



South East Strategic Reservoir Option
Preliminary Environmental Information Report

Appendix 5.4 - Preliminary assessment of effects for Water environment

Date: October 2025

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1 Preliminary assessment of effects

- 1.1.1 This appendix sets out the preliminary assessment of effects for Water environment, receptor by receptor, for the construction and operation stages respectively. The appendix is split into tables that list effects that are initially anticipated to be significant and tables that list effects that are not initially anticipated to be significant. The judgement of significance has been made assuming that embedded design mitigation and standard good practice mitigation relevant to Water environment is applied (these are summarised in this appendix with further detail provided in the Draft commitments register in Appendix 2.2). Nevertheless, the assessment assumes that additional mitigation is not applied, as the viability, nature and extent of any additional mitigation measures is not confirmed at this stage in the EIA process. As a result, consideration of residual effects (those that remain after the implementation of all mitigation, including additional mitigation) has not been completed for the PEI report, and will be report in the ES.
- 1.1.2 Each receptor assessed for this aspect in the preliminary assessment is listed in the 'Baseline conditions' section of the associated PEI Report chapter, and also within the tables in this appendix. Each receptor has been assigned an Area ID which relates to the spatial extent of the receptor assessed. Where these have been spatially defined for the PEI Report, these are shown in figures cross-referenced from the 'Baseline conditions' section.
- 1.1.3 Each effect assessed has been assigned a unique identifier, the Effect ID.
- 1.1.4 The tables identify the following for each effect:
- Receptor name, Effect ID and sensitivity category
 - Project components and activities giving rise to the effect
 - Relevant embedded design mitigation and standard good practice mitigation (with unique Commitment ID, which relates to Appendix 2.2: Draft commitments register)
 - Initial category of effect significance, including whether it is adverse, beneficial or neutral (taking account of embedded design mitigation and standard good practice measures)
 - Description and duration of the effect
 - Any additional mitigation and monitoring identified at this stage (with unique Commitment ID, to enable cross reference to the measures noted in Section 5.10: Next steps of applicable aspect chapters).

1.2 Likely significant construction effects

Table 1.1 Summary of likely significant effects during construction (with embedded and standard good practice mitigation)

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Reach 2 Ock and tributaries (Land Brook confluence to Thames) - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-750] (High)	Most / all project components	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-51) Measures to reduce new watercourse crossings. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses. (SGP-46) Protection of riparian zone during construction.	Significant Adverse	Effect on fluvial geomorphology: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Diversion of watercourses, loss and/or modification of watercourses, presence of temporary or permanent watercourse crossings, vegetation clearance and in channel works may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Permanent)	(AM-01) Stabilisation of river banks. (AM-37) Scour protection required for watercourse diversions.
Reach 2 Ock and tributaries (Land Brook confluence to Thames) - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-748] (High)	Most / all project components	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-41) Construction stage surface water management. (ED-51) Measures to reduce new watercourse crossings. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Diversion of watercourses, loss and/or modification of watercourses, presence of temporary or permanent watercourse crossings, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourses, through drawdown or introduced discharge of water. (Permanent)	No additional mitigation has been confirmed at this stage, however, mitigation measures are being actively explored as the design and EIA progresses.
Reach 2 Ock and tributaries (Land Brook confluence to Thames) - WFD (Surface water quality) [WEN-749] (High)	Most / all project components	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure.	Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges, surface water drainage/runoff and in channel works can lead to the temporary mobilisation of	(AM-35) Water quality monitoring and subsequent remedial activities where these are required. (AM-01) Stabilisation of river banks.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(ED-41) Construction stage surface water management. (ED-51) Measures to reduce new watercourse crossings. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.		fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Permanent)	
Reach 2 Ordinary Watercourse / ditch network (Surface water quality) [WEN-1016] (High)	Most / all project components	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-41) Construction stage surface water management. (ED-51) Measures to reduce new watercourse crossings. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, surface water discharges and surface water drainage/runoff can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. (Long-term)	(AM-35) Water quality monitoring and subsequent remedial activities where these are required.
Reach 5 Childrey Brook and Norbrook at Common Barn - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-751] (High)	Project Priority Areas for Biodiversity Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-51) Measures to reduce new watercourse crossings. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses.	Significant Adverse	Effect on fluvial geomorphology: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Diversion of watercourses, loss and/or modification of watercourses, presence of temporary or permanent watercourse crossings, vegetation clearance and in channel works may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Long-term)	No additional mitigation has been confirmed at this stage, however, mitigation measures are being actively explored as the design and EIA progresses.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(SGP-46) Protection of riparian zone during construction.			
Reach 5 Childrey Brook and Norbrook at Common Barn - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-752] (High)	Project Priority Areas for Biodiversity Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-41) Construction stage surface water management. (ED-51) Measures to reduce new watercourse crossings. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Diversion of watercourses, loss and/or modification of watercourses, presence of temporary or permanent watercourse crossings, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourses, through drawdown or introduced discharge of water. (Long-term)	No additional mitigation has been confirmed at this stage, however, mitigation measures are being actively explored as the design and EIA progresses.
Reach 5 Childrey Brook and Norbrook at Common Barn - WFD (Surface water quality) [WEN-753] (Moderate)	Project Priority Areas for Biodiversity Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-41) Construction stage surface water management. (ED-51) Measures to reduce new watercourse crossings. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges, surface water drainage/runoff and in channel works can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	(AM-35) Water quality monitoring and subsequent remedial activities where these are required.
Reach 5 East Hanney Ditch - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-823] (Moderate)	Most / all project components	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure.	Significant Adverse	Effect on fluvial geomorphology: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Diversion of watercourses, loss and/or modification of watercourses, presence of temporary or permanent	(AM-01) Stabilisation of river banks. (AM-37) Scour protection required for watercourse diversions.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(ED-51) Measures to reduce new watercourse crossings. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses. (SGP-46) Protection of riparian zone during construction.		watercourse crossings, vegetation clearance and in channel works may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Permanent)	
Reach 5 East Hanney Ditch - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-824] (Moderate)	Most / all project components	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-41) Construction stage surface water management. (ED-51) Measures to reduce new watercourse crossings. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Diversion of watercourses, loss and/or modification of watercourses, presence of temporary or permanent watercourse crossings, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourses, through drawdown or introduced discharge of water. (Permanent)	No additional mitigation has been confirmed at this stage, however, mitigation measures are being actively explored as the design and EIA progresses.
Reach 5 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-829] (Moderate)	Most / all project components	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-51) Measures to reduce new watercourse crossings. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses.	Significant Adverse	Effect on fluvial geomorphology: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Diversion of watercourses, loss and/or modification of watercourses, presence of temporary or permanent watercourse crossings, vegetation clearance and in channel works may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Long-term)	No additional mitigation has been confirmed at this stage, however, mitigation measures are being actively explored as the design and EIA progresses.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(SGP-46) Protection of riparian zone during construction.			
Reach 5 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-830] (Moderate)	Most / all project components	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-41) Construction stage surface water management. (ED-51) Measures to reduce new watercourse crossings. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Diversion of watercourses, loss and/or modification of watercourses, presence of temporary or permanent watercourse crossings, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourses, through drawdown or introduced discharge of water. (Long-term)	No additional mitigation has been confirmed at this stage, however, mitigation measures are being actively explored as the design and EIA progresses.
Reach 7 Cow Common Brook - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1030] (Moderate)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Steventon to East Hanney road diversion Groundwater drain Project Priority Areas for Biodiversity Western watercourses diversion (Cow Common Brook, Portobello Ditch, East Hanney Ditch and Landmead Ditch)	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-41) Construction stage surface water management. (ED-51) Measures to reduce new watercourse crossings. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Diversion of watercourses, loss and/or modification of watercourses, presence of temporary or permanent watercourse crossings, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourses, through drawdown or introduced discharge of water. (Permanent)	No additional mitigation has been confirmed at this stage, however, mitigation measures are being actively explored as the design and EIA progresses.
Reach 7 Cow Common Brook - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1031] (Moderate)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Steventon to East Hanney road diversion	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-51) Measures to reduce new watercourse crossings.	Significant Adverse	Effect on fluvial geomorphology : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Diversion of watercourses, loss and/or modification of watercourses, presence of temporary or permanent watercourse crossings, vegetation clearance and in channel works may result in impacts on the local	(AM-01) Stabilisation of river banks. (AM-37) Scour protection required for watercourse diversions.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
	Groundwater drain Project Priority Areas for Biodiversity Western watercourses diversion (Cow Common Brook, Portobello Ditch, East Hanney Ditch and Landmead Ditch)		(SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses. (SGP-46) Protection of riparian zone during construction.		channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Permanent)	
Reach 7 Cow Common Brook and Portobello Ditch - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-745] (High)	Most / all project components	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-51) Measures to reduce new watercourse crossings. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses. (SGP-46) Protection of riparian zone during construction.	Significant Adverse	Effect on fluvial geomorphology: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Diversion of watercourses, loss and/or modification of watercourses, presence of temporary or permanent watercourse crossings, vegetation clearance and in channel works may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Permanent)	(AM-01) Stabilisation of river banks. (AM-37) Scour protection required for watercourse diversions.
Reach 7 Cow Common Brook and Portobello Ditch - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-746] (High)	Most / all project components	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-41) Construction stage surface water management. (ED-51) Measures to reduce new watercourse crossings. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Diversion of watercourses, loss and/or modification of watercourses, presence of temporary or permanent watercourse crossings, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourses, through drawdown or introduced discharge of water. (Permanent)	No additional mitigation has been confirmed at this stage, however, mitigation measures are being actively explored as the design and EIA progresses.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Reach 7 Cow Common Brook and Portobello Ditch - WFD (Surface water quality) [WEN-747] (Moderate)	Most / all project components	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-41) Construction stage surface water management. (ED-51) Measures to reduce new watercourse crossings. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges, surface water drainage/runoff and in channel works can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Permanent)	(AM-35) Water quality monitoring and subsequent remedial activities where these are required. (AM-01) Stabilisation of river banks.
Reach 7 Landmead Ditch - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-761] (Moderate)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Western watercourses diversion (Cow Common Brook, Portobello Ditch, East Hanney Ditch and Landmead Ditch) Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-51) Measures to reduce new watercourse crossings. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses. (SGP-46) Protection of riparian zone during construction.	Significant Adverse	Effect on fluvial geomorphology: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Diversion of watercourses, loss and/or modification of watercourses, presence of temporary or permanent watercourse crossings, vegetation clearance and in channel works may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Permanent)	(AM-01) Stabilisation of river banks. (AM-37) Scour protection required for watercourse diversions.
Reach 7 Landmead Ditch - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-763] (Moderate)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Western watercourses diversion (Cow Common Brook, Portobello Ditch, East Hanney Ditch and Landmead Ditch)	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-41) Construction stage surface water management. (ED-51) Measures to reduce new watercourse crossings.	Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Diversion of watercourses, loss and/or modification of watercourses, presence of temporary or permanent watercourse crossings, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments.	No additional mitigation has been confirmed at this stage, however, mitigation measures are being actively explored as the design and EIA progresses.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
	Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision		(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.		Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourses, through drawdown or introduced discharge of water. (Permanent)	
Reach 7 Mere Dyke - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-766] (Moderate)	Most / all project components	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-51) Measures to reduce new watercourse crossings. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses. (SGP-46) Protection of riparian zone during construction.	Significant Adverse	Effect on fluvial geomorphology: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Diversion of watercourses, loss and/or modification of watercourses, presence of temporary or permanent watercourse crossings, vegetation clearance and in channel works may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Permanent)	(AM-01) Stabilisation of river banks. (AM-37) Scour protection required for watercourse diversions.
Reach 7 Mere Dyke - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-768] (Moderate)	Most / all project components	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-41) Construction stage surface water management. (ED-51) Measures to reduce new watercourse crossings. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Diversion of watercourses, loss and/or modification of watercourses, presence of temporary or permanent watercourse crossings, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourses, through drawdown or introduced discharge of water. (Permanent)	No additional mitigation has been confirmed at this stage, however, mitigation measures are being actively explored as the design and EIA progresses.
Reach 7 Ordinary Watercourse / ditch network (Hydrology/Fluvial)	Most / all project components	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the	Significant Adverse	Effect on fluvial geomorphology: Undertaking construction works within or adjacent to watercourse(s)	(AM-01) Stabilisation of river banks.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
geomorphology/WFD) [WEN-772] (Moderate)			reservoir and the intake/outfall structure. (ED-51) Measures to reduce new watercourse crossings. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses. (SGP-46) Protection of riparian zone during construction.		has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Diversion of watercourses, loss and/or modification of watercourses, presence of temporary or permanent watercourse crossings, vegetation clearance and in channel works may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Permanent)	(AM-37) Scour protection required for watercourse diversions.
Reach 7 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-774] (Moderate)	Most / all project components	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-41) Construction stage surface water management. (ED-51) Measures to reduce new watercourse crossings. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Diversion of watercourses, loss and/or modification of watercourses, presence of temporary or permanent watercourse crossings, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourses, through drawdown or introduced discharge of water. (Permanent)	No additional mitigation has been confirmed at this stage, however, mitigation measures are being actively explored as the design and EIA progresses.
Reach 9 Sandford Brook (source to Ock) - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-782] (Very High)	Site compounds, haul routes, temporary bridges or culverts Access roads Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision Bridges and culverts (over/under watercourses and canal)	General construction activities	(ED-41) Construction stage surface water management. (ED-51) Measures to reduce new watercourse crossings. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Loss and/or modification of watercourses, presence of temporary or permanent watercourse crossings, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to	No additional mitigation has been confirmed at this stage, however, mitigation measures are being actively explored as the design and EIA progresses.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
	Project Priority Areas for Biodiversity				baseflow in adjacent watercourses, through drawdown or introduced discharge of water. (Long-term)	
Reach 9 Sandford Brook (source to Ock) - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-783] (Very High)	Site compounds, haul routes, temporary bridges or culverts Access roads Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision Bridges and culverts (over/under watercourses and canal) Project Priority Areas for Biodiversity	General construction activities	(ED-51) Measures to reduce new watercourse crossings. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses. (SGP-46) Protection of riparian zone during construction.	Significant Adverse	Effect on fluvial geomorphology: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses, presence of temporary or permanent watercourse crossings and vegetation clearance may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Long-term)	No additional mitigation has been confirmed at this stage, however, mitigation measures are being actively explored as the design and EIA progresses.
Reach 9 Sandford Brook (source to Ock) - WFD (Surface water quality) [WEN-781] (Very High)	Site compounds, haul routes, temporary bridges or culverts Access roads Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision Bridges and culverts (over/under watercourses and canal) Project Priority Areas for Biodiversity	General construction activities	(ED-41) Construction stage surface water management. (ED-51) Measures to reduce new watercourse crossings. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-22) Standard good practice measures for road cleanliness.	Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges, surface water drainage/runoff and in channel works can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	(AM-35) Water quality monitoring and subsequent remedial activities where these are required.
Reach 11 Moor Ditch and Ladygrove Ditch - WFD (Surface water quality) [WEN-776] (High)	Highways improvements Bridges and culverts (over/under watercourses and canal)	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-22) Standard good practice measures for road cleanliness.	Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges and surface water drainage/runoff can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction	(AM-35) Water quality monitoring and subsequent remedial activities where these are required.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
					and the potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	
Reach 13 Thames (Evenlode to Thame) - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-788] (Very High)	Intake/outfall structure River tunnel and shafts River Thames erosion protection River Thames flood compensation (eastern bank)	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Loss and/or modification of watercourses, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourses, through drawdown or introduced discharge of water. (Long-term)	No additional mitigation has been confirmed at this stage, however, mitigation measures are being actively explored as the design and EIA progresses.
Reach 13 Thames (Evenlode to Thame) - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-792] (Very High)	Intake/outfall structure River tunnel and shafts River Thames erosion protection River Thames flood compensation (eastern bank)	General construction activities	(SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-46) Protection of riparian zone during construction.	Significant Adverse	Effect on fluvial geomorphology: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses, vegetation clearance and in channel works may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Long-term)	No additional mitigation has been confirmed at this stage, however, mitigation measures are being actively explored as the design and EIA progresses.
Reach 14 Thames (Evenlode to Thame) - WFD (Surface water quality) [WEN-796] (Very High)	Intake/outfall structure River tunnel and shafts River Thames erosion protection River Thames flood compensation (eastern bank)	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges, surface water drainage/runoff and in channel works can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	(AM-35) Water quality monitoring and subsequent remedial activities where these are required.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Reach 13 Thames (Evenlode to Thame) - WFD (Surface water quality) [WEN-789] (Very High)	Intake/outfall structure River tunnel and shafts River Thames erosion protection River Thames flood compensation (eastern bank)	General construction activities	(ED-02) Manage water quality at the SESRO intake. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges, surface water drainage/runoff and in channel works can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	(AM-35) Water quality monitoring and subsequent remedial activities where these are required.
Reach 14 Thames (Evenlode to Thame) - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-795] (Very High)	Intake/outfall structure River tunnel and shafts River Thames erosion protection River Thames flood compensation (eastern bank)	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Loss and/or modification of watercourses, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourses, through drawdown or introduced discharge of water. (Long-term)	No additional mitigation has been confirmed at this stage, however, mitigation measures are being actively explored as the design and EIA progresses.
Reach 14 Thames (Evenlode to Thame) - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-798] (Very High)	Intake/outfall structure River tunnel and shafts River Thames erosion protection River Thames flood compensation (eastern bank)	General construction activities	(SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-46) Protection of riparian zone during construction.	Significant Adverse	Effect on fluvial geomorphology: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses, vegetation clearance and in channel works may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Long-term)	No additional mitigation has been confirmed at this stage, however, mitigation measures are being actively explored as the design and EIA progresses.
Alluvium [WEN-321] (High)	Most / all project components	Dewatering	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.	Significant Adverse	Direct impacts to groundwater levels or flows: Undertaking construction works has the potential to alter groundwater levels and flows in the area. Construction dewatering, excavation, tunnelling, piling	No additional mitigation has been confirmed at this stage, however, mitigation measures are being actively

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
		Material excavation and handling General construction activities	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.		and trenching activities in the area all have the potential to alter groundwater levels and flow. In addition, landscaping, embankment reshaping and loading also have the potential to affect shallow groundwater gradients. This has the potential to lead to loss/degradation of the aquifer. (Long-term)	explored as the design and EIA progresses.
Head [WEN-323] (High)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Significant Adverse	Direct impacts to groundwater levels or flows: Undertaking construction works has the potential to alter groundwater levels and flows in the area. Construction dewatering, excavation, tunnelling, piling and trenching activities in the area all have the potential to alter groundwater levels and flow. In addition, landscaping, embankment reshaping and loading also have the potential to affect shallow groundwater gradients. This has the potential to lead to loss/degradation of the aquifer. (Long-term)	No additional mitigation has been confirmed at this stage, however, mitigation measures are being actively explored as the design and EIA progresses.
River Terrace Deposits [WEN-322] (High)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Significant Adverse	Direct impacts to groundwater levels or flows: Undertaking construction works has the potential to alter groundwater levels and flows in the area. Construction dewatering, excavation, tunnelling, piling and trenching activities in the area all have the potential to alter groundwater levels and flow. In addition, landscaping, embankment reshaping and loading also have the potential to affect shallow groundwater gradients. This has the potential to lead to loss/degradation of the aquifer. (Long-term)	No additional mitigation has been confirmed at this stage, however, mitigation measures are being actively explored as the design and EIA progresses.

