lane River Meon	Trenchless	Trenchless construction would be used to avoid direct impacts and reduce indirect impacts to the watercourse.
TC_G_3	Winchester Road (A334)	Trenchless	Trenchless construction would be used to avoid disruption to this road.
Section H: Wickham to Shedfield			
TC_H_1	Access road east of High Street in Shirrell Heath High Street	Trenchless	Open cut trench construction of the Pipeline would not be possible within this access road. Therefore trenchless construction would be used.
TC_H_2	Winchester Road (B2177) St Annes Lane	Trenchless	Trenchless construction would be used to avoid disruption to this road.
Section J: Shedfield to the River Hamble			
TC_J_1	Botley Road (B3035)	Trenchless	

Crossing ID	Location/Features Crossed	Crossing Type	Justification
	River Hamble		Trenchless construction would be used to avoid direct impacts and reduce indirect impacts to the watercourse, and avoid disruption to the road.
Section K: The River Hamble to Lower Upham			
TC_K_1	Winters Hill	Trenchless	Trenchless construction would been used to reduce loss of vegetation at the southern boundary of parkland north of Winters Hill.
Section L: Lower Upham to Brambridge			
TC_L_1	Residential garden and paddocks north of Low Hill Farm.	Trenchless	Trenchless construction would be used to avoid construction work within the residential garden in this location.
TC_L_2	Winchester Road (B3354)	Trenchless	Trenchless construction would be used to avoid disruption to this road.
TC_L_3	Bow Lake	Trenchless	Trenchless construction would be used to avoid direct impacts and reduce indirect impacts to the watercourse.
TC_L_4	Upstream tributary of the River Itchen north of Wardle Road	Trenchless	Trenchless construction would be used to avoid direct impacts and minimise indirect impacts to the watercourse and the River Itchen Special Area of Conservation (SAC).
Section M: Brambridge to Otterborne Water Supply Works			
TC_M_1	Highbridge Road (B3335)	Trenchless	Trenchless construction would be used to avoid direct impacts and reduce indirect impacts to the watercourse and River Itchen SAC. Trenchless construction would also be used to avoid disruption to the railway.
	River Itchen		
	South West Main Line Railway		

Crossing ID	Location/Features Crossed	Crossing Type	Justification
TC_M_2	Upstream tributary of the River Itchen at Otterbourne	Trenchless	Trenchless construction would be used to avoid direct impacts and reduce indirect impacts to the watercourse and the River Itchen SAC.

Table 1-4 Restricted trenchless construction schedule and plans

1.2.7 A Schedule of the location where trenchless and tunnelled construction methods are restricted and therefore not proposed is provided in Table 1-4. The pipeline would be installed using open cut construction or be above ground to reduce interaction with the groundwater Source Protection Zone 1 associated with Bedhampton Springs.

Crossing ID	Location/Features Crossed	Crossing Type	Justification
Pipelines between the Water Recycling Plant (WRP) site and Bedhampton Springs			
RTC_B_1	Bedhampton Springs	Not trenchless	Trenchless construction would risk adverse effects on an area of Groundwater Source Protection Zone in the vicinity of Bedhampton Springs.

Table 1-5 Primary mitigation measures – Reduced Working Width Schedule

Crossing ID
Pipeline between the Water Recycling Plant site and Otterbourne Water Supply Works
Section E: Portsdown Hill to Boarhunt
RWW_E_1
RWW_E_2
RWW_E_3
RWW_E_4
RWW_E_5
RWW_E_6
RWW_E_7
RWW_E_8
RWW_E_9
RWW_E_10
RWW_E_11
RWW_E_12
RWW_E_13
RWW_E_14
RWW_E_15
RWW_E_16
Section F: Boarhunt to Crockerhill
RWW_F_1
RWW_F_2
RWW_F_3
RWW_F_4
RWW_F_5
RWW_F_6
RWW_F_7
Section G: Crockerhill to Wickham
RWW_G_1
RWW_G_2
RWW_G_3
RWW_G_4
RWW_G_5
RWW_G_6

Crossing ID
RWW_G_7
RWW_G_8
RWW_G_9
RWW_G_10
Section H: Wickham to Shedfield
RWW_H_1
RWW_H_2
RWW_H_3
RWW_H_4
RWW_H_5
RWW_H_6
RWW_H_7
RWW_H_8
RWW_H_9
RWW_H_10
Section J: Shedfield to the River Hamble
RWW_J_1
RWW_J_2
RWW_J_3
RWW_J_4
RWW_J_5
RWW_J_6
RWW_J_7
RWW_J_8
RWW_J_9
RWW_J_10
RWW_J_11
Section K: The River Hamble to Lower Upham
RWW_K_1
RWW_K_2
RWW_K_3
RWW_K_4
RWW_K_5
RWW_K_6

Crossing ID
RWW_K_7
RWW_K_8
RWW_K_9
RWW_K_10
RWW_K_11
RWW_K_12
RWW_K_13
RWW_K_14
RWW_K_15
RWW_K_16
RWW_K_17
RWW_K_18
RWW_K_19
RWW_K_20
RWW_K_21
RWW_K_22
Section L: Lower Upham to Brambridge
RWW_L_1
RWW_L_2
RWW_L_3
RWW_L_4
RWW_L_5
RWW_L_6
RWW_L_7
RWW_L_8
RWW_L_9
RWW_L_10
RWW_L_11
RWW_L_12
RWW_L_13
RWW_L_14
RWW_L_15
RWW_L_16
RWW_L_17

Crossing ID
RWW_L_18
RWW_L_19
RWW_L_20
RWW_L_21
RWW_L_22
Section M: Brambridge to Otterbourne Water Supply Works
RWW_M_1
RWW_M_2
RWW_M_3
RWW_M_4
RWW_M_5

Abbreviations

The Abbreviations table defines the abbreviations used in this Appendix 3.1.

Abbreviation	Full Term
AGP	Above Ground Plant
BMV	Best and Most Versatile
BPT	Break Pressure Tank
CEMP	Construction Environmental Management Plan
DCO	Development Consent Order
DPD	Design Principles Document
EMEA	Environmental Mitigation and Enhancement Areas
ES	Environmental Statement
INNS	Invasive Non-Native Species
IPS	Intermediate Pumping Station
LEMP	Landscape and Ecology Management Plan
LOAEL	Lowest Observed Adverse Effect Level
PRoW	Public Rights of Way
RPA	Root Protection Area
SAC	Special Area of Conservation
SINC	Site of Importance for Nature Conservation
SNDP	South Downs National Park
SuDS	Sustainable Drainage Systems
WRP	Water Recycling Plant
WTW	Wastewater Treatment Works

References

[1] Natural England; Forestry Commission, “Ancient woodland, ancient trees and veteran trees: advice for making planning decisions,” 14 January 2022. [Online]. Available: https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions. [Accessed 14 May 2026].

[2] Southern Water Services Ltd, “Developer Services - A Guide to Tree Planting near Southern Water Mains and Sewers,” May 2022. [Online]. Available: https://www.southernwater.co.uk/media/lo4ijk4u/ds-tree-planting-guide-1_nav.pdf. [Accessed 13 April 2026].


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