1.3 Likely significant operation effects

Table 1.2 Initial likely significant effects during operation (with embedded and standard good practice mitigation applied, but prior to additional mitigation)

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Reach 2 Ock and tributaries (Land Brook confluence to Thames) - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-855] (High)	Most / all project components	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-42) Operation stage surface water management.	Significant Adverse	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Creation of new sections of watercourse, changes to surface water drainage/runoff, operational abstractions can lead to changes to downstream watercourse flows/level. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourse through drawdown or introduced discharge of water. (Permanent)	(AM-35) Water quality monitoring and subsequent remedial activities where these are required.
Reach 2 Ock and tributaries (Land Brook confluence to Thames) - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-842] (High)	Most / all project components	Presence (of project components)	(ED-36) Design of culverts to maintain function and integrity of watercourses. (ED-51) Measures to reduce new watercourse crossings.	Significant Adverse	Effect on fluvial geomorphology: Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Diversion of watercourses, loss and/or modification of watercourses, creation or enhancement of waterbodies and associated riparian habitat and presence of permanent watercourse crossings may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Permanent)	(AM-37) Scour protection required for watercourse diversions.
Reach 4 Childrey and Woodhill Brooks - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1105] (High)	Ground-mounted solar (solar farm reprovision) Project Priority Areas for Biodiversity Site wide surface water drainage	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Significant Beneficial	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Changes to surface water drainage/runoff and enhancement of existing watercourse can lead to changes to downstream watercourse flows/level. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourse through drawdown or introduced discharge of water. (Permanent)	(AM-35) Water quality monitoring and subsequent remedial activities where these are required.
Reach 4 Childrey and Woodhill Brooks - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-889] (High)	Ground-mounted solar (solar farm reprovision)	Presence (of project components)	No embedded design or standard good practice	Significant Beneficial	Effect on fluvial geomorphology : Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Loss and/or	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
	Project Priority Areas for Biodiversity Site wide surface water drainage		mitigation identified at this stage.		modification of watercourses, creation or enhancement of waterbodies and associated riparian habitat may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. (Permanent)	
Reach 5 Childrey Brook and Norbrook at Common Barn - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-839] (High)	Project Priority Areas for Biodiversity Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Significant Adverse	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Permanent loss of catchment area, creation of new sections of watercourse and changes to surface water drainage/runoff can lead to changes to downstream watercourse flows/level. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourse through drawdown or introduced discharge of water. (Permanent)	(AM-35) Water quality monitoring and subsequent remedial activities where these are required.
Reach 5 Childrey Brook and Norbrook at Common Barn - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-845] (High)	Project Priority Areas for Biodiversity Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision	Presence (of project components)	(ED-51) Measures to reduce new watercourse crossings.	Significant Adverse	Effect on fluvial geomorphology: Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses, creation or enhancement of waterbodies and associated riparian habitat, presence of permanent watercourse crossings may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Permanent)	No additional mitigation has been confirmed at this stage, however, mitigation measures are being actively explored as the design and EIA progresses.
Reach 5 East Hanney Ditch - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-867] (Moderate)	Most / all project components	Operation Presence (of project components)	(ED-20) Reduce the impact of the Steventon to East Hanney road diversion on environmental receptors. (ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features	Significant Adverse	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Permanent loss of catchment area, creation of new sections of watercourse and changes to surface water drainage/runoff can lead to changes to downstream watercourse flows/level. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourse through drawdown or introduced discharge of water. (Permanent)	(AM-35) Water quality monitoring and subsequent remedial activities where these are required.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			and provision of substrate. (ED-42) Operation stage surface water management.			
Reach 5 East Hanney Ditch - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-879] (Moderate)	Most / all project components	Operation Presence (of project components)	(ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-51) Measures to reduce new watercourse crossings.	Significant Adverse	Effect on fluvial geomorphology: Presence and operation of Project components within or adjacent to watercourses has the potential to result in its permanent changes in watercourse fluvial geomorphology. Diversion of watercourses, loss and/or modification of watercourses, creation or enhancement of waterbodies and associated riparian habitat, presence of permanent watercourse crossings may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Permanent)	(AM-37) Scour protection required for watercourse diversions.
Reach 5 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-868] (Moderate)	Most / all project components	Operation Presence (of project components)	(ED-51) Measures to reduce new watercourse crossings.	Significant Adverse	Effect on fluvial geomorphology: Presence and operation of Project components within or adjacent to watercourses has the potential to result in its permanent changes in watercourse fluvial geomorphology. Diversion of watercourses, loss and/or modification of watercourses, creation or enhancement of waterbodies and associated riparian habitat, presence of permanent watercourse crossings may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Permanent)	(AM-35) Water quality monitoring and subsequent remedial activities where these are required.
Reach 5 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-885] (Moderate)	Most / all project components	Operation Presence (of project components)	(ED-20) Reduce the impact of the Steventon to East Hanney road diversion on environmental receptors. (ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Significant Adverse	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Permanent loss of catchment area, creation of new sections of watercourse and changes to surface water drainage/runoff can lead to changes to downstream watercourse flows/level. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourse through drawdown or introduced discharge of water. (Permanent)	(AM-35) Water quality monitoring and subsequent remedial activities where these are required.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Reach 6 Letcombe Brook - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1109] (High)	Project Priority Areas for Biodiversity	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Significant Beneficial	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Enhancement of existing watercourse(s) can lead to changes to downstream watercourse flows/level. (Permanent)	(AM-35) Water quality monitoring and subsequent remedial activities where these are required.
Reach 6 Letcombe Brook - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1110] (High)	Project Priority Areas for Biodiversity	Presence (of project components)	No embedded design or standard good practice mitigation identified at this stage.	Significant Beneficial	Effect on fluvial geomorphology : Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Enhancement of existing watercourse(s) may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.
Reach 9 Sandford Brook (source to Ock) - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-844] (Very High)	Access roads Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision Bridges and culverts (over/under watercourses and canal) Project Priority Areas for Biodiversity	Operation Maintenance Presence (of project components)	(ED-36) Design of culverts to maintain function and integrity of watercourses. (ED-51) Measures to reduce new watercourse crossings.	Significant Adverse	Effect on fluvial geomorphology: Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses, creation or enhancement of waterbodies and associated riparian habitat and presence of permanent watercourse crossings may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Permanent)	No additional mitigation has been confirmed at this stage, however, mitigation measures are being actively explored as the design and EIA progresses.
Reach 9 Sandford Brook (source to Ock) - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-856] (Very High)	Access roads Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision Bridges and culverts (over/under watercourses and canal) Project Priority Areas for Biodiversity	Operation Maintenance Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Significant Adverse	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Changes to surface water drainage/runoff can lead to changes to downstream watercourse flows/level. (Permanent)	(AM-35) Water quality monitoring and subsequent remedial activities where these are required.
Reach 10 Ginge Brook and Mill Brook - WFD (Hydrology/Fluvial	Project Priority Areas for Biodiversity	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local	Significant Beneficial	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in	(AM-35) Water quality monitoring and subsequent

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
geomorphology/WFD) [WEN-1058] (High)	Thames to Southern Water Transfer (T2ST) Water Treatment Works (WTW) and pipelines Highways improvements		planning policy and guidance. (ED-42) Operation stage surface water management.		watercourse flow volumes and the quantity of water of the receptor. Enhancement of existing watercourse(s) can lead to changes to downstream watercourse flows/level. (Permanent)	remedial activities where these are required.
Reach 10 Ginge Brook and Mill Brook - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1059] (High)	Project Priority Areas for Biodiversity Thames to Southern Water Transfer (T2ST) Water Treatment Works (WTW) and pipelines Highways improvements	Presence (of project components)	No embedded design or standard good practice mitigation identified at this stage.	Significant Beneficial	Effect on fluvial geomorphology : Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Creation or enhancement of waterbodies and associated riparian habitat can lead to potential impacts to hydromorphological conditions. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.
Reach 11 Moor Ditch and Ladygrove Ditch - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-843] (High)	Highways improvements Bridges and culverts (over/under watercourses and canal)	Presence (of project components)	No embedded design or standard good practice mitigation identified at this stage.	Significant Adverse	Effect on fluvial geomorphology: Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses and presence of permanent watercourse crossings may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Permanent)	No additional mitigation has been confirmed at this stage, however, mitigation measures are being actively explored as the design and EIA progresses.
Reach 11 Moor Ditch and Ladygrove Ditch - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-903] (High)	Highways improvements Bridges and culverts (over/under watercourses and canal)	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Significant Adverse	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. (Permanent)	(AM-35) Water quality monitoring and subsequent remedial activities where these are required.
Reach 14 Thames (Evenlode to Thame) - WFD (Surface water quality) [WEN-864] (Very High)	Intake/outfall structure River tunnel and shafts River Thames erosion protection River Thames flood compensation (eastern bank)	Operation Emergency drawdown testing of the reservoir	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-28) Maintain water quality in the reservoir.	Significant Adverse	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Surface water discharges and surface water drainage/runoff can lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse.	(AM-18) Measures to manage Biochemical Oxygen Demand concentrations. (AM-35) Water quality monitoring and subsequent remedial activities where these are required.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
		Presence (of project components)	(ED-42) Operation stage surface water management.		(Short-term)	
Reach 14 Thames (Evenlode to Thame) - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-835] (Very High)	Intake/outfall structure River tunnel and shafts River Thames erosion protection River Thames flood compensation (eastern bank)	Operation Emergency drawdown testing of the reservoir Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Significant Adverse	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Permanent loss of catchment area, changes to surface water drainage/runoff and operational abstractions and discharges from and to the River Thames can lead to changes to downstream watercourse flows/level. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourse through drawdown or introduced discharge of water. (Short-term)	(AM-17) Measures to manage and protect water flows in the watercourses. (AM-35) Water quality monitoring and subsequent remedial activities where these are required.
Reach 14 Thames (Evenlode to Thame) - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-880] (Very High)	Intake/outfall structure River tunnel and shafts River Thames erosion protection River Thames flood compensation (eastern bank)	Operation Emergency drawdown testing of the reservoir Presence (of project components)	(ED-30) Scour protection on the River Thames.	Significant Adverse	Effect on fluvial geomorphology: Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Short-term)	No additional mitigation has been confirmed at this stage, however, mitigation measures are being actively explored as the design and EIA progresses.

1.4 Likely non-significant construction effects

Table 1.3 Initial likely non-significant effects during construction (with embedded and standard good practice mitigation applied, but prior to additional mitigation)

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Essential infrastructure: The Project - A415/SESRO Main Access, Pumping station and pumping station access road, Reservoir embankment, Drayton substation, Steventon to East Hanney Road diversion, Water treatment buildings, Intake/outfall structure [WEN-227] (Very High)	Most / all project components	Material excavation and handling Material stockpiling Dewatering Preparatory and enabling works	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-05) Managing construction works within flood zones. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses.	Not Significant Neutral	Potential change in fluvial flood risk: Undertaking construction works within existing areas of flood risk or near existing watercourses has the potential to increase flood risk to project receptors located on site. In particular, construction works which change existing ground levels or locate stockpiles of materials within the floodplain may temporarily alter floodplain storage and flood flow routes, which could result in an increase in flood risk. Furthermore, the installation of watercourse crossings, required to facilitate construction activities, has the potential to increase flood risk by acting as a barrier or constraint on flow. Where dewatered groundwater is released into existing watercourse, this could also raise flood levels downstream and therefore increase fluvial flood risk. Any changes to groundwater levels and flow paths have the potential to result in local changes to surface water flows. (Long-term)	No additional mitigation required as the effect is not significant.
Essential infrastructure: The Project - A415/SESRO Main Access, Pumping station and pumping station access road, Reservoir embankment, Drayton substation, Steventon to East Hanney Road diversion, Water treatment buildings, Intake/outfall structure [WEN-236] (Very High)	Most / all project components	Most / all project activities (construction)	(ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-05) Managing construction works within flood zones. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses.	Not Significant Neutral	Potential change in pluvial flood risk: Construction activities have the potential to change the volume and pattern of surface flows and infiltration rates resulting from changes to ground levels and land use (i.e. by increasing the proportion of impermeable surfaces in a drainage catchment and/or vegetation clearance) and alter site runoff characteristics. Soil compaction by construction vehicles also has the potential to reduce infiltration and increase surface runoff. Furthermore, changes to groundwater levels and flow paths could also result in local changes to surface water flows. Any changes in surface water flows could increase flood risk to project receptors located on site. In addition, excavations can potentially damage existing sewers leading to flooding. (Long-term)	No additional mitigation required as the effect is not significant.
Essential infrastructure: The Project - A415/SESRO Main Access, Pumping	Reservoir (including embankment and directly associated	Most / all project activities (construction)	(ED-03) Construction sequencing to mitigate flood risk.	Not Significant Neutral	Potential change in groundwater flood risk: Construction works which include below ground activities or physical modifications to the subsurface	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
station and pumping station access road, Reservoir embankment, Drayton substation, Steventon to East Hanney Road diversion, Water treatment buildings, Intake/outfall structure [WEN-245] (Very High)	infrastructure, such as pipes in the base) Pumping station Reservoir tunnel River tunnel and shafts Groundwater drain	Dewatering	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources.		(e.g. excavations) have the potential to alter natural groundwater flow by creating barriers. This may cause localised groundwater mounding at the upgradient side of the structure and/or divert groundwater flows elsewhere and subsequently increase groundwater flood risk to project receptors located on site. Similarly, any changes to surface water flow paths could cause local changes to groundwater flows. Also, discharges to ground could exacerbate groundwater flooding in areas where there is the potential for clearwater flooding and flooding from superficial deposits. (Long-term)	
Essential infrastructure: Third party - A338, A34, A415 Marcham Road, Great Western Main Line railway – London to Bristol [WEN-228] (Very High)	Most / all project components	Most / all project activities (construction)	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-05) Managing construction works within flood zones. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses.	Not Significant Neutral	Potential change in fluvial flood risk: Undertaking construction works within existing areas of flood risk or near existing watercourses has the potential to increase flood risk to third party receptors located around the site. In particular, construction works which change existing ground levels or locate stockpiles of materials within the floodplain, may temporarily alter floodplain storage and flood flow routes, which could result in an increase in flood risk off-site. Furthermore, the installation of watercourse crossings, required to facilitate construction activities, has the potential to increase flood risk by acting as a barrier or constraint on flow. Where dewatered groundwater is released into existing watercourse, this could also raise flood levels downstream and therefore increase fluvial flood risk. Any changes to groundwater levels and flow paths has the potential to result in local changes to surface water flows. (Long-term)	No additional mitigation required as the effect is not significant.
Essential infrastructure: Third party - A338, A34, A415 Marcham Road, Great Western Main Line railway – London to Bristol [WEN-237] (Very High)	Most / all project components	Most / all project activities (construction)	(ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Neutral	Potential change in pluvial flood risk: Construction activities have the potential to change the volume and pattern of surface flows and infiltration rates resulting from changes to ground levels and land use (i.e. by increasing the proportion of impermeable surfaces in a drainage catchment and/or vegetation clearance) and alter site runoff characteristics. Soil compaction by construction vehicles also has the potential to reduce infiltration and increase surface runoff. Furthermore, changes to groundwater levels and flow paths could also result in local changes to surface water flows. Any changes in surface water flows could increase flood	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(SGP-05) Managing construction works within flood zones. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses.		risk off-site, including to third party receptors located around the site. In addition, excavations can potentially damage existing sewers leading to flooding. (Long-term)	
Essential infrastructure: Third party - A338, A34, A415 Marcham Road, Great Western Main Line railway – London to Bristol [WEN-246] (Very High)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Pumping station Reservoir tunnel River tunnel and shafts Groundwater drain	Most / all project activities (construction) Dewatering	(ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources.	Not Significant Neutral	Potential change in groundwater flood risk: Construction works which include below ground activities or physical modifications to the subsurface (e.g. excavations) have the potential to alter natural groundwater flow by creating barriers. This may cause localised groundwater mounding at the upgradient side of the structure and/or divert groundwater flows elsewhere and subsequently increase groundwater flood risk, including to third party receptors located around the site. Similarly, any changes to surface water flow paths could cause local changes to groundwater flows. Also, discharges to ground could exacerbate groundwater flooding in areas where there is the potential for clearwater flooding and flooding from superficial deposits. (Long-term)	No additional mitigation required as the effect is not significant.
Highly vulnerable: Third party - Residential properties with basements, caravans, mobile homes & park homes. [WEN-229] (Very High)	Most / all project components	Most / all project activities (construction)	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-05) Managing construction works within flood zones. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses.	Not Significant Neutral	Potential change in fluvial flood risk: Undertaking construction works within existing areas of flood risk or near existing watercourses has the potential to increase flood risk to third party receptors located around the site. In particular, construction works which change existing ground levels or locate stockpiles of materials within the floodplain, may temporarily alter floodplain storage and flood flow routes, which could result in an increase in flood risk off-site. Furthermore, the installation of watercourse crossings, required to facilitate construction activities, has the potential to increase flood risk by acting as a barrier or constraint on flow. Where dewatered groundwater is released into existing watercourse, this could also raise flood levels downstream and therefore increase fluvial flood risk. Any changes to groundwater levels and flow paths has the potential to result in local changes to surface water flows. (Long-term)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Highly vulnerable: Third party - Residential properties with basements, caravans, mobile homes & park homes. [WEN-238] (Very High)	Most / all project components	Most / all project activities (construction)	(ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-05) Managing construction works within flood zones. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses.	Not Significant Neutral	Potential change in pluvial flood risk: Construction activities have the potential to change the volume and pattern of surface flows and infiltration rates resulting from changes to ground levels and land use (i.e. by increasing the proportion of impermeable surfaces in a drainage catchment and/or vegetation clearance) and alter site runoff characteristics. Soil compaction by construction vehicles also has the potential to reduce infiltration and increase surface runoff. Furthermore, changes to groundwater levels and flow paths could also result in local changes to surface water flows. Any changes in surface water flows could increase flood risk off-site, including to third party receptors located around the site. In addition, excavations can potentially damage existing sewers leading to flooding. (Long-term)	No additional mitigation required as the effect is not significant.
Highly vulnerable: Third party - Residential properties with basements, caravans, mobile homes & park homes. [WEN-247] (Very High)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Pumping station Reservoir tunnel River tunnel and shafts Groundwater drain	Most / all project activities (construction) Dewatering	(ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources.	Not Significant Neutral	Potential change in groundwater flood risk: Construction works which include below ground activities or physical modifications to the subsurface (e.g. excavations) have the potential to alter natural groundwater flow by creating barriers. This may cause localised groundwater mounding at the upgradient side of the structure and/or divert groundwater flows elsewhere and subsequently increase groundwater flood risk, including to third party receptors located around the site. Similarly, any changes to surface water flow paths could cause local changes to groundwater flows. Also, discharges to ground could exacerbate groundwater flooding in areas where there is the potential for clearwater flooding and flooding from superficial deposits. (Long-term)	No additional mitigation required as the effect is not significant.
More vulnerable: The Project - Temporary rail, visitor centre [WEN-230] (High)	Most / all project components	Most / all project activities (construction)	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources.	Not Significant Neutral	Potential change in fluvial flood risk: Undertaking construction works within existing areas of flood risk or near existing watercourses has the potential to increase flood risk to project receptors located on site. In particular, construction works which change existing ground levels or locate stockpiles of materials within the floodplain may temporarily alter floodplain storage and flood flow routes, which could result in an increase in flood risk. Furthermore, the installation of watercourse crossings, required to facilitate construction activities, has the potential to increase flood risk by acting as a barrier or constraint on flow. Where	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-05) Managing construction works within flood zones. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses.		dewatered groundwater is released into existing watercourse, this could also raise flood levels downstream and therefore increase fluvial flood risk. Any changes to groundwater levels and flow paths has the potential to result in local changes to surface water flows. (Long-term)	
More vulnerable: The Project - Temporary rail, visitor centre [WEN-240] (High)	Most / all project components	Most / all project activities (construction)	(ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-05) Managing construction works within flood zones. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses.	Not Significant Neutral	Potential change in pluvial flood risk: Construction activities have the potential to change the volume and pattern of surface flows and infiltration rates resulting from changes to ground levels and land use (i.e. by increasing the proportion of impermeable surfaces in a drainage catchment and/or vegetation clearance) and alter site runoff characteristics. Soil compaction by construction vehicles also has the potential to reduce infiltration and increase surface runoff. Furthermore, changes to groundwater levels and flow paths could also result in local changes to surface water flows. Any changes in surface water flows could increase flood risk to project receptors located on site. In addition, excavations can potentially damage existing sewers leading to flooding. (Long-term)	No additional mitigation required as the effect is not significant.
More vulnerable: The Project - Temporary rail, visitor centre [WEN-249] (High)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Pumping station Reservoir tunnel River tunnel and shafts Groundwater drain	Most / all project activities (construction) Dewatering	(ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources.	Not Significant Neutral	Potential change in groundwater flood risk: Construction works which include below ground activities or physical modifications to the subsurface (e.g. excavations) have the potential to alter natural groundwater flow by creating barriers. This may cause localised groundwater mounding at the upgradient side of the structure and/or divert groundwater flows elsewhere and subsequently increase groundwater flood risk to project receptors located on site. Similarly, any changes to surface water flow paths could cause local changes to groundwater flows. Also, discharges to ground could exacerbate groundwater flooding in areas where there is the potential for clearwater flooding and flooding from superficial deposits. (Long-term)	No additional mitigation required as the effect is not significant.
More vulnerable: Third party - Residential homes, Residential institutions, health services. [WEN-231] (High)	Most / all project components	Most / all project activities (construction)	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure.	Not Significant Neutral	Potential change in fluvial flood risk: Undertaking construction works within existing areas of flood risk or near existing watercourses has the potential to increase flood risk to third party receptors located around the site. In particular, construction works	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-05) Managing construction works within flood zones. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses.		which change existing ground levels or locate stockpiles of materials within the floodplain, may temporarily alter floodplain storage and flood flow routes, which could result in an increase in flood risk off-site. Furthermore, the installation of watercourses crossings, required to facilitate construction activities, has the potential to increase flood risk by acting as a barrier or constraint on flow. Where dewatered groundwater is released into existing watercourse, this could also raise flood levels downstream and therefore increase fluvial flood risk. Any changes to groundwater levels and flow paths has the potential to result in local changes to surface water flows. (Long-term)	
More vulnerable: Third party - Residential homes, Residential institutions, health services. [WEN-239] (High)	Most / all project components	Most / all project activities (construction)	(ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-05) Managing construction works within flood zones. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses.	Not Significant Neutral	Potential change in pluvial flood risk: Construction activities have the potential to change the volume and pattern of surface flows and infiltration rates resulting from changes to ground levels and land use (i.e. by increasing the proportion of impermeable surfaces in a drainage catchment and/or vegetation clearance) and alter site runoff characteristics. Soil compaction by construction vehicles also has the potential to reduce infiltration and increase surface runoff. Furthermore, changes to groundwater levels and flow paths could also result in local changes to surface water flows. Any changes in surface water flows could increase flood risk off-site, including to third party receptors located around the site. In addition, excavations can potentially damage existing sewers leading to flooding. (Long-term)	No additional mitigation required as the effect is not significant.
More vulnerable: Third party - Residential homes, Residential institutions, health services. [WEN-248] (High)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Pumping station Reservoir tunnel River tunnel and shafts Groundwater drain	Most / all project activities (construction)	(ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management.	Not Significant Neutral	Potential change in groundwater flood risk: Construction works which include below ground activities or physical modifications to the subsurface (e.g. excavations) have the potential to alter natural groundwater flow by creating barriers. This may cause localised groundwater mounding at the upgradient side of the structure and/or divert groundwater flows elsewhere and subsequently increase groundwater flood risk, including to third party receptors located around the site. Similarly, any changes to surface water flow paths could cause local changes to groundwater flows. Also,	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
					discharges to ground could exacerbate groundwater flooding in areas where there is the potential for clearwater flooding and flooding from superficial deposits. (Long-term)	
Less vulnerable: The Project - Borrow pit, Link road to the Rail Material Handling Storage area, Main SESRO Compound North East (PS Site), Rail material handling facility and GWMLR Railway Sidings (SW) construction compound, A338 East Hanney access (SW) construction compound, Steventon access (SE) construction compound, Integrated constructed wetland [WEN-232] (Moderate)	Most / all project components	Most / all project activities (construction)	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-05) Managing construction works within flood zones. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses.	Not Significant Adverse	Potential change in fluvial flood risk: Undertaking construction works within existing areas of flood risk or near existing watercourses has the potential to increase flood risk to project receptors located on site. In particular, construction works which change existing ground levels or locate stockpiles of materials within the floodplain may temporarily alter floodplain storage and flood flow routes, which could result in an increase in flood risk. Furthermore, the installation of watercourses crossings, required to facilitate construction activities, has the potential to increase flood risk by acting as a barrier or constraint on flow. Where dewatered groundwater is released into existing watercourse, this could also raise flood levels downstream and therefore increase fluvial flood risk. Any changes to groundwater levels and flow paths has the potential to result in local changes to surface water flows. (Long-term)	No additional mitigation required as the effect is not significant. Additional mitigation for less vulnerable receptors to be considered on case-by-case basis, as required, depending on modelling outputs.
Less vulnerable: The Project - Borrow pit, Link road to the Rail Material Handling Storage area, Main SESRO Compound North East (PS Site), Rail material handling facility and GWMLR Railway Sidings (SW) construction compound, A338 East Hanney access (SW) construction compound, Steventon access (SE) construction compound, Integrated constructed wetland [WEN-241] (Moderate)	Most / all project components	Most / all project activities (construction)	(ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-05) Managing construction works within flood zones. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses.	Not Significant Adverse	Potential change in pluvial flood risk: Construction activities have the potential to change the volume and pattern of surface flows and infiltration rates resulting from changes to ground levels and land use (i.e. by increasing the proportion of impermeable surfaces in a drainage catchment and/or vegetation clearance) and alter site runoff characteristics. Soil compaction by construction vehicles also has the potential to reduce infiltration and increase surface runoff. Furthermore, changes to groundwater levels and flow paths could also result in local changes to surface water flows. Any changes in surface water flows could increase flood risk to project receptors located on site. In addition, excavations can potentially damage existing sewers leading to flooding. (Long-term)	No additional mitigation required as the effect is not significant. Additional mitigation for less vulnerable receptors to be considered on case-by-case basis, as required, depending on modelling outputs.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Less vulnerable: The Project - Borrow pit, Link road to the Rail Material Handling Storage area, Main SESRO Compound North East (PS Site), Rail material handling facility and GWMLR Railway Sidings (SW) construction compound, A338 East Hanney access (SW) construction compound, Steventon access (SE) construction compound, Integrated constructed wetland [WEN-250] (Moderate)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Pumping station Reservoir tunnel River tunnel and shafts Groundwater drain	Most / all project activities (construction) Dewatering	(ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources.	Not Significant Adverse	Potential change in groundwater flood risk: Construction works which include below ground activities or physical modifications to the subsurface (e.g. excavations) have the potential to alter natural groundwater flow by creating barriers. This may cause localised groundwater mounding at the upgradient side of the structure and/or divert groundwater flows elsewhere and subsequently increase groundwater flood risk to project receptors located on site. Similarly, any changes to surface water flow paths could cause local changes to groundwater flows. Also, discharges to ground could exacerbate groundwater flooding in areas where there is the potential for clearwater flooding and flooding from superficial deposits. (Long-term)	No additional mitigation required as the effect is not significant. Additional mitigation for less vulnerable receptors to be considered on case-by-case basis, as required, depending on modelling outputs.
Less vulnerable: Third party - Abingdon Sewage Treatment Works, Drayton Sewage Treatment Works, Agricultural and commercial buildings, Allotments, Local roads, Undeveloped agricultural land [WEN-233] (Moderate)	Most / all project components	Most / all project activities (construction)	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-05) Managing construction works within flood zones. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses.	Not Significant Neutral	Potential change in fluvial flood risk: Undertaking construction works within existing areas of flood risk or near existing watercourses has the potential to increase flood risk to third party receptors located around the site. In particular, construction works which change existing ground levels or locate stockpiles of materials within the floodplain, may temporarily alter floodplain storage and flood flow routes, which could result in an increase in flood risk off-site. Furthermore, the installation of watercourses crossings, required to facilitate construction activities, has the potential to increase flood risk by acting as a barrier or constraint on flow. Where dewatered groundwater is released into existing watercourse, this could also raise flood levels downstream and therefore increase fluvial flood risk. Any changes to groundwater levels and flow paths has the potential to result in local changes to surface water flows. (Long-term)	No additional mitigation required as the effect is not significant.
Less vulnerable: Third party - Abingdon Sewage Treatment Works, Drayton Sewage Treatment Works, Agricultural and commercial buildings, Allotments, Local roads, Undeveloped agricultural	Most / all project components	Most / all project activities (construction)	(ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources.	Not Significant Neutral	Potential change in pluvial flood risk: Construction activities have the potential to change the volume and pattern of surface flows and infiltration rates resulting from changes to ground levels and land use (i.e. by increasing the proportion of impermeable surfaces in a drainage catchment and/or vegetation clearance) and alter site runoff characteristics. Soil compaction by construction vehicles also has the potential to reduce infiltration	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
land [WEN-242] (Moderate)			(SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-05) Managing construction works within flood zones. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses.		and increase surface runoff. Furthermore, changes to groundwater levels and flow paths could also result in local changes to surface water flows. Any changes in surface water flows could increase flood risk off-site, including to third party receptors located around the site. In addition, excavations can potentially damage existing sewers leading to flooding. (Long-term)	
Less vulnerable: Third party - Abingdon Sewage Treatment Works, Drayton Sewage Treatment Works, Agricultural and commercial buildings, Allotments, Local roads, Undeveloped agricultural land [WEN-251] (Moderate)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Pumping station Reservoir tunnel River tunnel and shafts Groundwater drain	Most / all project activities (construction) Dewatering	(ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources.	Not Significant Neutral	Potential change in groundwater flood risk: Construction works which include below ground activities or physical modifications to the subsurface (e.g. excavations) have the potential to alter natural groundwater flow by creating barriers. This may cause localised groundwater mounding at the upgradient side of the structure and/or divert groundwater flows elsewhere and subsequently increase groundwater flood risk, including to third party receptors located around the site. Similarly, any changes to surface water flow paths could cause local changes to groundwater flows. Also, discharges to ground could exacerbate groundwater flooding in areas where there is the potential for clearwater flooding and flooding from superficial deposits. (Long-term)	No additional mitigation required as the effect is not significant.
Water-compatible development: The Project - Wilts and Berks Canal, Watercourse Diversions. [WEN-235] (Low)	Most / all project components	Most / all project activities (construction)	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-05) Managing construction works within flood zones.	Not Significant Adverse	Potential change in fluvial flood risk: Undertaking construction works within existing areas of flood risk or near existing watercourses has the potential to increase flood risk to project receptors located on site. In particular, construction works which change existing ground levels or locate stockpiles of materials within the floodplain may temporarily alter floodplain storage and flood flow routes, which could result in an increase in flood risk. Furthermore, the installation of watercourses crossings, required to facilitate construction activities, has the potential to increase flood risk by acting as a barrier or constraint on flow. Where dewatered groundwater is released into existing watercourse, this could also raise flood levels downstream and therefore increase fluvial flood risk. Any changes to groundwater levels and flow paths has the potential to result in local changes to surface water flows. (Long-term)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses.			
Water-compatible development: The Project - Wilts and Berks Canal, Watercourse Diversions. [WEN-243] (Low)	Most / all project components	Most / all project activities (construction)	(ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-05) Managing construction works within flood zones. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses.	Not Significant Adverse	Potential change in pluvial flood risk: Construction activities have the potential to change the volume and pattern of surface flows and infiltration rates resulting from changes to ground levels and land use (i.e. by increasing the proportion of impermeable surfaces in a drainage catchment and/or vegetation clearance) and alter site runoff characteristics. Soil compaction by construction vehicles also has the potential to reduce infiltration and increase surface runoff. Furthermore, changes to groundwater levels and flow paths could also result in local changes to surface water flows. Any changes in surface water flows could increase flood risk to project receptors located on site. In addition, excavations can potentially damage existing sewers leading to flooding. (Long-term)	No additional mitigation required as the effect is not significant. Assumed additional mitigation not required for water compatible receptors.
Water-compatible development: The Project - Wilts and Berks Canal, Watercourse Diversions. [WEN-252] (Low)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Pumping station Reservoir tunnel River tunnel and shafts Groundwater drain	Most / all project activities (construction)	(ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources.	Not Significant Adverse	Potential change in groundwater flood risk: Construction works which include below ground activities or physical modifications to the subsurface (e.g. excavations) have the potential to alter natural groundwater flow by creating barriers. This may cause localised groundwater mounding at the upgradient side of the structure and/or divert groundwater flows elsewhere and subsequently increase groundwater flood risk to project receptors located on site. Similarly, any changes to surface water flow paths could cause local changes to groundwater flows. Also, discharges to ground could exacerbate groundwater flooding in areas where there is the potential for clearwater flooding and flooding from superficial deposits. (Long-term)	No additional mitigation required as the effect is not significant. Assumed additional mitigation not required for water compatible receptors.
Water-compatible development: Third party - Gravel pits on the western bank of the River Thames, Marina. [WEN-234] (Low)	Most / all project components	Most / all project activities (construction)	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management.	Not Significant Neutral	Potential change in fluvial flood risk: Undertaking construction works within existing areas of flood risk or near existing watercourses has the potential to increase flood risk to third party receptors located around the site. In particular, construction works which change existing ground levels or locate stockpiles of materials within the floodplain, may temporarily alter floodplain storage and flood flow routes, which could result in an increase in flood risk off-site. Furthermore, the installation of watercourses crossings, required to facilitate	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-05) Managing construction works within flood zones. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses.		construction activities, has the potential to increase flood risk by acting as a barrier or constraint on flow. Where dewatered groundwater is released into existing watercourse, this could also raise flood levels downstream and therefore increase fluvial flood risk. Any changes to groundwater levels and flow paths has the potential to result in local changes to surface water flows. (Long-term)	
Water-compatible development: Third party - Gravel pits on the western bank of the River Thames, Marina. [WEN-244] (Low)	Most / all project components	Most / all project activities (construction)	(ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-05) Managing construction works within flood zones. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses.	Not Significant Neutral	Potential change in pluvial flood risk: Construction activities have the potential to change the volume and pattern of surface flows and infiltration rates resulting from changes to ground levels and land use (i.e. by increasing the proportion of impermeable surfaces in a drainage catchment and/or vegetation clearance) and alter site runoff characteristics. Soil compaction by construction vehicles also has the potential to reduce infiltration and increase surface runoff. Furthermore, changes to groundwater levels and flow paths could also result in local changes to surface water flows. Any changes in surface water flows could increase flood risk off-site, including to third party receptors located around the site. In addition, excavations can potentially damage existing sewers leading to flooding. (Long-term)	No additional mitigation required as the effect is not significant.
Water-compatible development: Third party - Gravel pits on the western bank of the River Thames, Marina. [WEN-253] (Low)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Pumping station Reservoir tunnel River tunnel and shafts Groundwater drain	Most / all project activities (construction) Dewatering	(ED-03) Construction sequencing to mitigate flood risk. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources.	Not Significant Neutral	Potential change in groundwater flood risk: Construction works which include below ground activities or physical modifications to the subsurface (e.g. excavations) have the potential to alter natural groundwater flow by creating barriers. This may cause localised groundwater mounding at the upgradient side of the structure and/or divert groundwater flows elsewhere and subsequently increase groundwater flood risk, including to third party receptors located around the site. Similarly, any changes to surface water flow paths could cause local changes to groundwater flows. Also, discharges to ground could exacerbate groundwater flooding in areas where there is the potential for clearwater flooding and flooding from superficial deposits. (Long-term)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Existing lakes (Hydrology/Fluvial geomorphology/WFD) [WEN-975] (Low)	Most / all project components	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the water body has the potential to result in changes in the quantity of water within the receptor. Diversion of watercourses, loss and/or modification of watercourses presence of temporary or permanent watercourse crossings, and surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourses, through drawdown or introduced discharge of water. (Long-term)	No additional mitigation required as the effect is not significant.
Existing lakes (Hydrology/Fluvial geomorphology/WFD) [WEN-976] (Low)	Most / all project components	General construction activities	(SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on fluvial geomorphology : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Diversion of watercourses, loss and/or modification of watercourses, presence of temporary or permanent watercourse crossings and vegetation clearance may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. (Long-term)	No additional mitigation required as the effect is not significant.
Existing lakes (Surface water quality) [WEN-977] (Low)	Most / all project components	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to water bodies has the potential to result in changes in water body water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges and surface water drainage/runoff and in channel works can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality.	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Existing ponds (Hydrology/Fluvial geomorphology/WFD) [WEN-787] (Moderate)	Most / all project components	General construction activities	(SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	(Long-term) Effect on fluvial geomorphology: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Diversion of watercourses, loss and/or modification of watercourses, presence of temporary or permanent watercourse crossings and vegetation clearance may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. (Long-term)	No additional mitigation required as the effect is not significant.
Existing ponds (Hydrology/Fluvial geomorphology/WFD) [WEN-978] (Moderate)	Most / all project components	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the water body has the potential to result in changes in the quantity of water within the receptor. Diversion of watercourses, loss and/or modification of watercourses presence of temporary or permanent watercourse crossings, and surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourses, through drawdown or introduced discharge of water. (Long-term)	No additional mitigation required as the effect is not significant.
Existing ponds (Surface water quality) [WEN-979] (Negligible)	No project components identified at this stage.	No project activities identified at this stage.	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to water bodies has the potential to result in changes in water body water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges and surface water drainage/runoff and in channel works can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
					potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	
Reach 1 Ock (to Cherbury Brook) - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-980] (High)	Site compounds, haul routes, temporary bridges or culverts Site wide surface water drainage Highways improvements	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-22) Standard good practice measures for road cleanliness.	Not Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Loss and/or modification of watercourses, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourses], through drawdown or introduced discharge of water. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 1 Ock (to Cherbury Brook) - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-981] (High)	Site compounds, haul routes, temporary bridges or culverts Site wide surface water drainage Highways improvements	General construction activities	(SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-46) Protection of riparian zone during construction.	Not Significant Adverse	Effect on fluvial geomorphology : Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Loss and/or modification of watercourses, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourses], through drawdown or introduced discharge of water. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 1 Ock (to Cherbury Brook) - WFD (Surface water quality) [WEN-802] (Moderate)	Site compounds, haul routes, temporary bridges or culverts Site wide surface water drainage	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources.	Not Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Loss and/or modification of watercourses, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
	Highways improvements		(SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-22) Standard good practice measures for road cleanliness.		to the hydrological regime and associated catchments. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourses], through drawdown or introduced discharge of water. (Long-term)	
Reach 1 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-809] (Moderate)	Site compounds, haul routes, temporary bridges or culverts Site wide surface water drainage Highways improvements	General construction activities	(SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-46) Protection of riparian zone during construction.	Not Significant Adverse	Effect on fluvial geomorphology: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses and vegetation clearance may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 1 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-821] (Moderate)	Site compounds, haul routes, temporary bridges or culverts Site wide surface water drainage Highways improvements	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-22) Standard good practice measures for road cleanliness.	Not Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Loss and/or modification of watercourses, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 1 Ordinary Watercourse / ditch network (Surface water quality) [WEN-818] (Negligible)	Site compounds, haul routes, temporary bridges or culverts Site wide surface water drainage Highways improvements	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-22) Standard good practice measures for road cleanliness.	Not Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, surface water discharges and surface water drainage/runoff can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. (Long-term)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Reach 2 Nor Brook - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1011] (Moderate)	Project Priority Areas for Biodiversity Site-wide utilities diversions and new supplies	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Loss and/or modification of watercourses, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 2 Nor Brook - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1012] (Moderate)	Project Priority Areas for Biodiversity Site-wide utilities diversions and new supplies	General construction activities	(SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-46) Protection of riparian zone during construction.	Not Significant Adverse	Effect on fluvial geomorphology : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses and vegetation clearance may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 2 Nor Brook - Main River Non-WFD (Surface water quality) [WEN-1013] (Negligible)	Project Priority Areas for Biodiversity Site-wide utilities diversions and new supplies	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, surface water discharges, surface water drainage/runoff can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 2 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-1014] (Moderate)	Most / all project components	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-41) Construction stage surface water management. (ED-51) Measures to reduce new watercourse crossings. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources.	Not Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Loss and/or modification of watercourses, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. (Long-term)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(SGP-03) Standard good practice measures for works within or adjacent to waterbodies.			
Reach 2 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-1015] (Moderate)	Most / all project components	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-51) Measures to reduce new watercourse crossings. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses. (SGP-46) Protection of riparian zone during construction.	Not Significant Adverse	Effect on fluvial geomorphology : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses and vegetation clearance may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 2 - Other Main Rivers Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1017] (Moderate)	River Ock realignment Construction access from A34 layby	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-41) Construction stage surface water management. (ED-51) Measures to reduce new watercourse crossings. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water hydrology : Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Diversion of watercourses, loss and/or modification of watercourses, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 2 - Other Main Rivers Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1018] (Moderate)	River Ock realignment Construction access from A34 layby	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-51) Measures to reduce new watercourse crossings. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on fluvial geomorphology : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Diversion of watercourses and loss and/or modification of watercourses may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer.	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses. (SGP-46) Protection of riparian zone during construction.		(Long-term)	
Reach 2 - Other Main Rivers Non-WFD (Surface water quality) [WEN-1019] (Negligible)	River Ock realignment Construction access from A34 layby	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-41) Construction stage surface water management. (ED-51) Measures to reduce new watercourse crossings. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, surface water discharges, surface water drainage/runoff can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 3 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-1020] (Moderate)	Highways improvements	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges and surface water drainage/runoff can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 3 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-1021] (Moderate)	Highways improvements	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on fluvial geomorphology : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
					continuity and lateral connectivity, including fish passage and sediment transfer. (Long-term)	
Reach 3 Ordinary Watercourse / ditch network (Surface water quality) [WEN-1022] (Negligible)	Highways improvements	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges and surface water drainage/runoff can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 3 Stutfield Brook - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1023] (Moderate)	Highways improvements	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Loss and/or modification of watercourses can lead to potential changes to the hydrological regime and associated catchments. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourses, through drawdown or introduced discharge of water. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 3 Stutfield Brook - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1024] (Moderate)	Highways improvements	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources.	Not Significant Adverse	Effect on fluvial geomorphology : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Long-term)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Reach 3 Stutfield Brook - Main River Non-WFD (Surface water quality) [WEN-1025] (Negligible)	Highways improvements	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges and surface water drainage/runoff can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 3 Stutfield Brook (source to Ock) - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-803] (High)	Highways improvements	General construction activities	(SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on fluvial geomorphology: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 3 Stutfield Brook (source to Ock) - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-807] (High)	Highways improvements	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges and surface water drainage/runoff can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 3 Stutfield Brook (source to Ock) - WFD (Surface water quality) [WEN-804] (Moderate)	Highways improvements	General construction activities	(ED-41) Construction stage surface water management.	Not Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.		discharges or spills of pollutants, groundwater dewatering, surface water discharges and surface water drainage/runoff can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	
Reach 4 Childrey and Woodhill Brooks - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-808] (High)	Ground-mounted solar (solar farm reprovision) Site wide surface water drainage Access roads Project Priority Areas for Biodiversity	General construction activities	(SGP-46) Protection of riparian zone during construction.	Not Significant Adverse	Effect on fluvial geomorphology: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 4 Childrey and Woodhill Brooks - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-812] (High)	Ground-mounted solar (solar farm reprovision) Site wide surface water drainage Access roads Project Priority Areas for Biodiversity	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-22) Standard good practice measures for road cleanliness.	Not Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Loss and/or modification of watercourses, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourses, through drawdown or introduced discharge of water. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 4 Childrey and Woodhill Brooks - WFD (Surface water quality) [WEN-810] (Moderate)	Ground-mounted solar (solar farm reprovision)	General construction activities	(ED-41) Construction stage surface water management.	Not Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality.	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
	Site wide surface water drainage Access roads Project Priority Areas for Biodiversity		(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-22) Standard good practice measures for road cleanliness.		Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges and surface water drainage/runoff can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	
Reach 4 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-813] (Moderate)	Ground-mounted solar (solar farm reprovision) Site wide surface water drainage Access roads Project Priority Areas for Biodiversity	General construction activities	(SGP-46) Protection of riparian zone during construction.	Not Significant Adverse	Effect on fluvial geomorphology: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 4 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-817] (Moderate)	Ground-mounted solar (solar farm reprovision) Site wide surface water drainage Access roads Project Priority Areas for Biodiversity	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-22) Standard good practice measures for road cleanliness.	Not Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Loss and/or modification of watercourses, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourses, through drawdown or introduced discharge of water. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 4 Ordinary Watercourse / ditch network (Surface water	Ground-mounted solar (solar farm reprovision)	General construction activities	(ED-41) Construction stage surface water management.	Not Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality.	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
quality) [WEN-814] (Negligible)	Site wide surface water drainage Access roads Project Priority Areas for Biodiversity		(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-22) Standard good practice measures for road cleanliness.		Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges and surface water drainage/runoff can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	
Reach 5 East Hanney Ditch - Main River Non-WFD (Surface water quality) [WEN-825] (Negligible)	Most / all project components	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-41) Construction stage surface water management. (ED-51) Measures to reduce new watercourse crossings. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges, surface water drainage/runoff and in channel works can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 5 Ordinary Watercourse / ditch network (Surface water quality) [WEN-831] (Negligible)	Most / all project components	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-41) Construction stage surface water management. (ED-51) Measures to reduce new watercourse crossings.	Not Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges, surface water drainage/runoff and in channel works can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.		lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	
Reach 6 Letcombe Brook - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-756] (High)	Project Priority Areas for Biodiversity	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. (Medium-term)	No additional mitigation required as the effect is not significant.
Reach 6 Letcombe Brook - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1026] (High)	Project Priority Areas for Biodiversity	General construction activities	(SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-46) Protection of riparian zone during construction.	Not Significant Adverse	Effect on fluvial geomorphology : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. (Medium-term)	No additional mitigation required as the effect is not significant.
Reach 6 Letcombe Brook - WFD (Surface water quality) [WEN-757] (High)	Project Priority Areas for Biodiversity	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, surface water discharges and surface water drainage/runoff can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Medium-term)	No additional mitigation required as the effect is not significant.
Reach 6 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-1027] (Moderate)	Project Priority Areas for Biodiversity	General construction activities	(ED-41) Construction stage surface water management.	Not Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Surface water	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.		abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. (Medium-term)	
Reach 6 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-1028] (Moderate)	Project Priority Areas for Biodiversity	General construction activities	(SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-46) Protection of riparian zone during construction.	Not Significant Adverse	Effect on fluvial geomorphology : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. (Medium-term)	No additional mitigation required as the effect is not significant.
Reach 6 Ordinary Watercourse / ditch network (Surface water quality) [WEN-1029] (Negligible)	Project Priority Areas for Biodiversity	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water quality : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, surface water discharges and surface water drainage/runoff can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Medium-term)	No additional mitigation required as the effect is not significant.
Reach 7 Cow Common Brook - Main River Non-WFD (Surface water quality) [WEN-1032] (Negligible)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Steventon to East Hanney road diversion Groundwater drain Project Priority Areas for Biodiversity Western watercourses diversion (Cow Common Brook, Portobello Ditch,	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-41) Construction stage surface water management. (ED-51) Measures to reduce new watercourse crossings. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water quality : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges, surface water drainage/runoff and in channel works can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Permanent)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
	East Hanney Ditch and Landmead Ditch)					
Reach 7 Landmead Ditch - Main River Non-WFD (Surface water quality) [WEN-764] (Negligible)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Western watercourses diversion (Cow Common Brook, Portobello Ditch, East Hanney Ditch and Landmead Ditch) Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-41) Construction stage surface water management. (ED-51) Measures to reduce new watercourse crossings. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges, surface water drainage/runoff and in channel works can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 7 Mere Dyke - Main River Non-WFD (Surface water quality) [WEN-769] (Negligible)	Most / all project components	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-41) Construction stage surface water management. (ED-51) Measures to reduce new watercourse crossings. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges, surface water drainage/runoff and in channel works can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 7 Ordinary Watercourse / ditch network (Surface water quality) [WEN-775] (Negligible)	Most / all project components	General construction activities	(ED-01) Provide floodplain conveyance and compensation before construction of the reservoir and the intake/outfall structure. (ED-41) Construction stage surface water management.	Not Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges, surface water drainage/runoff and in channel works	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(ED-51) Measures to reduce new watercourse crossings. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.		can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Permanent)	
Reach 8 Frilford and Marcham Brook - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1033] (High)	No project components identified at this stage.	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Neutral	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 8 Frilford and Marcham Brook - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1034] (High)	No project components identified at this stage.	General construction activities	(SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Neutral	Effect on fluvial geomorphology : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 8 Frilford and Marcham Brook - WFD (Surface water quality) [WEN-1035] (High)	No project components identified at this stage.	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, surface water discharges, surface water drainage/runoff can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 8 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-1036] (Moderate)	No project components identified at this stage.	General construction activities	(ED-41) Construction stage surface water management.	Not Significant Neutral	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor.	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.		(Long-term)	
Reach 8 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-1037] (Moderate)	No project components identified at this stage.	General construction activities	(SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Neutral	Effect on fluvial geomorphology : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 8 Ordinary Watercourse / ditch network (Surface water quality) [WEN-1038] (Negligible)	No project components identified at this stage.	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water quality : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, surface water discharges, surface water drainage/runoff can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 9 Sandford Brook - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1040] (Moderate)	River Ock realignment Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water hydrology : Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Loss and/or modification of watercourses, presence of temporary or permanent watercourse crossings, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourses, through drawdown or introduced discharge of water. (Long-term)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Reach 9 Sandford Brook - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1041] (Moderate)	River Ock realignment Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision	General construction activities	(ED-51) Measures to reduce new watercourse crossings. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses. (SGP-46) Protection of riparian zone during construction.	Not Significant Adverse	Effect on fluvial geomorphology : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 9 Sandford Brook - Main River Non-WFD (Surface water quality) [WEN-1042] (Negligible)	River Ock realignment Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water quality : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges, surface water drainage/runoff and in channel works can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 9 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-778] (Moderate)	Site compounds, haul routes, temporary bridges or culverts Access roads Site-wide utilities diversions and new supplies Project Priority Areas for Biodiversity Bridges and culverts (over/under watercourses and canal)	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-22) Standard good practice measures for road cleanliness.	Not Significant Adverse	Effect on surface water hydrology : Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Loss and/or modification of watercourses, presence of temporary or permanent watercourse crossings, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourses, through drawdown or introduced discharge of water. (Long-term)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Reach 9 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-779] (Moderate)	Site compounds, haul routes, temporary bridges or culverts Access roads Site-wide utilities diversions and new supplies Project Priority Areas for Biodiversity Bridges and culverts (over/under watercourses and canal)	General construction activities	(ED-51) Measures to reduce new watercourse crossings. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-35) Design of temporary crossings during construction to maintain function and integrity of watercourses. (SGP-46) Protection of riparian zone during construction.	Not Significant Adverse	Effect on fluvial geomorphology: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses, presence of temporary or permanent watercourse crossings and vegetation clearance may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 9 Ordinary watercourse / ditch network (Surface water quality) [WEN-1039] (Negligible)	Site compounds, haul routes, temporary bridges or culverts Access roads Site-wide utilities diversions and new supplies Project Priority Areas for Biodiversity Bridges and culverts (over/under watercourses and canal)	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges, surface water drainage/runoff and in channel works can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 10 Ginge Brook - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-982] (Moderate)	Highways improvements	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 10 Ginge Brook - Main River Non-WFD (Hydrology/Fluvial	Highways improvements	General construction activities	(SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Neutral	Effect on fluvial geomorphology : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
geomorphology/WFD) [WEN-983] (Moderate)			(SGP-46) Protection of riparian zone during construction.		permanent or temporary changes in watercourse fluvial geomorphology. (Long-term)	
Reach 10 Ginge Brook - Main River Non-WFD (Surface water quality) [WEN-984] (Negligible)	Highways improvements	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges and surface water drainage/runoff can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 10 Ginge Brook and Mill Brook - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-759] (High)	Project Priority Areas for Biodiversity Thames to Southern Water Transfer (T2ST) Water Treatment Works (WTW) and pipelines Highways improvements	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 10 Ginge Brook and Mill Brook - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-827] (High)	Project Priority Areas for Biodiversity Thames to Southern Water Transfer (T2ST) Water Treatment Works (WTW) and pipelines Highways improvements	General construction activities	(SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-46) Protection of riparian zone during construction.	Not Significant Neutral	Effect on fluvial geomorphology: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 10 Ginge Brook and Mill Brook - WFD (Surface water quality) [WEN-755] (High)	Project Priority Areas for Biodiversity Thames to Southern Water Transfer (T2ST) Water	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources.	Not Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges and surface	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
	Treatment Works (WTW) and pipelines Highways improvements		(SGP-03) Standard good practice measures for works within or adjacent to waterbodies.		water drainage/runoff can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	
Reach 10 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-985] (Moderate)	Project Priority Areas for Biodiversity Thames to Southern Water Transfer (T2ST) Water Treatment Works (WTW) and pipelines	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 10 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-986] (Moderate)	Project Priority Areas for Biodiversity Thames to Southern Water Transfer (T2ST) Water Treatment Works (WTW) and pipelines	General construction activities	(SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-46) Protection of riparian zone during construction.	Not Significant Neutral	Effect on fluvial geomorphology : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 10 Ordinary Watercourse / ditch network (Surface water quality) [WEN-987] (Negligible)	Project Priority Areas for Biodiversity Thames to Southern Water Transfer (T2ST) Water Treatment Works (WTW) and pipelines	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges and surface water drainage/runoff can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 11 Moor Ditch - Main River Non-WFD (Hydrology/Fluvial	Highways improvements	General construction activities	(ED-41) Construction stage surface water management.	Not Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
geomorphology/WFD) [WEN-988] (Moderate)	Bridges and culverts (over/under watercourses and canal)		(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-22) Standard good practice measures for road cleanliness.		changes in watercourse flow volumes and the quantity of water within the receptor. Surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. (Long-term)	
Reach 11 Moor Ditch - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-989] (Moderate)	Highways improvements Bridges and culverts (over/under watercourses and canal)	General construction activities	(SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-46) Protection of riparian zone during construction.	Not Significant Neutral	Effect on fluvial geomorphology : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 11 Moor Ditch - Main River Non-WFD (Surface water quality) [WEN-990] (Negligible)	Highways improvements Bridges and culverts (over/under watercourses and canal)	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-22) Standard good practice measures for road cleanliness.	Not Significant Adverse	Effect on surface water quality : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges and surface water drainage/runoff can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 11 Moor Ditch and Ladygrove Ditch - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-770] (High)	Highways improvements Bridges and culverts (over/under watercourses and canal)	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-22) Standard good practice measures for road cleanliness.	Not Significant Adverse	Effect on surface water hydrology : Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. (Long-term)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Reach 11 Moor Ditch and Ladygrove Ditch - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-991] (High)	Highways improvements Bridges and culverts (over/under watercourses and canal)	General construction activities	(SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-46) Protection of riparian zone during construction.	Not Significant Neutral	Effect on fluvial geomorphology : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 11 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-992] (Moderate)	Highways improvements Bridges and culverts (over/under watercourses and canal)	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-22) Standard good practice measures for road cleanliness.	Not Significant Adverse	Effect on surface water hydrology : Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 11 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-993] (Moderate)	Highways improvements Bridges and culverts (over/under watercourses and canal)	General construction activities	(SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-46) Protection of riparian zone during construction.	Not Significant Neutral	Effect on fluvial geomorphology : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 11 Ordinary Watercourse / ditch network (Surface water quality) [WEN-994] (Negligible)	Highways improvements Bridges and culverts (over/under watercourses and canal)	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-22) Standard good practice measures for road cleanliness.	Not Significant Adverse	Effect on surface water quality : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges and surface water drainage/runoff can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 12 Mill Brook and Bradfords Brook system, Wallingford - WFD (Surface water quality and Hydrology/Fluvial	Highways improvements	Most / all project activities (construction)	(ED-41) Construction stage surface water management.	Not Significant Neutral	Effects on surface water quality, surface water quantity and fluvial geomorphology : No effects are anticipated in relation to changes in watercourse water quality, watercourse flow volumes, the quantity of water within the receptor or watercourse	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
geomorphology/WFD) [WEN-786] (Very High)			(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-22) Standard good practice measures for road cleanliness. (SGP-46) Protection of riparian zone during construction.		fluvial geomorphology given that there is no hydrological connection between the Project and this watercourse(s). It is considered that from initial analysis, effects on the receptor are likely to be limited. (Long-term)	
Reach 12 Ordinary Watercourse / ditch network (Surface water quality and Hydrology/Fluvial geomorphology/WFD) [WEN-995] (Moderate)	Highways improvements	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-22) Standard good practice measures for road cleanliness. (SGP-46) Protection of riparian zone during construction.	Not Significant Neutral	Effects on surface water quality, surface water quantity and fluvial geomorphology: No effects are anticipated in relation to changes in watercourse water quality, watercourse flow volumes, the quantity of water within the receptor or watercourse fluvial geomorphology given that there is no hydrological connection between the Project and this watercourse(s). It is considered that from initial analysis, effects on the receptor are likely to be limited. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 13 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-996] (Moderate)	Site compounds, haul routes, temporary bridges or culverts	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Neutral	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Loss and/or modification of watercourses, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourses, through drawdown or introduced discharge of water. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 13 Ordinary Watercourse / ditch network (Hydrology/Fluvial	Site compounds, haul routes,	General construction activities	(SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Neutral	Effect on fluvial geomorphology : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
geomorphology/WFD) [WEN-997] (Moderate)	temporary bridges or culverts		(SGP-46) Protection of riparian zone during construction.		permanent or temporary changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses, vegetation clearance and in channel works may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Long-term)	
Reach 13 Ordinary Watercourse / ditch network (Surface water quality) [WEN-998] (Negligible)	Site compounds, haul routes, temporary bridges or culverts	General construction activities	(ED-02) Manage water quality at the SESRO intake. (ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Neutral	Effect on surface water quality: Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges, surface water drainage/runoff and in channel works can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 14 Thames (Evenlode to Thame) - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1005] (Moderate)	Project Priority Areas for Biodiversity Access roads River tunnel and shafts Wilts and Berks Canal	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Loss and/or modification of watercourses, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourses, through drawdown or introduced discharge of water. (Long-term)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Reach 14 Thames (Evenlode to Thame) - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1006] (Moderate)	Project Priority Areas for Biodiversity Access roads River tunnel and shafts Wilts and Berks Canal	General construction activities	(SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-46) Protection of riparian zone during construction.	Not Significant Adverse	Effect on fluvial geomorphology : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses, vegetation clearance and in channel works may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 14 Thames (Evenlode to Thame) - Main River Non-WFD (Surface water quality) [WEN-1007] (Negligible)	Project Priority Areas for Biodiversity Access roads River tunnel and shafts Wilts and Berks Canal	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water quality : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges, surface water drainage/runoff and in channel works can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 14 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-1002] (Moderate)	Project Priority Areas for Biodiversity Access roads River tunnel and shafts Wilts and Berks Canal	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water hydrology : Undertaking construction works within or adjacent to the watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water within the receptor. Loss and/or modification of watercourses, surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourses,	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
					through drawdown or introduced discharge of water. (Long-term)	
Reach 14 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-1003] (Moderate)	Project Priority Areas for Biodiversity Access roads River tunnel and shafts Wilts and Berks Canal	General construction activities	(SGP-03) Standard good practice measures for works within or adjacent to waterbodies. (SGP-46) Protection of riparian zone during construction.	Not Significant Adverse	Effect on fluvial geomorphology : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in its permanent or temporary changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses, vegetation clearance and in channel works may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 14 Ordinary Watercourse / ditch network (Surface water quality) [WEN-1004] (Negligible)	Project Priority Areas for Biodiversity Access roads River tunnel and shafts Wilts and Berks Canal	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-03) Standard good practice measures for works within or adjacent to waterbodies.	Not Significant Adverse	Effect on surface water quality : Undertaking construction works within or adjacent to watercourse(s) has the potential to result in changes in watercourse water quality. Accidental discharges or spills of pollutants, groundwater dewatering, surface water discharges, surface water drainage/runoff and in channel works can lead to the temporary mobilisation of fine sediments and contaminants to surface waterbodies, leading to potential changes downstream water quality. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interaction and the potential mobilisation of contaminants leading to a deterioration in water quality. (Long-term)	No additional mitigation required as the effect is not significant.
Reach 15-24 Thames Wallingford to Caversham, Thames (Reading to Cookham), Thames (Cookham to Egham) and Thames (Egham to Teddington) - WFD (Surface water quality, hydrology and fluvial geomorphology) [WEN-1010] (Very High)	Intake/outfall structure	General construction activities	(ED-41) Construction stage surface water management. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources.	Not Significant Neutral	Effect on surface water quality, hydrology and fluvial geomorphology : There are no potential mechanisms of impact. No effects are anticipated in relation to changes in watercourse water quality, watercourse flow volumes, the quantity of water within the receptor or watercourse fluvial geomorphology given that there is no potential mechanisms of impact. It is considered that from initial analysis, effects on the receptor are likely to be limited. (Long-term)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Alluvium [WEN-364] (High)	Most / all project components	General construction activities	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Direct impacts to groundwater quality: Undertaking construction activities leads to the potential for contamination and degradation of groundwater quality due to the risk of accidental spillage of pollutants (E.g. fuel leakage) or leachate from material (E.g.: asphalt, concrete). In addition there is the potential for runoff of sediment during constructions, impacting groundwater quality. (Long-term)	No additional mitigation required as the effect is not significant.
Head [WEN-366] (High)	Most / all project components	General construction activities	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Direct impacts to groundwater quality: Undertaking construction activities leads to the potential for contamination and degradation of groundwater quality due to the risk of accidental spillage of pollutants (E.g. fuel leakage) or leachate from material (E.g.: asphalt, concrete). In addition there is the potential for runoff of sediment during constructions, impacting groundwater quality. (Long-term)	No additional mitigation required as the effect is not significant.
River Terrace Deposits [WEN-365] (High)	Most / all project components	General construction activities	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Direct impacts to groundwater quality: Undertaking construction activities leads to the potential for contamination and degradation of groundwater quality due to the risk of accidental spillage of pollutants (E.g. fuel leakage) or leachate from material (E.g.: asphalt, concrete). In addition there is the potential for runoff of sediment during constructions, impacting groundwater quality. (Long-term)	No additional mitigation required as the effect is not significant.
Upper Greensand [WEN- 318] (Very High)	Highways improvements	Material excavation and handling	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Direct impacts to groundwater levels or flows: Undertaking construction works has the potential to alter groundwater levels and flows. Shallow excavations/trenching during the installation of infrastructure may impact groundwater levels and flows. This has the potential to lead to loss/degradation of supply. (Long-term)	No additional mitigation required as the effect is not significant.
Upper Greensand [WEN- 361] (Very High)	Most / all project components	General construction activities	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with	Not Significant Adverse	Direct impacts to groundwater quality: Undertaking construction activities leads to the potential for contamination and degradation of groundwater quality due to the risk of accidental spillage of pollutants (E.g. fuel leakage) or leachate from material (E.g.: asphalt, concrete). In addition there is the potential for runoff of sediment during constructions, impacting groundwater quality.	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			standard good practice measures for land contamination.		(Long-term)	
Gault Formation [WEN- 314] (Low)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Direct impacts to groundwater levels and/or flows: Undertaking construction works has the potential to alter groundwater levels and flows in the area. Construction dewatering, excavation, tunnelling, piling and trenching activities in the area all have the potential to alter groundwater levels and flow. In addition, landscaping, embankment reshaping and loading also have the potential to affect shallow groundwater gradients. This has the potential to lead to loss/degradation of supply of this receptor. (Long-term)	No additional mitigation required as the effect is not significant.
Gault Formation [WEN- 357] (Low)	Most / all project components	General construction activities	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Direct impacts to groundwater quality: Undertaking construction activities leads to the potential for contamination and degradation of groundwater quality due to the risk of accidental spillage of pollutants (E.g. fuel leakage) or leachate from material (E.g.: asphalt, concrete). In addition there is the potential for runoff of sediment during constructions, impacting groundwater quality. (Long-term)	No additional mitigation required as the effect is not significant.
Lower Greensand [WEN- 360] (High)	Most / all project components	General construction activities	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Direct impacts to groundwater quality: Undertaking construction activities leads to the potential for contamination and degradation of groundwater quality due to the risk of accidental spillage of pollutants (E.g. fuel leakage) or leachate from material (E.g.: asphalt, concrete). In addition there is the potential for runoff of sediment during constructions, impacting groundwater quality. (Long-term)	No additional mitigation required as the effect is not significant.
Lower Greensand [WEN- 317] (High)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Direct impacts to groundwater levels or flows: Undertaking construction works has the potential to alter groundwater levels and flows in the area. Construction dewatering, excavation, tunnelling, piling and trenching activities in the area all have the potential to alter groundwater levels and flow. In addition, landscaping, embankment reshaping and loading also have the potential to affect shallow groundwater gradients. This has the potential to lead to loss/degradation of supply of this receptor. (Long-term)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Kimmeridge Clay Formation and Ampthill Clay Formation [WEN-315] (Low)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Direct impacts to groundwater levels or flows: Undertaking construction works has the potential to alter groundwater levels and flows in the area. Construction dewatering, excavation, tunnelling, piling and trenching activities in the area all have the potential to alter groundwater levels and flow. In addition, landscaping, embankment reshaping and loading also have the potential to affect shallow groundwater gradients. This has the potential to lead to loss/degradation of supply of this receptor. (Long-term)	No additional mitigation required as the effect is not significant.
Kimmeridge Clay Formation and Ampthill Clay Formation [WEN-358] (Low)	Most / all project components	General construction activities	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Direct impacts to groundwater quality: Undertaking construction activities leads to the potential for contamination and degradation of groundwater quality due to the risk of accidental spillage of pollutants (E.g. fuel leakage) or leachate from material (E.g.: asphalt, concrete). In addition there is the potential for runoff of sediment during constructions, impacting groundwater quality. (Long-term)	No additional mitigation required as the effect is not significant.
Corallian Group [WEN-359] (High)	Most / all project components	General construction activities	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Direct impacts to groundwater quality: Undertaking construction activities leads to the potential for contamination and degradation of groundwater quality due to the risk of accidental spillage of pollutants (E.g. fuel leakage) or leachate from material (E.g.: asphalt, concrete). In addition there is the potential for runoff of sediment during constructions, impacting groundwater quality. (Long-term)	No additional mitigation required as the effect is not significant.
Corallian Group [WEN-316] (High)	Highways improvements Ground-mounted solar (solar farm reprovision)	Material excavation and handling	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Direct impacts to groundwater levels or flows: Undertaking construction works has the potential to alter groundwater levels and flows in the area. Excavations and trenching in the area have the potential to alter groundwater levels and flow. This has the potential to lead to loss/degradation of supply. (Long-term)	No additional mitigation required as the effect is not significant.
Mapped Water Supply Spring [WEN-324] (High)	Most / all project components	Dewatering Material excavation and handling	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.	Not Significant Adverse	Impact on Spring receptor due to changes in groundwater levels or flows: Undertaking construction works has the potential to alter groundwater levels and flows in the area. Construction dewatering, excavation, tunnelling,	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
		General construction activities	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.		piling and trenching activities in the area all have the potential to alter groundwater levels and flow. This has the potential to lead to loss/degradation of supply at this receptor. (Long-term)	
Potential Springs (unmapped) [WEN-367] (High)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Impact on Spring receptor due to changes in groundwater levels or flows: Undertaking construction works has the potential to alter groundwater levels and flows in the area. Construction dewatering, excavation, tunnelling, piling and trenching activities in the area all have the potential to alter groundwater levels and flow. This has the potential to lead to loss/degradation of supply at this receptor. (Long-term)	No additional mitigation required as the effect is not significant.
Potential Springs (unmapped) [WEN-383] (High)	Most / all project components	General construction activities	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Impact on Spring receptor due to changes in groundwater quality: Undertaking construction activities leads to the potential for contamination and degradation of groundwater quality due to the risk of accidental spillage of pollutants (E.g. fuel leakage) or leachate from material (E.g.: asphalt, concrete). In addition there is the potential for runoff of sediment during constructions, impacting groundwater quality. This has the potential to impact the water quality of this receptor. (Long-term)	No additional mitigation required as the effect is not significant.
Marcham Salt Water Spring [WEN-335] (Moderate)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Impact on Spring receptor due to changes in groundwater levels or flows: Undertaking construction works has the potential to alter groundwater levels and flows in the area. Construction dewatering, excavation, tunnelling, piling and trenching activities in the area all have the potential to alter groundwater levels and flow. This has the potential to lead to loss/degradation of supply at this receptor. (Long-term)	No additional mitigation required as the effect is not significant.
Marcham Salt Water Spring [WEN-346] (Moderate)	Most / all project components	General construction activities	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources.	Not Significant Adverse	Impact on Spring receptor due to changes in groundwater quality: Undertaking construction activities leads to the potential for contamination	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.		and degradation of groundwater quality due to the risk of accidental spillage of pollutants (E.g. fuel leakage) or leachate from material (E.g.: asphalt, concrete). In addition there is the potential for runoff of sediment during constructions, impacting groundwater quality. This has the potential to lead to impact the water quality of this receptor. (Long-term)	
Abingdon Area abstraction (TH/039/0018/011) [WEN-326] (Moderate)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Impact on abstractions due to changes in groundwater levels or flows: Undertaking construction works has the potential to alter groundwater levels and flows in the area Eg: due to construction dewatering, excavation, tunnelling, piling and trenching activities in the area. These changes could, in turn, affect the groundwater body this receptor abstracts from. (Long-term)	No additional mitigation required as the effect is not significant.
Abingdon Area abstraction (TH/039/0018/011) [WEN-327] (Moderate)	Most / all project components	General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Impact on abstractions due to changes in groundwater quality: Constructional work in the area may impact groundwater quality and in turn may impact the water quality in the groundwater body this receptor abstracts from. (Long-term)	No additional mitigation required as the effect is not significant.
Corallian agricultural groundwater abstraction (TH/039/0017/001/R01) [WEN-336] (Moderate)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Impact on abstractions due to changes in groundwater levels or flows: Undertaking construction works has the potential to alter groundwater levels and flows in the area. Construction dewatering, excavation, tunnelling, piling and trenching activities in the area all have the potential to alter groundwater levels and flow and the groundwater aquifer feeding this abstraction. (Long-term)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Corallian agricultural groundwater abstraction (TH/039/0017/001/R01) [WEN-337] (Moderate)	Most / all project components	General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Impact on abstractions due to changes in groundwater quality: Constructional work in the area may impact groundwater quality and in turn may impact the water quality in the groundwater body this receptor abstracts from. (Long-term)	No additional mitigation required as the effect is not significant.
Groundwater point River Terrace abstractions outside draft Order Limits (28/39/18/0055; 28/39/18/0009; TH/039/0018/003) [WEN- 338] (Moderate)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Impact on abstractions due to changes in groundwater levels or flows: Undertaking construction works has the potential to alter groundwater levels and flows in the area. Construction dewatering, excavation, tunnelling, piling and trenching activities in the area all have the potential to alter groundwater levels and flow and the groundwater aquifer feeding this abstraction. (Long-term)	No additional mitigation required as the effect is not significant.
Groundwater point River Terrace abstractions outside draft Order Limits (28/39/18/0055; 28/39/18/0009; TH/039/0018/003) [WEN- 339] (Moderate)	Most / all project components	General construction activities	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Impact on abstractions due to changes in groundwater quality: Constructional work in the area may impact groundwater quality and in turn may impact the water quality in the groundwater body this receptor abstracts from. (Long-term)	No additional mitigation required as the effect is not significant.
River Gravels Industrial groundwater abstraction (TH/039/0018/012) [WEN- 347] (Moderate)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Impact on abstractions due to changes in groundwater levels or flows: Undertaking construction works has the potential to alter groundwater levels and flows in the area. Construction dewatering, excavation, tunnelling, piling and trenching activities in the area all have the potential to alter groundwater levels and flow and the groundwater aquifer feeding this abstraction. (Long-term)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
River Gravels Industrial groundwater abstraction (TH/039/0018/012) [WEN-348] (Moderate)	Most / all project components	General construction activities	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Impact on abstractions due to changes in groundwater quality: Constructional work in the area may impact groundwater quality and in turn may impact the water quality in the groundwater body this receptor abstracts from. (Long-term)	No additional mitigation required as the effect is not significant.
Area abstractions outside draft Order Limits [WEN-328] (Moderate)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Impact on abstractions due to changes in groundwater levels or flows: Undertaking construction works has the potential to alter groundwater levels and flows in the area Eg: due to construction dewatering, excavation, tunnelling, piling and trenching activities in the area. These changes could, in turn, affect the groundwater body this receptor abstracts from. (Long-term)	No additional mitigation required as the effect is not significant.
Area abstractions outside draft Order Limits [WEN-329] (Moderate)	Most / all project components	General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Impact on abstractions due to changes in groundwater quality: Constructional work in the area may impact groundwater quality and in turn may impact the water quality in the groundwater body this receptor abstracts from. (Long-term)	No additional mitigation required as the effect is not significant.
River Ock reach abstraction (28/39/17/0027) [WEN-349] (Moderate)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Impact on abstractions due to changes in groundwater levels or flows: Undertaking construction works has the potential to alter groundwater levels and flows in the area. Construction dewatering, excavation, tunnelling, piling and trenching activities in the area all have the potential to alter groundwater levels and flow and the groundwater aquifer feeding this abstraction. (Long-term)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
River Ock reach abstraction (28/39/17/0027) [WEN-350] (Moderate)	Most / all project components	General construction activities	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Impact on abstractions due to changes in groundwater quality: Constructional work in the area may impact groundwater quality and in turn may impact the water quality in the groundwater body this receptor abstracts from. (Long-term)	No additional mitigation required as the effect is not significant.
River Thames reach abstraction outside draft Order Limits (TH/039/0015/003) [WEN-368] (Moderate)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Impact on abstractions due to changes in groundwater levels or flows: Undertaking construction works has the potential to alter groundwater levels and flows in the area. Construction dewatering, excavation, tunnelling, piling and trenching activities in the area all have the potential to alter groundwater levels and flow and the groundwater aquifer feeding this abstraction. (Long-term)	No additional mitigation required as the effect is not significant.
River Thames reach abstraction outside draft Order Limits (TH/039/0015/003) [WEN-369] (Moderate)	Most / all project components	General construction activities	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Impact on abstractions due to changes in groundwater quality: Constructional work in the area may impact groundwater quality and in turn may impact the water quality in the groundwater body this receptor abstracts from. (Long-term)	No additional mitigation required as the effect is not significant.
Surface water abstractions outside draft Order Limits (28/39/17/0143; 28/39/17/0146; 28/39/18/0019; TH/039/0017/005; 28/39/17/0152; TH/039/0015/006) [WEN-370] (Moderate)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Impact on abstractions due to changes in groundwater levels or flows: Undertaking construction works has the potential to alter groundwater levels and flows in the area. Construction dewatering, excavation, tunnelling, piling and trenching activities in the area all have the potential to alter groundwater levels and flow and the groundwater aquifer feeding this abstraction. (Long-term)	No additional mitigation required as the effect is not significant.
Surface water abstractions outside draft Order Limits (28/39/17/0143; 28/39/17/0146; 28/39/18/0019;	Most / all project components	General construction activities	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable	Not Significant Adverse	Impact on abstractions due to changes in groundwater quality: Constructional work in the area may impact groundwater quality and in turn may impact the water quality in the groundwater body this receptor abstracts from.	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
TH/039/0017/005; 28/39/17/0152; TH/039/0015/006) [WEN-371] (Moderate)			remediation, in accordance with standard good practice measures for land contamination.		(Long-term)	
Surface water abstractions outside draft Order Limits (28/39/18/0059) [WEN-1133] (High)	Most / all project components	General construction activities	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Impact on abstractions due to changes in groundwater quality: Constructional work in the area may impact groundwater quality and in turn may impact the water quality in the groundwater body this receptor abstracts from. (Long-term)	No additional mitigation required as the effect is not significant.
Surface water abstractions outside draft Order Limits (28/39/18/0059) [WEN-1132] (High)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Impact on abstractions due to changes in groundwater levels or flows: Undertaking construction works has the potential to alter groundwater levels and flows in the area. Construction dewatering, excavation, tunnelling, piling and trenching activities in the area all have the potential to alter groundwater levels and flow and the groundwater aquifer feeding this abstraction. (Long-term)	No additional mitigation required as the effect is not significant.
CAWM.0345 (Thames Water sewage discharge to freshwater river) [WEN-308] (Low)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Undertaking construction works has the potential to alter groundwater levels and flows. These changes may, in turn, affect the receiving watercourse for this discharge, potentially modifying the impact of the consented discharge. (Long-term)	No additional mitigation required as the effect is not significant.
CAWM.0345 (Thames Water sewage discharge to freshwater river) [WEN-309] (Low)	Most / all project components	General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Undertaking construction works has the potential to alter groundwater quality. These changes may, in turn, affect the receiving watercourse for this discharge, potentially modifying the impact of the consented discharge. (Long-term)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			standard good practice measures for land contamination.			
CAWM.0380 (Thames Water sewage discharge to freshwater river) [WEN- 310] (Low)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Undertaking construction works has the potential to alter groundwater levels and flows. These changes may, in turn, affect the receiving watercourse for this discharge, potentially modifying the impact of the consented discharge. (Long-term)	No additional mitigation required as the effect is not significant.
CAWM.0380 (Thames Water sewage discharge to freshwater river) [WEN- 311] (Low)	Most / all project components	General construction activities	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Undertaking construction works has the potential to alter groundwater quality. These changes may, in turn, affect the receiving watercourse for this discharge, potentially modifying the impact of the consented discharge. (Long-term)	No additional mitigation required as the effect is not significant.
CAWM.0381 (Thames Water sewage discharge to freshwater river) [WEN- 312] (Low)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Undertaking construction works has the potential to alter groundwater levels and flows. These changes may, in turn, affect the receiving watercourse for this discharge, potentially modifying the impact of the consented discharge. (Long-term)	No additional mitigation required as the effect is not significant.
CAWM.0381 (Thames Water sewage discharge to freshwater river) [WEN- 313] (Low)	Most / all project components	General construction activities	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Undertaking construction works has the potential to alter groundwater quality. These changes may, in turn, affect the receiving watercourse for this discharge, potentially modifying the impact of the consented discharge. (Long-term)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
CAWM.0382 (Trade discharge to freshwater river) [WEN-340] (Low)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Undertaking construction works has the potential to alter groundwater levels and flows. These changes may, in turn, affect the receiving watercourse for this discharge, potentially modifying the impact of the consented discharge. (Long-term)	No additional mitigation required as the effect is not significant.
CAWM.0382 (Trade discharge to freshwater river) [WEN-341] (Low)	Most / all project components	General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Undertaking construction works has the potential to alter groundwater quality. These changes may, in turn, affect the receiving watercourse for this discharge, potentially modifying the impact of the consented discharge. (Long-term)	No additional mitigation required as the effect is not significant.
CAWM.0557 (Sewage discharge to freshwater river) [WEN-342] (Low)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Undertaking construction works has the potential to alter groundwater levels and flows. These changes may, in turn, affect the receiving watercourse for this discharge, potentially modifying the impact of the consented discharge. (Long-term)	No additional mitigation required as the effect is not significant.
CAWM.0557 (Sewage discharge to freshwater river) [WEN-343] (Low)	Most / all project components	General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Undertaking construction works has the potential to alter groundwater quality. These changes may, in turn, affect the receiving watercourse for this discharge, potentially modifying the impact of the consented discharge. (Long-term)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			standard good practice measures for land contamination.			
CAWM.1151 (Trade discharge to freshwater river) [WEN-344] (Low)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Undertaking construction works has the potential to alter groundwater levels and flows. These changes may, in turn, affect the receiving watercourse for this discharge, potentially modifying the impact of the consented discharge. (Long-term)	No additional mitigation required as the effect is not significant.
CAWM.1151 (Trade discharge to freshwater river) [WEN-345] (Low)	Most / all project components	General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Undertaking construction works has the potential to alter groundwater quality. These changes may, in turn, affect the receiving watercourse for this discharge, potentially modifying the impact of the consented discharge. (Long-term)	No additional mitigation required as the effect is not significant.
CNTD.0030 (Thames Water sewage discharge to freshwater river) [WEN- 351] (Low)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Undertaking construction works has the potential to alter groundwater levels and flows. These changes may, in turn, affect the receiving watercourse for this discharge, potentially modifying the impact of the consented discharge. (Long-term)	No additional mitigation required as the effect is not significant.
CNTD.0030 (Thames Water sewage discharge to freshwater river) [WEN- 352] (Low)	Most / all project components	General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Undertaking construction works has the potential to alter groundwater quality. These changes may, in turn, affect the receiving watercourse for this discharge, potentially modifying the impact of the consented discharge. (Long-term)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.			
CNTD.0053 (Thames Water sewage discharge to freshwater river) [WEN-353] (Low)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Undertaking construction works has the potential to alter groundwater levels and flows. These changes may, in turn, affect the receiving watercourse for this discharge, potentially modifying the impact of the consented discharge. (Long-term)	No additional mitigation required as the effect is not significant.
CNTD.0053 (Thames Water sewage discharge to freshwater river) [WEN-354] (Low)	Most / all project components	General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Undertaking construction works has the potential to alter groundwater quality. These changes may, in turn, affect the receiving watercourse for this discharge, potentially modifying the impact of the consented discharge. (Long-term)	No additional mitigation required as the effect is not significant.
CTCR.1804 (Thames Water sewage discharge into freshwater river) [WEN-355] (Low)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Undertaking construction works has the potential to alter groundwater levels and flows. These changes may, in turn, affect the receiving watercourse for this discharge, potentially modifying the impact of the consented discharge. (Long-term)	No additional mitigation required as the effect is not significant.
CTCR.1804 (Thames Water sewage discharge into freshwater river) [WEN-356] (Low)	Most / all project components	General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Undertaking construction works has the potential to alter groundwater quality. These changes may, in turn, affect the receiving watercourse for this	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.		discharge, potentially modifying the impact of the consented discharge. (Long-term)	
EPREB3990AK (Trade discharge to freshwater river) [WEN-372] (Low)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Undertaking construction works has the potential to alter groundwater levels and flows. These changes may, in turn, affect the receiving watercourse for this discharge, potentially modifying the impact of the consented discharge. (Long-term)	No additional mitigation required as the effect is not significant.
EPREB3990AK (Trade discharge to freshwater river) [WEN-373] (Low)	Most / all project components	General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Undertaking construction works has the potential to alter groundwater quality. These changes may, in turn, affect the receiving watercourse for this discharge, potentially modifying the impact of the consented discharge. (Long-term)	No additional mitigation required as the effect is not significant.
EPRTB3094RX (Sewage discharge to freshwater river) [WEN-374] (Low)	Highways improvements Access roads	Material excavation and handling	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Undertaking construction works has the potential to alter groundwater levels and flows. These changes may, in turn, affect the receiving watercourse for this discharge, potentially modifying the impact of the consented discharge. (Long-term)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
EPRTB3094RX (Sewage discharge to freshwater river) [WEN-375] (Low)	Highways improvements Access roads	General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Undertaking construction works has the potential to alter groundwater quality. These changes may, in turn, affect the receiving watercourse for this discharge, potentially modifying the impact of the consented discharge. (Long-term)	No additional mitigation required as the effect is not significant.
TEMP.2989 (Thames sewage discharge to freshwater river) [WEN- 376] (Low)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Undertaking construction works has the potential to alter groundwater levels and flows. These changes may, in turn, affect the receiving watercourse for this discharge, potentially modifying the impact of the consented discharge. (Long-term)	No additional mitigation required as the effect is not significant.
TEMP.2989 (Thames sewage discharge to freshwater river) [WEN- 377] (Low)	Most / all project components	General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Undertaking construction works has the potential to alter groundwater quality. These changes may, in turn, affect the receiving watercourse for this discharge, potentially modifying the impact of the consented discharge. (Long-term)	No additional mitigation required as the effect is not significant.
Shrivenham Corallian [WEN-319] (Very High)	Highways improvements Ground-mounted solar (solar farm reprovision)	Material excavation and handling	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Direct impacts to groundwater levels or flows: Undertaking construction works has the potential to alter groundwater levels and flows. Shallow excavations/trenching during the installation of infrastructure may impact groundwater levels and flows in shallow aquifers. This has the potential to lead to loss/degradation of supply. (Long-term)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Shrivenham Corallian [WEN-362] (Very High)	Most / all project components	General construction activities	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Direct impacts to groundwater quality: Undertaking construction activities leads to the potential for contamination and degradation of groundwater quality due to the risk of accidental spillage of pollutants (E.g. fuel leakage) or leachate from material (E.g.: asphalt, concrete). In addition there is the potential for runoff of sediment during constructions, impacting groundwater quality. (Long-term)	No additional mitigation required as the effect is not significant.
Vale of White Horse Chalk [WEN-363] (Very High)	Most / all project components	General construction activities	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Direct impacts to groundwater quality: Undertaking construction activities leads to the potential for contamination and degradation of groundwater quality due to the risk of accidental spillage of pollutants (E.g. fuel leakage) or leachate from material (E.g.: asphalt, concrete). In addition there is the potential for runoff of sediment during constructions, impacting groundwater quality. (Long-term)	No additional mitigation required as the effect is not significant.
Vale of White Horse Chalk [WEN-320] (Very High)	Highways improvements	Material excavation and handling	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Direct impacts to groundwater levels or flows: Undertaking construction works has the potential to alter groundwater levels and flows. Shallow excavations/trenching during the installation of infrastructure may impact groundwater levels and flows in shallow aquifers. This has the potential to lead to loss/degradation of supply. (Long-term)	No additional mitigation required as the effect is not significant.
Potential Non-Designated GWDTE [WEN-330] (Very High)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Impact on potential non-designated GWDTE due to changes in groundwater levels and flows: Potential indirect effects on GWDTEs from altered groundwater levels and flows due to construction activities. For example, construction dewatering, excavation, tunnelling, piling and trenching activities in the area all have the potential to alter groundwater levels and flow. (Long-term)	No additional mitigation required as the effect is not significant.
Potential Non-Designated GWDTE [WEN-378] (Very High)	Most / all project components	General construction activities	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Impact on potential non-designated GWDTE due to changes in groundwater quality: Undertaking construction activities leads to the potential for contamination and degradation of groundwater quality due to the risk of accidental spillage of pollutants (E.g. fuel leakage) or leachate from material (E.g.: asphalt, concrete). In addition there is the potential for runoff of sediment during	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
					constructions, impacting groundwater quality. This has the potential to cause indirect effects on GWDTEs from altered groundwater quality due to construction activities. (Long-term)	
Potential Private Water Supplies (unmapped) [WEN-325] (High)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Impact on water supply receptors due to changes in groundwater levels or flows: Undertaking construction works has the potential to alter groundwater levels and flows in the area. Construction dewatering, excavation, tunnelling, piling and trenching activities in the area all have the potential to alter groundwater levels and flow. This has the potential to lead to loss/degradation of supply at this receptor. (Long-term)	No additional mitigation required as the effect is not significant.
South Oxfordshire Crematorium [WEN-331] (High)	Most / all project components	Dewatering Material excavation and handling General construction activities	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Impact on anthropogenic feature due to changes in groundwater levels and flows: Potential indirect effect on anthropogenic features from altered groundwater levels and flows as a result of construction activities. For example, construction dewatering, excavation, tunnelling, piling and trenching activities in the area all have the potential to alter groundwater levels and flow. (Long-term)	No additional mitigation required as the effect is not significant.
South Oxfordshire Crematorium [WEN-379] (High)	Most / all project components	General construction activities	(SGP-02) Standard good practice measures to reduce the impacts to surface and groundwater resources. (SGP-43) Ground investigation, risk assessment, and, if required, sustainable remediation, in accordance with standard good practice measures for land contamination.	Not Significant Adverse	Impact on anthropogenic feature due to changes in groundwater quality: Undertaking construction activities leads to the potential for contamination and degradation of groundwater quality due to the risk of accidental spillage of pollutants (E.g. fuel leakage) or leachate from material (E.g.: asphalt, concrete). In addition there is the potential for runoff of sediment during constructions, impacting groundwater quality. This has the potential to cause indirect effects on anthropogenic features from altered groundwater quality due to construction activities. (Long-term)	No additional mitigation required as the effect is not significant.

1.5 Likely non-significant operation effects

Table 1.4 Initial likely non-significant effects during operation (with embedded and standard good practice mitigation applied, but prior to additional mitigation)

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Essential infrastructure: The Project - A415/SESRO Main Access, Pumping station and pumping station access road, Reservoir embankment, Drayton substation, Steventon to East Hanney Road diversion, Water treatment buildings, Intake/outfall structure [WEN-281] (Very High)	Most / all project components	Presence (of project components)	(ED-13) Measures to address the risks of increased precipitation, intense periods of rainfall and frequency and intensity of flooding. (ED-17) Measures for safe reservoir operation. (ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-36) Design of culverts to maintain function and integrity of watercourses.	Not Significant Neutral	Potential change in fluvial flood risk: Landscape and infrastructure works proposed within existing areas of flood risk or near existing watercourses have the potential to increase flood risk to project receptors located on site. In particular, permanent works which change existing ground levels within the floodplain may alter floodplain storage and flood flow routes, which could result in an increase in flood risk. The installation of new watercourses crossings has the potential to increase flood risk by acting as a barrier or constraint on flow. Furthermore, any changes to groundwater levels and flow paths could also result in local changes to surface water flows. (Permanent)	No additional mitigation required as the effect is not significant.
Essential infrastructure: The Project - A415/SESRO Main Access, Pumping station and pumping station access road, Reservoir embankment, Drayton substation, Steventon to East Hanney Road diversion, Water treatment buildings, Intake/outfall structure [WEN-290] (Very High)	Most / all project components	Presence (of project components)	(ED-13) Measures to address the risks of increased precipitation, intense periods of rainfall and frequency and intensity of flooding. (ED-17) Measures for safe reservoir operation. (ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-36) Design of culverts to maintain function and integrity of watercourses.	Not Significant Neutral	Potential change in pluvial flood risk: Landscape and infrastructure works which permanently change ground levels and/or land use have the potential to change the volume and pattern of surface flows and infiltration rates (i.e. by increasing the proportion of impermeable surfaces in a drainage catchment and/or vegetation clearance) and alter site runoff characteristics. Furthermore, changes to groundwater levels and flow paths could also result in local changes to surface water flows. Any changes in surface water flows could increase flood risk to project receptors located on site. (Permanent)	No additional mitigation required as the effect is not significant.
Essential infrastructure: The Project - A415/SESRO Main Access, Pumping station and pumping station access road, Reservoir embankment, Drayton substation, Steventon to East Hanney Road diversion, Water treatment buildings, Intake/outfall structure [WEN-299] (Very High)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Pumping station Reservoir tunnel River tunnel and shafts Groundwater drain	Presence (of project components)	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding. (ED-52) Measures to manage groundwater levels and flow routes.	Not Significant Neutral	Potential change in groundwater flood risk: Permanent physical modifications to the subsurface could interrupt the natural groundwater flow pathways by creating barriers. This may cause localised groundwater mounding at the upgradient side of the structure and/or divert groundwater flows elsewhere and subsequently increase groundwater flood risk to project receptors located on site. Similarly, any permanent changes to surface water flow paths could cause local changes to groundwater flows. (Permanent)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Essential infrastructure: Third party - A338, A34, A415 Marcham Road, Great Western Main Line railway – London to Bristol [WEN-282] (Very High)	Most / all project components	Presence (of project components)	(ED-13) Measures to address the risks of increased precipitation, intense periods of rainfall and frequency and intensity of flooding. (ED-17) Measures for safe reservoir operation. (ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-36) Design of culverts to maintain function and integrity of watercourses.	Not Significant Neutral	Potential change in fluvial flood risk: Landscape and infrastructure works proposed within existing areas of flood risk or near existing watercourses have the potential to increase flood risk to third party receptors located around the site. In particular, permanent works which change existing ground levels within the floodplain may alter floodplain storage and flood flow routes, which could result in an increase in flood risk off-site. The installation of new watercourses crossings has the potential to increase flood risk by acting as a barrier or constraint on flow. Furthermore, any changes to groundwater levels and flow paths could also result in local changes to surface water flows. (Permanent)	No additional mitigation required as the effect is not significant.
Essential infrastructure: Third party - A338, A34, A415 Marcham Road, Great Western Main Line railway – London to Bristol [WEN-291] (Very High)	Most / all project components	Presence (of project components)	(ED-13) Measures to address the risks of increased precipitation, intense periods of rainfall and frequency and intensity of flooding. (ED-17) Measures for safe reservoir operation. (ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-36) Design of culverts to maintain function and integrity of watercourses.	Not Significant Neutral	Potential change in pluvial flood risk: Landscape and infrastructure works which permanently change ground levels and/or land use have the potential to change the volume and pattern of surface flows and infiltration rates (i.e. by increasing the proportion of impermeable surfaces in a drainage catchment and/or vegetation clearance) and alter site runoff characteristics. Furthermore, changes to groundwater levels and flow paths could also result in local changes to surface water flows. Any changes in surface water flows could increase flood risk off-site, including to third party receptors located around the site. (Permanent)	No additional mitigation required as the effect is not significant.
Essential infrastructure: Third party - A338, A34, A415 Marcham Road, Great Western Main Line railway – London to Bristol [WEN-300] (Very High)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Pumping station Reservoir tunnel River tunnel and shafts Groundwater drain	Presence (of project components)	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding. (ED-52) Measures to manage groundwater levels and flow routes.	Not Significant Neutral	Potential change in groundwater flood risk: Permanent physical modifications to the subsurface could interrupt the natural groundwater flow pathways by creating barriers. This may cause localised groundwater mounding at the upgradient side of the structure and/or divert groundwater flows elsewhere and subsequently increase groundwater flood risk, including to third party receptors located around the site. Similarly, any permanent changes to surface water flow paths could cause local changes to groundwater flows. (Permanent)	No additional mitigation required as the effect is not significant.
Highly vulnerable: Third party - Residential properties with basements, caravans, mobile homes & park homes. [WEN-283] (Very High)	Most / all project components	Presence (of project components)	(ED-13) Measures to address the risks of increased precipitation, intense periods of rainfall and frequency and intensity of flooding.	Not Significant Neutral	Potential change in fluvial flood risk: Landscape and infrastructure works proposed within existing areas of flood risk or near existing watercourses have the potential to increase flood risk to third party receptors located around the site. In particular, permanent works	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(ED-17) Measures for safe reservoir operation. (ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-36) Design of culverts to maintain function and integrity of watercourses. (ED-42) Operation stage surface water management.		which change existing ground levels within the floodplain may alter floodplain storage and flood flow routes, which could result in an increase in flood risk off-site. The installation of new watercourses crossings has the potential to increase flood risk by acting as a barrier or constraint on flow. Furthermore, any changes to groundwater levels and flow paths could also result in local changes to surface water flows. (Permanent)	
Highly vulnerable: Third party - Residential properties with basements, caravans, mobile homes & park homes. [WEN-292] (Very High)	Most / all project components	Presence (of project components)	(ED-13) Measures to address the risks of increased precipitation, intense periods of rainfall and frequency and intensity of flooding. (ED-17) Measures for safe reservoir operation. (ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-36) Design of culverts to maintain function and integrity of watercourses.	Not Significant Neutral	Potential change in pluvial flood risk: Landscape and infrastructure works which permanently change ground levels and/or land use have the potential to change the volume and pattern of surface flows and infiltration rates (i.e. by increasing the proportion of impermeable surfaces in a drainage catchment and/or vegetation clearance) and alter site runoff characteristics. Furthermore, changes to groundwater levels and flow paths could also result in local changes to surface water flows. Any changes in surface water flows could increase flood risk off-site, including to third party receptors located around the site. (Permanent)	No additional mitigation required as the effect is not significant.
Highly vulnerable: Third party - Residential properties with basements, caravans, mobile homes & park homes. [WEN-301] (Very High)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Pumping station Reservoir tunnel River tunnel and shafts Groundwater drain	Presence (of project components)	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding. (ED-52) Measures to manage groundwater levels and flow routes.	Not Significant Neutral	Potential change in groundwater flood risk: Permanent physical modifications to the subsurface could interrupt the natural groundwater flow pathways by creating barriers. This may cause localised groundwater mounding at the upgradient side of the structure and/or divert groundwater flows elsewhere and subsequently increase groundwater flood risk, including to third party receptors located around the site. Similarly, any permanent changes to surface water flow paths could cause local changes to groundwater flows. (Permanent)	No additional mitigation required as the effect is not significant.
More vulnerable: The Project - Temporary rail, visitor centre [WEN-284] (High)	Most / all project components	Presence (of project components)	(ED-13) Measures to address the risks of increased precipitation, intense periods of rainfall and frequency and intensity of flooding. (ED-17) Measures for safe reservoir operation.	Not Significant Neutral	Potential change in fluvial flood risk: Landscape and infrastructure works proposed within existing areas of flood risk or near existing watercourses have the potential to increase flood risk to project receptors located on site. In particular, permanent works which change existing ground levels within the floodplain may alter floodplain storage and flood flow routes, which	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-36) Design of culverts to maintain function and integrity of watercourses.		could result in an increase in flood risk. The installation of new watercourses crossings has the potential to increase flood risk by acting as a barrier or constraint on flow. Furthermore, any changes to groundwater levels and flow paths could also result in local changes to surface water flows. (Permanent)	
More vulnerable: The Project - Temporary rail, visitor centre [WEN-293] (High)	Most / all project components	Presence (of project components)	(ED-13) Measures to address the risks of increased precipitation, intense periods of rainfall and frequency and intensity of flooding. (ED-17) Measures for safe reservoir operation. (ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-36) Design of culverts to maintain function and integrity of watercourses.	Not Significant Neutral	Potential change in pluvial flood risk: Landscape and infrastructure works which permanently change ground levels and/or land use have the potential to change the volume and pattern of surface flows and infiltration rates (i.e. by increasing the proportion of impermeable surfaces in a drainage catchment and/or vegetation clearance) and alter site runoff characteristics. Furthermore, changes to groundwater levels and flow paths could also result in local changes to surface water flows. Any changes in surface water flows could increase flood risk to project receptors located on site. (Permanent)	No additional mitigation required as the effect is not significant.
More vulnerable: The Project - Temporary rail, visitor centre [WEN-302] (High)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Pumping station Reservoir tunnel River tunnel and shafts Groundwater drain	Presence (of project components)	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding. (ED-52) Measures to manage groundwater levels and flow routes.	Not Significant Neutral	Potential change in groundwater flood risk: Permanent physical modifications to the subsurface could interrupt the natural groundwater flow pathways by creating barriers. This may cause localised groundwater mounding at the upgradient side of the structure and/or divert groundwater flows elsewhere and subsequently increase groundwater flood risk to project receptors located on site. Similarly, any permanent changes to surface water flow paths could cause local changes to groundwater flows. (Permanent)	No additional mitigation required as the effect is not significant.
More vulnerable: Third party - Residential homes, Residential institutions, health services. [WEN-285] (High)	Most / all project components	Presence (of project components)	(ED-13) Measures to address the risks of increased precipitation, intense periods of rainfall and frequency and intensity of flooding. (ED-17) Measures for safe reservoir operation. (ED-22) Drainage Strategy to align with national and local planning policy and guidance.	Not Significant Neutral	Potential change in fluvial flood risk: Landscape and infrastructure works proposed within existing areas of flood risk or near existing watercourses have the potential to increase flood risk to third party receptors located around the site. In particular, permanent works which change existing ground levels within the floodplain may alter floodplain storage and flood flow routes, which could result in an increase in flood risk off-site. The installation of new watercourses crossings has the potential to increase flood risk by acting as a barrier or constraint on flow. Furthermore, any changes to	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(ED-36) Design of culverts to maintain function and integrity of watercourses.		groundwater levels and flow paths could also result in local changes to surface water flows. (Permanent)	
More vulnerable: Third party - Residential homes, Residential institutions, health services. [WEN-294] (High)	Most / all project components	Presence (of project components)	(ED-13) Measures to address the risks of increased precipitation, intense periods of rainfall and frequency and intensity of flooding. (ED-17) Measures for safe reservoir operation. (ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-36) Design of culverts to maintain function and integrity of watercourses.	Not Significant Neutral	Potential change in pluvial flood risk: Landscape and infrastructure works which permanently change ground levels and/or land use have the potential to change the volume and pattern of surface flows and infiltration rates (i.e. by increasing the proportion of impermeable surfaces in a drainage catchment and/or vegetation clearance) and alter site runoff characteristics. Any changes in surface water flows could increase flood risk off-site, including to third party receptors located around the site. (Permanent)	No additional mitigation required as the effect is not significant.
More vulnerable: Third party - Residential homes, Residential institutions, health services. [WEN-303] (High)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Pumping station Reservoir tunnel River tunnel and shafts Groundwater drain	Presence (of project components)	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding. (ED-52) Measures to manage groundwater levels and flow routes.	Not Significant Neutral	Potential change in groundwater flood risk: Permanent physical modifications to the subsurface could interrupt the natural groundwater flow pathways by creating barriers. This may cause localised groundwater mounding at the upgradient side of the structure and/or divert groundwater flows elsewhere and subsequently increase groundwater flood risk, including to third party receptors located around the site. Similarly, any permanent changes to surface water flow paths could cause local changes to groundwater flows. (Permanent)	No additional mitigation required as the effect is not significant.
Less vulnerable: The Project - Borrow pit, Link road to the Rail Material Handling Storage area, Main SESRO Compound North East (PS Site), Rail material handling facility and GWMLR Railway Sidings (SW) construction compound, A338 East Hanney access (SW) construction compound, Steventon access (SE) construction compound, Integrated constructed wetland [WEN-286] (Moderate)	Most / all project components	Presence (of project components)	(ED-13) Measures to address the risks of increased precipitation, intense periods of rainfall and frequency and intensity of flooding. (ED-17) Measures for safe reservoir operation. (ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-36) Design of culverts to maintain function and integrity of watercourses.	Not Significant Neutral	Potential change in fluvial flood risk: Landscape and infrastructure works proposed within existing areas of flood risk or near existing watercourses have the potential to increase flood risk to project receptors located on site. In particular, permanent works which change existing ground levels within the floodplain may alter floodplain storage and flood flow routes, which could result in an increase in flood risk. The installation of new watercourses crossings has the potential to increase flood risk by acting as a barrier or constraint on flow. Furthermore, any changes to groundwater levels and flow paths could also result in local changes to surface water flows. (Permanent)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Less vulnerable: The Project - Borrow pit, Link road to the Rail Material Handling Storage area, Main SESRO Compound North East (PS Site), Rail material handling facility and GWMLR Railway Sidings (SW) construction compound, A338 East Hanney access (SW) construction compound, Steventon access (SE) construction compound, Integrated constructed wetland [WEN-295] (Moderate)	Most / all project components	Presence (of project components)	(ED-13) Measures to address the risks of increased precipitation, intense periods of rainfall and frequency and intensity of flooding. (ED-17) Measures for safe reservoir operation. (ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-36) Design of culverts to maintain function and integrity of watercourses.	Not Significant Neutral	Potential change in pluvial flood risk: Landscape and infrastructure works which permanently change ground levels and/or land use have the potential to change the volume and pattern of surface flows and infiltration rates (i.e. by increasing the proportion of impermeable surfaces in a drainage catchment and/or vegetation clearance) and alter site runoff characteristics. Furthermore, changes to groundwater levels and flow paths could also result in local changes to surface water flows. Any changes in surface water flows could increase flood risk to project receptors located on site. (Permanent)	No additional mitigation required as the effect is not significant.
Less vulnerable: The Project - Borrow pit, Link road to the Rail Material Handling Storage area, Main SESRO Compound North East (PS Site), Rail material handling facility and GWMLR Railway Sidings (SW) construction compound, A338 East Hanney access (SW) construction compound, Steventon access (SE) construction compound, Integrated constructed wetland [WEN-304] (Moderate)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Pumping station Reservoir tunnel River tunnel and shafts Groundwater drain	Presence (of project components)	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding. (ED-52) Measures to manage groundwater levels and flow routes.	Not Significant Neutral	Potential change in groundwater flood risk: Permanent physical modifications to the subsurface could interrupt the natural groundwater flow pathways by creating barriers. This may cause localised groundwater mounding at the upgradient side of the structure and/or divert groundwater flows elsewhere and subsequently increase groundwater flood risk to project receptors located on site. Similarly, any permanent changes to surface water flow paths could cause local changes to groundwater flows. (Permanent)	No additional mitigation required as the effect is not significant.
Less vulnerable: Third party - Abingdon Sewage Treatment Works, Drayton Sewage Treatment Works, Agricultural and commercial buildings, Allotments, Local roads, Undeveloped agricultural land [WEN-287] (Moderate)	Most / all project components	Presence (of project components)	(ED-13) Measures to address the risks of increased precipitation, intense periods of rainfall and frequency and intensity of flooding. (ED-17) Measures for safe reservoir operation. (ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-36) Design of culverts to maintain function and integrity of watercourses.	Not Significant Neutral	Potential change in fluvial flood risk: Landscape and infrastructure works proposed within existing areas of flood risk or near existing watercourses have the potential to increase flood risk to third party receptors located around the site. In particular, permanent works which change existing ground levels within the floodplain may alter floodplain storage and flood flow routes, which could result in an increase in flood risk off-site. The installation of new watercourses crossings has the potential to increase flood risk by acting as a barrier or constraint on flow. Furthermore, any changes to groundwater levels and flow paths could also result in local changes to surface water flows. (Permanent)	No additional mitigation required as the effect is not significant.
Less vulnerable: Third party - Abingdon Sewage Treatment Works, Drayton Sewage Treatment Works, Agricultural	Most / all project components	Presence (of project components)	(ED-13) Measures to address the risks of increased precipitation, intense periods of rainfall and frequency and intensity of flooding.	Not Significant Neutral	Potential change in pluvial flood risk: Landscape and infrastructure works which permanently change ground levels and/or land use have the potential to change the volume and pattern of surface flows and infiltration rates	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
and commercial buildings, Allotments, Local roads, Undeveloped agricultural land [WEN-296] (Moderate)			(ED-17) Measures for safe reservoir operation. (ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-36) Design of culverts to maintain function and integrity of watercourses.		(i.e. by increasing the proportion of impermeable surfaces in a drainage catchment and/or vegetation clearance) and alter site runoff characteristics. Furthermore, changes to groundwater levels and flow paths could also result in local changes to surface water flows. Any changes in surface water flows could increase flood risk off-site, including to third party receptors located around the site. (Permanent)	
Less vulnerable: Third party - Abingdon Sewage Treatment Works, Drayton Sewage Treatment Works, Agricultural and commercial buildings, Allotments, Local roads, Undeveloped agricultural land [WEN-305] (Moderate)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Pumping station Reservoir tunnel River tunnel and shafts Groundwater drain	Presence (of project components)	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding. (ED-52) Measures to manage groundwater levels and flow routes.	Not Significant Neutral	Potential change in groundwater flood risk: Permanent physical modifications to the subsurface could interrupt the natural groundwater flow pathways by creating barriers. This may cause localised groundwater mounding at the upgradient side of the structure and/or divert groundwater flows elsewhere and subsequently increase groundwater flood risk, including to third party receptors located around the site. Similarly, any permanent changes to surface water flow paths could cause local changes to groundwater flows. (Permanent)	No additional mitigation required as the effect is not significant.
Water-compatible development: The Project - Wilts and Berks Canal, Watercourse Diversions. [WEN-288] (Low)	Most / all project components	Presence (of project components)	(ED-13) Measures to address the risks of increased precipitation, intense periods of rainfall and frequency and intensity of flooding. (ED-17) Measures for safe reservoir operation. (ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-36) Design of culverts to maintain function and integrity of watercourses.	Not Significant Neutral	Potential change in fluvial flood risk: Landscape and infrastructure works proposed within existing areas of flood risk or near existing watercourses have the potential to increase flood risk to project receptors located on site. In particular, permanent works which change existing ground levels within the floodplain may alter floodplain storage and flood flow routes, which could result in an increase in flood risk. The installation of new watercourses crossings has the potential to increase flood risk by acting as a barrier or constraint on flow. Furthermore, any changes to groundwater levels and flow paths could also result in local changes to surface water flows. (Permanent)	No additional mitigation required as the effect is not significant.
Water-compatible development: The Project - Wilts and Berks Canal, Watercourse Diversions. [WEN-297] (Low)	Most / all project components	Presence (of project components)	(ED-13) Measures to address the risks of increased precipitation, intense periods of rainfall and frequency and intensity of flooding. (ED-17) Measures for safe reservoir operation.	Not Significant Neutral	Potential change in pluvial flood risk: Landscape and infrastructure works which permanently change ground levels and/or land use have the potential to change the volume and pattern of surface flows and infiltration rates (i.e. by increasing the proportion of impermeable surfaces in a drainage catchment and/or vegetation clearance) and alter site runoff characteristics. Furthermore, changes to groundwater levels and flow paths could also result in local changes to surface water	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-36) Design of culverts to maintain function and integrity of watercourses.		flows. Any changes in surface water flows could increase flood risk to project receptors located on site. (Permanent)	
Water-compatible development: The Project - Wilts and Berks Canal, Watercourse Diversions. [WEN-306] (Low)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Pumping station Reservoir tunnel River tunnel and shafts Groundwater drain	Presence (of project components)	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding. (ED-52) Measures to manage groundwater levels and flow routes.	Not Significant Neutral	Potential change in groundwater flood risk: Permanent physical modifications to the subsurface could interrupt the natural groundwater flow pathways by creating barriers. This may cause localised groundwater mounding at the upgradient side of the structure and/or divert groundwater flows elsewhere and subsequently increase groundwater flood risk to project receptors located on site. Similarly, any permanent changes to surface water flow paths could cause local changes to groundwater flows. (Permanent)	No additional mitigation required as the effect is not significant.
Water-compatible development: Third party - Gravel pits on the western bank of the River Thames, Marina. [WEN-289] (Low)	Most / all project components	Presence (of project components)	(ED-13) Measures to address the risks of increased precipitation, intense periods of rainfall and frequency and intensity of flooding. (ED-17) Measures for safe reservoir operation. (ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-36) Design of culverts to maintain function and integrity of watercourses.	Not Significant Neutral	Potential change in fluvial flood risk: Landscape and infrastructure works proposed within existing areas of flood risk or near existing watercourses have the potential to increase flood risk to third party receptors located around the site. In particular, permanent works which change existing ground levels within the floodplain may alter floodplain storage and flood flow routes, which could result in an increase in flood risk off-site. The installation of new watercourses crossings has the potential to increase flood risk by acting as a barrier or constraint on flow. Furthermore, any changes to groundwater levels and flow paths could also result in local changes to surface water flows. (Permanent)	No additional mitigation required as the effect is not significant.
Water-compatible development: Third party - Gravel pits on the western bank of the River Thames, Marina. [WEN-298] (Low)	Most / all project components	Presence (of project components)	(ED-13) Measures to address the risks of increased precipitation, intense periods of rainfall and frequency and intensity of flooding. (ED-17) Measures for safe reservoir operation. (ED-22) Drainage Strategy to align with national and local planning policy and guidance.	Not Significant Neutral	Potential change in pluvial flood risk: Landscape and infrastructure works which permanently change ground levels and/or land use have the potential to change the volume and pattern of surface flows and infiltration rates (i.e. by increasing the proportion of impermeable surfaces in a drainage catchment and/or vegetation clearance) and alter site runoff characteristics. Furthermore, changes to groundwater levels and flow paths could also result in local changes to surface water flows. Any changes in surface water flows could increase flood risk off-site, including to third party receptors located around the site.	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(ED-36) Design of culverts to maintain function and integrity of watercourses.		(Permanent)	
Water-compatible development: Third party - Gravel pits on the western bank of the River Thames, Marina. [WEN-307] (Low)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Pumping station Reservoir tunnel River tunnel and shafts Groundwater drain	Presence (of project components)	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding. (ED-52) Measures to manage groundwater levels and flow routes.	Not Significant Neutral	Potential change in groundwater flood risk: Permanent physical modifications to the subsurface could interrupt the natural groundwater flow pathways by creating barriers. This may cause localised groundwater mounding at the upgradient side of the structure and/or divert groundwater flows elsewhere and subsequently increase groundwater flood risk, including to third party receptors located around the site. Similarly, any permanent changes to surface water flow paths could cause local changes to groundwater flows. (Permanent)	No additional mitigation required as the effect is not significant.
Existing lakes (Hydrology/Fluvial geomorphology/WFD) [WEN-1043] (Low)	Most / all project components	Operation Maintenance	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Changes to surface water drainage/runoff and operational abstractions and discharges from and to the River Thames can lead to changes to water body levels. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent water body through drawdown or introduced discharge of water. (Permanent)	No additional mitigation required as the effect is not significant.
Existing lakes (Hydrology/Fluvial geomorphology/WFD) [WEN-1044] (Low)	Most / all project components	Operation Maintenance	No embedded design or standard good practice mitigation identified at this stage.	Not Significant Adverse	Effect on fluvial geomorphology : Presence and operation of Project components within or adjacent to water bodies has the potential to result in its permanent changes in water body fluvial geomorphology. Loss and/or modification of watercourses may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. (Permanent)	No additional mitigation required as the effect is not significant.
Existing lakes (Surface water quality) [WEN-1045] (Low)	Most / all project components	Operation Maintenance	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Surface water discharges can lead to the release of fine sediments and contaminants to surface waterbodies,	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
					leading to potential changes to water quality of the receiving watercourse. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and the potential mobilisation of contaminants leading to a deterioration in water quality. (Permanent)	
Existing ponds (Hydrology/Fluvial geomorphology/WFD) [WEN-1046] (Moderate)	No project components identified at this stage.	No project activities identified at this stage.	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water hydrology: Undertaking construction works within or adjacent to the water body has the potential to result in changes in the quantity of water within the receptor. Diversion of watercourses, loss and/or modification of watercourses presence of temporary or permanent watercourse crossings, and surface water abstraction and/or discharges and surface water drainage/runoff can lead to potential changes to the hydrological regime and associated catchments. Any below ground works (such as excavations, cuttings, piling), including potential dewatering activities, can lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourses, through drawdown or introduced discharge of water. (Permanent)	No additional mitigation required as the effect is not significant.
Existing ponds (Hydrology/Fluvial geomorphology/WFD) [WEN-1047] (Moderate)	No project components identified at this stage.	No project activities identified at this stage.	No embedded design or standard good practice mitigation identified at this stage.	Not Significant Adverse	Effect on fluvial geomorphology : Presence and operation of Project components within or adjacent to water bodies has the potential to result in its permanent changes in water body fluvial geomorphology. Loss and/or modification of watercourses may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. (Permanent)	No additional mitigation required as the effect is not significant.
Existing ponds (Surface water quality) [WEN-1048] (Negligible)	No project components identified at this stage.	No project activities identified at this stage.	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Surface water discharges can lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and the potential mobilisation of contaminants leading to a deterioration in water quality. (Permanent)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Reach 1 Ock (to Cherbury Brook) - WFD (Surface water quality and Hydrology/Fluvial geomorphology/WFD) [WEN-1136] (High)	Highways improvements	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Neutral	Effects on surface water quality, surface water quantity and fluvial geomorphology: No effects are anticipated in relation to changes in watercourse water quality, watercourse flow volumes, the quantity of water within the receptor or watercourse fluvial geomorphology given that there is no hydrological connection between the Project and this watercourse(s). It is considered that from initial analysis, effects on the receptor are likely to be limited. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 1 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-1052] (Moderate)	Highways improvements	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Neutral	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 1 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-1053] (Moderate)	Highways improvements	Presence (of project components)	No embedded design or standard good practice mitigation identified at this stage.	Not Significant Neutral	Effect on fluvial geomorphology : Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 1 Ordinary Watercourse / ditch network (Surface water quality) [WEN-1054] (Negligible)	Highways improvements	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Neutral	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 2 Nor Brook - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1087] (Moderate)	Project Priority Areas for Biodiversity Site-wide utilities diversions and new supplies	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Changes to surface water drainage/runoff can lead to changes to downstream watercourse flows/level. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourse through drawdown or introduced discharge of water. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 2 Nor Brook - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1088] (Moderate)	Project Priority Areas for Biodiversity Site-wide utilities diversions and new supplies	Presence (of project components)	No embedded design or standard good practice mitigation identified at this stage.	Not Significant Adverse	Effect on fluvial geomorphology : Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
					connectivity, including fish passage and sediment transfer. (Permanent)	
Reach 2 Nor Brook - Main River Non-WFD (Surface water quality) [WEN-1089] (Negligible)	Project Priority Areas for Biodiversity Site-wide utilities diversions and new supplies	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Beneficial	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Surface water discharges can lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and the potential mobilisation of contaminants leading to a deterioration in water quality. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.
Reach 2 Ock and tributaries (Land Brook confluence to Thames) - WFD (Surface water quality) [WEN-854] (High)	Most / all project components	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Beneficial	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Surface water discharges and surface water drainage/runoff from highways can lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and the potential mobilisation of contaminants leading to a deterioration in water quality. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.
Reach 2 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-1090] (Moderate)	Most / all project components	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Changes to surface water drainage/runoff can lead to changes to downstream watercourse flows/level. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourse through drawdown or introduced discharge of water. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 2 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-1091] (Moderate)	Most / all project components	Presence (of project components)	(ED-36) Design of culverts to maintain function and integrity of watercourses. (ED-51) Measures to reduce new watercourse crossings.	Not Significant Adverse	Effect on fluvial geomorphology : Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
					alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Permanent)	
Reach 2 Ordinary Watercourse / ditch network (Surface water quality) [WEN-1092] (High)	Most / all project components	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Beneficial	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Surface water discharges and surface water drainage/runoff from highways can lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and the potential mobilisation of contaminants leading to a deterioration in water quality. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.
Reach 2 - Other Main Rivers Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1093] (Moderate)	River Ock realignment Access roads	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Creation of new sections of watercourse and changes to surface water drainage/runoff can lead to changes to downstream watercourse flows/level. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourse through drawdown or introduced discharge of water. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 2 - Other Main Rivers Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1094] (Moderate)	River Ock realignment Access roads	Presence (of project components)	(ED-36) Design of culverts to maintain function and integrity of watercourses. (ED-51) Measures to reduce new watercourse crossings.	Not Significant Adverse	Effect on fluvial geomorphology : Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Diversion of watercourses, loss and/or modification of watercourses and creation or enhancement of waterbodies and associated riparian habitat may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 2 - Other Main Rivers Non-WFD (Surface water quality) [WEN-1095] (Negligible)	River Ock realignment	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance.	Not Significant Beneficial	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Surface water discharges and surface water drainage/runoff from highways can	No additional mitigation has been identified at this stage as the effect

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
	Construction access from A34 layby		(ED-42) Operation stage surface water management.		lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and the potential mobilisation of contaminants leading to a deterioration in water quality. (Permanent)	is likely to be beneficial.
Reach 3 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN- 1096] (Moderate)	Highways improvements	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Neutral	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 3 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN- 1097] (Moderate)	Highways improvements	Presence (of project components)	No embedded design or standard good practice mitigation identified at this stage.	Not Significant Neutral	Effect on fluvial geomorphology : Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 3 Ordinary Watercourse / ditch network (Surface water quality) [WEN-1098] (Negligible)	Highways improvements	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Neutral	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 3 Stutfield Brook - Main River Non-WFD (Surface water quality and Hydrology/Fluvial geomorphology/WFD) [WEN- 1101] (Moderate)	Highways improvements	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Neutral	Effect on surface water quality, surface water hydrology and fluvial geomorphology: No effects are anticipated in relation to changes in watercourse water quality, watercourse flow volumes, the quantity of water within the receptor or watercourse fluvial geomorphology given that there is no hydrological connection between the Project and this watercourse(s). It is considered that from initial analysis, effects on the receptor are likely to be limited. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 3 Stutfield Brook (source to Ock) - WFD (Surface water quality and Hydrology/Fluvial geomorphology/WFD) [WEN- 1104] (High)	Highways improvements	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Neutral	Effect on surface water quality, surface water hydrology and fluvial geomorphology: No effects are anticipated in relation to changes in watercourse water quality, watercourse flow volumes, the quantity of water within the receptor or watercourse fluvial geomorphology given that there are no potential mechanisms of impact. It is considered that from initial analysis, effects on the receptor are likely to be limited. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 4 Childrey and Woodhill Brooks - WFD (Surface water quality) [WEN-1106] (Moderate)	Ground-mounted solar (solar farm reprovision)	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance.	Not Significant Beneficial	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Surface water discharges	No additional mitigation has been identified at this stage as the effect

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
	Project Priority Areas for Biodiversity Site wide surface water drainage		(ED-42) Operation stage surface water management.		and surface water drainage/runoff from highways can lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and the potential mobilisation of contaminants leading to a deterioration in water quality. (Permanent)	is likely to be beneficial.
Reach 4 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-890] (Moderate)	Ground-mounted solar (solar farm reprovision) Project Priority Areas for Biodiversity Site wide surface water drainage	Presence (of project components)	No embedded design or standard good practice mitigation identified at this stage.	Not Significant Beneficial	Effect on fluvial geomorphology: Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses, creation or enhancement of waterbodies and associated riparian habitat may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.
Reach 4 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-1107] (Moderate)	Ground-mounted solar (solar farm reprovision) Project Priority Areas for Biodiversity Site wide surface water drainage	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Beneficial	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Changes to surface water drainage/runoff can lead to changes to downstream watercourse flows/level. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourse] through drawdown or introduced discharge of water. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.
Reach 4 Ordinary Watercourse / ditch network (Surface water quality) [WEN-1108] (Negligible)	Ground-mounted solar (solar farm reprovision) Project Priority Areas for Biodiversity Site wide surface water drainage	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Beneficial	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Surface water discharges and surface water drainage/runoff from highways can lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and the potential mobilisation of contaminants leading to a deterioration in water quality. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.
Reach 5 Childrey Brook and Norbrook at Common Barn - WFD (Surface water quality) [WEN-849] (Moderate)	Project Priority Areas for Biodiversity	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance.	Not Significant Adverse	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality.	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
	Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision		(ED-42) Operation stage surface water management.		Surface water discharges and surface water drainage/runoff can lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and the potential mobilisation of contaminants leading to a deterioration in water quality. (Permanent)	
Reach 5 East Hanney Ditch - Main River Non-WFD (Surface water quality) [WEN-902] (Negligible)	Most / all project components	Operation Presence (of project components)	(ED-20) Reduce the impact of the Steventon to East Hanney road diversion on environmental receptors. (ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Surface water discharges and surface water drainage/runoff can lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and the potential mobilisation of contaminants leading to a deterioration in water quality. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 5 Ordinary Watercourse / ditch network (Surface water quality) [WEN-893] (Negligible)	Most / all project components	Operation Presence (of project components)	(ED-20) Reduce the impact of the Steventon to East Hanney road diversion on environmental receptors. (ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Surface water discharges and surface water drainage/runoff can lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and the potential mobilisation of contaminants leading to a deterioration in water quality. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 6 Letcombe Brook - WFD (Surface water quality) [WEN-1111] (High)	Project Priority Areas for Biodiversity	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Beneficial	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Surface water discharges and surface water drainage/runoff can lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse.	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
					(Permanent)	
Reach 6 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-1112] (Moderate)	Project Priority Areas for Biodiversity	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Beneficial	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Enhancement of existing watercourse(s) can lead to changes to downstream watercourse flows/level. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.
Reach 6 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-1113] (Moderate)	Project Priority Areas for Biodiversity	Presence (of project components)	No embedded design or standard good practice mitigation identified at this stage.	Not Significant Beneficial	Effect on fluvial geomorphology : Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Enhancement of existing watercourse(s) may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.
Reach 6 Ordinary Watercourse / ditch network (Surface water quality) [WEN-1114] (Negligible)	Project Priority Areas for Biodiversity	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Beneficial	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Surface water discharges and surface water drainage/runoff can lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.
Reach 7 Cow Common Brook - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1115] (Moderate)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Steventon to East Hanney road diversion Groundwater drain Project Priority Areas for Biodiversity Western watercourses diversion (Cow Common Brook,	Operation Presence (of project components)	(ED-20) Reduce the impact of the Steventon to East Hanney road diversion on environmental receptors. (ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Permanent loss of catchment area, creation of new sections of watercourse and changes to surface water drainage/runoff can lead to changes to downstream watercourse flows/level. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourse through drawdown or introduced discharge of water. (Permanent)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
	Portobello Ditch, East Hanney Ditch and Landmead Ditch)					
Reach 7 Cow Common Brook - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1116] (Moderate)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Steventon to East Hanney road diversion Groundwater drain Project Priority Areas for Biodiversity Western watercourses diversion (Cow Common Brook, Portobello Ditch, East Hanney Ditch and Landmead Ditch)	Operation Presence (of project components)	(ED-20) Reduce the impact of the Steventon to East Hanney road diversion on environmental receptors. (ED-51) Measures to reduce new watercourse crossings.	Not Significant Adverse	Effect on fluvial geomorphology : Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Diversion of watercourses, loss and/or modification of watercourses, creation or enhancement of waterbodies and associated riparian habitat and presence of permanent watercourse crossings may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 7 Cow Common Brook - Main River Non-WFD (Surface water quality) [WEN-1117] (Negligible)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Steventon to East Hanney road diversion Groundwater drain	Operation Presence (of project components)	(ED-20) Reduce the impact of the Steventon to East Hanney road diversion on environmental receptors. (ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water quality : Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Surface water discharges and surface water drainage/runoff can lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and the potential mobilisation of contaminants leading to a deterioration in water quality. (Permanent)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
	Project Priority Areas for Biodiversity Western watercourses diversion (Cow Common Brook, Portobello Ditch, East Hanney Ditch and Landmead Ditch)					
Reach 7 Cow Common Brook and Portobello Ditch - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-836] (High)	Most / all project components	Operation Presence (of project components)	(ED-20) Reduce the impact of the Steventon to East Hanney road diversion on environmental receptors. (ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Permanent loss of catchment area, creation of new sections of watercourse and changes to surface water drainage/runoff can lead to changes to downstream watercourse flows/level. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourse through drawdown or introduced discharge of water. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 7 Cow Common Brook and Portobello Ditch - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-840] (High)	Most / all project components	Operation Presence (of project components)	(ED-20) Reduce the impact of the Steventon to East Hanney road diversion on environmental receptors. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-36) Design of culverts to maintain function and integrity of watercourses. (ED-51) Measures to reduce new watercourse crossings.	Not Significant Adverse	Effect on fluvial geomorphology: Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Diversion of watercourses, loss and/or modification of watercourses, creation or enhancement of waterbodies and associated riparian habitat and presence of permanent watercourse crossings may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 7 Cow Common Brook and Portobello Ditch - WFD (Surface water quality) [WEN-846] (Moderate)	Most / all project components	Operation Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance.	Not Significant Adverse	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality.	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(ED-42) Operation stage surface water management.		Surface water discharges and surface water drainage/runoff can lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and the potential mobilisation of contaminants leading to a deterioration in water quality. (Permanent)	
Reach 7 Landmead Ditch - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN- 871] (Moderate)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Western watercourses diversion (Cow Common Brook, Portobello Ditch, East Hanney Ditch and Landmead Ditch) Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision	Operation Maintenance Presence (of project components)	(ED-51) Measures to reduce new watercourse crossings.	Not Significant Adverse	Effect on fluvial geomorphology: Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Diversion of watercourses, loss and/or modification of watercourses, creation or enhancement of waterbodies and associated riparian habitat and presence of permanent watercourse crossings may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 7 Landmead Ditch - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN- 875] (Moderate)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Western watercourses diversion (Cow Common Brook, Portobello Ditch,	Operation Maintenance Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Permanent loss of catchment area, creation of new sections of watercourse and changes to surface water drainage/runoff can lead to changes to downstream watercourse flows/level. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and changes to	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
	East Hanney Ditch and Landmead Ditch) Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision				baseflow in adjacent watercourse through drawdown or introduced discharge of water. (Permanent)	
Reach 7 Landmead Ditch - Main River Non-WFD (Surface water quality) [WEN-882] (Negligible)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base) Western watercourses diversion (Cow Common Brook, Portobello Ditch, East Hanney Ditch and Landmead Ditch) Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision	Operation Maintenance Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Surface water discharges and surface water drainage/runoff can lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and the potential mobilisation of contaminants leading to a deterioration in water quality. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 7 Mere Dyke - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN- 876] (Moderate)	Most / all project components	Operation Maintenance Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Permanent loss of catchment area, creation of new sections of watercourse and changes to surface water drainage/runoff can lead to changes to downstream watercourse flows/level. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourse through drawdown or introduced discharge of water.	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Reach 7 Mere Dyke - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN- 872] (Moderate)	Most / all project components	Operation Maintenance Presence (of project components)	(ED-51) Measures to reduce new watercourse crossings.	Not Significant Adverse	(Permanent) Effect on fluvial geomorphology: Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Diversion of watercourses, loss and/or modification of watercourses, creation or enhancement of waterbodies and associated riparian habitat and presence of permanent watercourse crossings may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 7 Mere Dyke - Main River Non-WFD (Surface water quality) [WEN-883] (Negligible)	Most / all project components	Operation Maintenance Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Surface water discharges and surface water drainage/runoff can lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and the potential mobilisation of contaminants leading to a deterioration in water quality. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 7 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN- 873] (Moderate)	Most / all project components	Operation Maintenance Presence (of project components)	(ED-20) Reduce the impact of the Steventon to East Hanney road diversion on environmental receptors. (ED-51) Measures to reduce new watercourse crossings.	Not Significant Adverse	Effect on fluvial geomorphology: Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Diversion of watercourses, loss and/or modification of watercourses, creation or enhancement of waterbodies and associated riparian habitat and presence of permanent watercourse crossings may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Permanent)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Reach 7 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-877] (Moderate)	Most / all project components	Operation Maintenance Presence (of project components)	(ED-20) Reduce the impact of the Steventon to East Hanney road diversion on environmental receptors. (ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Permanent loss of catchment area, creation of new sections of watercourse and changes to surface water drainage/runoff can lead to changes to downstream watercourse flows/level. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourse through drawdown or introduced discharge of water. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 7 Ordinary Watercourse / ditch network (Surface water quality) [WEN-884] (Negligible)	Most / all project components	Operation Maintenance Presence (of project components)	(ED-20) Reduce the impact of the Steventon to East Hanney road diversion on environmental receptors. (ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Surface water discharges and surface water drainage/runoff can lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and the potential mobilisation of contaminants leading to a deterioration in water quality. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 8 Frilford and Marcham Brook - WFD (Surface water quality and Hydrology/Fluvial geomorphology/WFD) [WEN-1119] (High)	No project components identified at this stage.	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Beneficial	Effect on surface water quality, surface water hydrology and fluvial geomorphology: No effects are anticipated in relation to changes in watercourse water quality, watercourse flow volumes, the quantity of water within the receptor or watercourse fluvial geomorphology given that there is no hydrological connection between the Project and this watercourse(s). It is considered that from initial analysis, effects on the receptor are likely to be limited. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.
Reach 8 Ordinary Watercourse / ditch network (Surface water quality and Hydrology/Fluvial geomorphology/WFD) [WEN-1122] (Moderate)	No project components identified at this stage.	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Beneficial	Effect on surface water quality, surface water hydrology and fluvial geomorphology: No effects are anticipated in relation to changes in watercourse water quality, watercourse flow volumes, the quantity of water within the receptor or watercourse fluvial geomorphology given that there is no hydrological connection between the Project and this watercourse(s). It is considered that from initial analysis, effects on the receptor are likely to be limited.	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
					(Permanent)	
Reach 9 Sandford Brook - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN- 1123] (Moderate)	River Ock realignment Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Changes to surface water drainage/runoff can lead to changes to downstream watercourse flows/level. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 9 Sandford Brook - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN- 1124] (Moderate)	River Ock realignment Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision	Presence (of project components)	(ED-36) Design of culverts to maintain function and integrity of watercourses. (ED-51) Measures to reduce new watercourse crossings.	Not Significant Adverse	Effect on fluvial geomorphology : Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses, creation or enhancement of waterbodies and associated riparian habitat and presence of permanent watercourse crossings may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 9 Sandford Brook - Main River Non-WFD (Surface water quality) [WEN-1125] (Negligible)	River Ock realignment Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Surface water discharges and surface water drainage/runoff from highways can lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 9 Sandford Brook (source to Ock) - WFD (Surface water quality) [WEN-857] (Very High)	Access roads Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision Bridges and culverts (over/under watercourses and canal)	Operation Maintenance Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Surface water discharges and surface water drainage/runoff from highways can lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse. (Permanent)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
	Project Priority Areas for Biodiversity					
Reach 9 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-869] (Moderate)	Access roads Project Priority Areas for Biodiversity	Operation Maintenance Presence (of project components)	(ED-36) Design of culverts to maintain function and integrity of watercourses. (ED-51) Measures to reduce new watercourse crossings.	Not Significant Adverse	Effect on fluvial geomorphology: Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses, creation or enhancement of waterbodies and associated riparian habitat and presence of permanent watercourse crossings may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 9 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-900] (Moderate)	Access roads Project Priority Areas for Biodiversity	Presence (of project components) Operation Maintenance	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Changes to surface water drainage/runoff can lead to changes to downstream watercourse flows/level. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 9 Ordinary watercourse / ditch network (Surface water quality) [WEN-901] (Negligible)	Access roads Project Priority Areas for Biodiversity	Presence (of project components) Operation Maintenance	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Surface water discharges and surface water drainage/runoff from highways can lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 10 Ginge Brook - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1055] (Moderate)	Highways improvements	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Beneficial	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Enhancement of existing watercourse(s) can lead to changes to downstream watercourse flows/level. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.
Reach 10 Ginge Brook - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1056] (Moderate)	Highways improvements	Presence (of project components)	No embedded design or standard good practice mitigation identified at this stage.	Not Significant Beneficial	Effect on fluvial geomorphology : Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology.	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
					Creation or enhancement of waterbodies and associated riparian habitat can lead to potential impacts to hydromorphological conditions. (Permanent)	
Reach 10 Ginge Brook - Main River Non-WFD (Surface water quality) [WEN-1057] (Negligible)	Highways improvements	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Beneficial	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Surface water discharges and surface water drainage/runoff can lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.
Reach 10 Ginge Brook and Mill Brook - WFD (Surface water quality) [WEN-1060] (High)	Project Priority Areas for Biodiversity Thames to Southern Water Transfer (T2ST) Water Treatment Works (WTW) and pipelines Highways improvements	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Beneficial	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Surface water discharges and surface water drainage/runoff can lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.
Reach 10 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-1061] (Moderate)	Project Priority Areas for Biodiversity Thames to Southern Water Transfer (T2ST) Water Treatment Works (WTW) and pipelines	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Beneficial	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Enhancement of existing watercourse(s) can lead to changes to downstream watercourse flows/level. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.
Reach 10 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-1062] (Moderate)	Project Priority Areas for Biodiversity Thames to Southern Water Transfer (T2ST) Water Treatment Works (WTW) and pipelines	Presence (of project components)	No embedded design or standard good practice mitigation identified at this stage.	Not Significant Beneficial	Effect on fluvial geomorphology : Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Creation or enhancement of waterbodies and associated riparian habitat can lead to potential impacts to hydromorphological conditions. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.
Reach 10 Ordinary Watercourse / ditch network	Project Priority Areas for Biodiversity	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance.	Not Significant Beneficial	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in	No additional mitigation has been identified at this

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
(Surface water quality) [WEN-1063] (Negligible)	Thames to Southern Water Transfer (T2ST) Water Treatment Works (WTW) and pipelines		(ED-42) Operation stage surface water management.		watercourse water quality. Surface water discharges and surface water drainage/runoff can lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse. (Permanent)	stage as the effect is likely to be beneficial.
Reach 11 Moor Ditch - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1064] (Moderate)	Highways improvements Bridges and culverts (over/under watercourses and canal)	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 11 Moor Ditch - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1065] (Moderate)	Highways improvements Bridges and culverts (over/under watercourses and canal)	Presence (of project components)	No embedded design or standard good practice mitigation identified at this stage.	Not Significant Adverse	Effect on fluvial geomorphology : Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses and presence of permanent watercourse crossings may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 11 Moor Ditch - Main River Non-WFD (Surface water quality) [WEN-1066] (Negligible)	Highways improvements Bridges and culverts (over/under watercourses and canal)	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 11 Moor Ditch and Ladygrove Ditch - WFD (Surface water quality) [WEN-904] (High)	Highways improvements Bridges and culverts (over/under watercourses and canal)	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 11 Ordinary Watercourse / ditch network (Hydrology/Fluvial	Highways improvements	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance.	Not Significant Adverse	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in	No additional mitigation required

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
geomorphology/WFD) [WEN-1067] (Moderate)	Bridges and culverts (over/under watercourses and canal)		(ED-42) Operation stage surface water management.		watercourse flow volumes and the quantity of water of the receptor. (Permanent)	as the effect is not significant.
Reach 11 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-1068] (Moderate)	Highways improvements Bridges and culverts (over/under watercourses and canal)	Presence (of project components)	No embedded design or standard good practice mitigation identified at this stage.	Not Significant Adverse	Effect on fluvial geomorphology : Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses and presence of permanent watercourse crossings may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 11 Ordinary Watercourse / ditch network (Surface water quality) [WEN-1069] (Negligible)	Highways improvements Bridges and culverts (over/under watercourses and canal)	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water quality : Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 12 Mill Brook and Bradfords Brook system, Wallingford - WFD (Surface water quality and Hydrology/Fluvial geomorphology/WFD) [WEN-905] (Very High)	Highways improvements	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Neutral	Effects on surface water quality, surface water quantity and fluvial geomorphology : No effects are anticipated in relation to changes in watercourse water quality, watercourse flow volumes, the quantity of water within the receptor or watercourse fluvial geomorphology given that there is no hydrological connection between the Project and this watercourse(s). It is considered that from initial analysis, effects on the receptor are likely to be limited. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 12 Ordinary Watercourse / ditch network (Surface water quality and Hydrology/Fluvial geomorphology/WFD) [WEN-1070] (Moderate)	Highways improvements	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Neutral	Effects on surface water quality, surface water quantity and fluvial geomorphology : No effects are anticipated in relation to changes in watercourse water quality, watercourse flow volumes, the quantity of water within the receptor or watercourse fluvial geomorphology given that there is no hydrological connection between the Project and this watercourse(s). It is considered that from initial analysis, effects on the receptor are likely to be limited. (Permanent)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Reach 13 Thames (Evenlode to Thame) - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1074] (Very High)	Intake/outfall structure River tunnel and shafts River Thames erosion protection River Thames flood compensation (eastern bank)	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 13 Thames (Evenlode to Thame) - WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1075] (Very High)	Intake/outfall structure River tunnel and shafts River Thames erosion protection River Thames flood compensation (eastern bank)	Presence (of project components)	(ED-30) Scour protection on the River Thames.	Not Significant Adverse	Effect on fluvial geomorphology : Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 13 Thames (Evenlode to Thame) - WFD (Surface water quality) [WEN-1079] (Very High)	Intake/outfall structure River tunnel and shafts River Thames erosion protection River Thames flood compensation (eastern bank)	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-28) Maintain water quality in the reservoir. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 13 Ordinary Watercourse / ditch network (Surface water quality and Hydrology/Fluvial geomorphology/WFD) [WEN-1073] (Moderate)	No project components identified at this stage.	No project activities identified at this stage.	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-28) Maintain water quality in the reservoir. (ED-42) Operation stage surface water management.	Not Significant Neutral	Effect on surface water quality, surface water hydrology and fluvial geomorphology: No effects are anticipated in relation to changes in watercourse water quality, watercourse flow volumes, the quantity of water within the receptor or watercourse fluvial geomorphology given that there is no hydrological connection between the Project and this watercourse(s). It is considered that from initial analysis, effects on the receptor are likely to be limited. (Permanent)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Reach 14 Thames (Evenlode to Thame) - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1083] (Moderate)	Project Priority Areas for Biodiversity Access roads Wilts and Berks Canal	Maintenance Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Permanent loss of catchment area, changes to surface water drainage/runoff and operational abstractions and discharges from and to the River Thames can lead to changes to downstream watercourse flows/level. Changes to the site groundwater drainage and discharges can also lead to changes in groundwater/surface water interactions and changes to baseflow in adjacent watercourse through drawdown or introduced discharge of water. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 14 Thames (Evenlode to Thame) - Main River Non-WFD (Hydrology/Fluvial geomorphology/WFD) [WEN-1084] (Moderate)	Project Priority Areas for Biodiversity Access roads Wilts and Berks Canal	Maintenance Presence (of project components)	(ED-30) Scour protection on the River Thames.	Not Significant	Effect on fluvial geomorphology : Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Permanent)	No additional mitigation required as the effect is not significant.
Reach 14 Thames (Evenlode to Thame) - Main River Non-WFD (Surface water quality) [WEN-1085] (Negligible)	Project Priority Areas for Biodiversity Access roads Wilts and Berks Canal	Maintenance Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-28) Maintain water quality in the reservoir. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Surface water discharges and surface water drainage/runoff can lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse. (Short-term)	No additional mitigation required as the effect is not significant.
Reach 14 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-1080] (Moderate)	Project Priority Areas for Biodiversity Access roads Wilts and Berks Canal	Maintenance Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Permanent loss of catchment area, changes to surface water drainage/runoff and operational abstractions and discharges from and to the River Thames can lead to changes to downstream watercourse flows/level. Changes to the site groundwater drainage and discharges can also lead to changes in	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
					groundwater/surface water interactions and changes to baseflow in adjacent watercourse through drawdown or introduced discharge of water. (Short-term)	
Reach 14 Ordinary Watercourse / ditch network (Hydrology/Fluvial geomorphology/WFD) [WEN-1081] (Moderate)	Project Priority Areas for Biodiversity Access roads Wilts and Berks Canal	Maintenance Presence (of project components)	(ED-30) Scour protection on the River Thames.	Not Significant Adverse	Effect on fluvial geomorphology : Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Loss and/or modification of watercourses may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. The physical alterations may also impact river continuity and lateral connectivity, including fish passage and sediment transfer. (Short-term)	No additional mitigation required as the effect is not significant.
Reach 14 Ordinary Watercourse / ditch network (Surface water quality) [WEN-1082] (Negligible)	Project Priority Areas for Biodiversity Access roads Wilts and Berks Canal	Maintenance Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-28) Maintain water quality in the reservoir. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Surface water discharges and surface water drainage/runoff can lead to the release of fine sediments and contaminants to surface waterbodies, leading to potential changes to water quality of the receiving watercourse. (Short-term)	No additional mitigation required as the effect is not significant.
Reach 15-24 Thames Wallingford to Caversham, Thames (Reading to Cookham), Thames (Cookham to Egham) and Thames (Egham to Teddington) - WFD (Surface water quality, hydrology and fluvial geomorphology) [WEN-833] (Very High)	Intake/outfall structure	Emergency drawdown testing of the reservoir	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-28) Maintain water quality in the reservoir. (ED-42) Operation stage surface water management.	Not Significant Adverse	Effect on surface water quality, hydrology and fluvial geomorphology: Negligible effects are anticipated in relation to changes in watercourse water quality, watercourse flow volumes, the quantity of water within the receptor or watercourse fluvial geomorphology given that there are limited potential mechanisms of impacts. It is considered that from initial analysis, effects on the receptor are likely to be limited. (Short-term)	No additional mitigation required as the effect is not significant.
Project proposed recreational lakes (activities such as swimming, paddleboarding and sailing and fishing) (Hydrology/Fluvial geomorphology/WFD) [WEN-865] (High)	Recreational lakes centre (including visitors centre) Project Priority Areas for Biodiversity Active travel routes, additional footpaths and non-motorised	Operation Maintenance Presence (of project components)	(ED-31) Lining of key watercourses and surface water features and provision of substrate.	Not Significant Beneficial	Effect on fluvial geomorphology: Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Enhancement of waterbodies and associated riparian habitat and shading may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
	vehicles (NMU) provision					
Project proposed recreational lakes (activities such as swimming, paddleboarding and sailing and fishing) (Hydrology/Fluvial geomorphology/WFD) [WEN-1126] (High)	Recreational lakes centre (including visitors centre) Project Priority Areas for Biodiversity Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision	Operation Maintenance Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Beneficial	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Enhancement of existing watercourse / lake(s) can lead to changes to downstream watercourse flows/level. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.
Project proposed recreational lakes (activities such as swimming, paddleboarding and sailing and fishing) (Surface water quality) [WEN-1127] (High)	Recreational lakes centre (including visitors centre) Project Priority Areas for Biodiversity Active travel routes, additional footpaths and non-motorised vehicles (NMU) provision	Operation Maintenance Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Beneficial	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Changes in surface water abstraction, discharges and surface water runoff can lead to potential changes to water quality of the receiving watercourse. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.
Project proposed reservoir (Hydrology/Fluvial geomorphology/WFD) [WEN-863] (High)	Most / all project components	Operation Maintenance Presence (of project components)	(ED-28) Maintain water quality in the reservoir. (ED-31) Lining of key watercourses and surface water features and provision of substrate.	Not Significant Beneficial	Effect on fluvial geomorphology: Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Enhancement of waterbodies and associated riparian habitat and shading may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.
Project proposed reservoir (Hydrology/Fluvial geomorphology/WFD) [WEN-1128] (High)	Most / all project components	Operation Maintenance Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate.	Not Significant Beneficial	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Enhancement of existing watercourse / lake(s) can lead to changes to downstream watercourse flows/level. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(ED-42) Operation stage surface water management.			
Project proposed reservoir (Surface water quality) [WEN-1129] (Very High)	Most / all project components	Operation Maintenance Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-28) Maintain water quality in the reservoir. (ED-42) Operation stage surface water management.	Not Significant Beneficial	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Changes in surface water abstraction, discharges and surface water runoff can lead to potential changes to water quality of the receiving watercourse. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.
Project proposed Wilts and Berks canal (Hydrology/Fluvial geomorphology/WFD) [WEN-866] (Low)	Most / all project components	Operation Maintenance Presence (of project components)	(ED-31) Lining of key watercourses and surface water features and provision of substrate.	Not Significant Beneficial	Effect on fluvial geomorphology: Presence and operation of Project components within or adjacent to watercourse(s) has the potential to result in its permanent changes in watercourse fluvial geomorphology. Enhancement of waterbodies and associated riparian habitat and shading may result in impacts on the local channel morphology and habitats, which can lead to potential impacts to hydromorphological conditions. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.
Project proposed Wilts and Berks canal (Hydrology/Fluvial geomorphology/WFD) [WEN-1130] (Low)	Most / all project components	Operation Maintenance Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-42) Operation stage surface water management.	Not Significant Beneficial	Effect on surface water hydrology: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse flow volumes and the quantity of water of the receptor. Enhancement of existing watercourse / lake(s) can lead to changes to downstream watercourse flows/level. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.
Project proposed Wilts and Berks canal (Surface water quality) [WEN-1131] (High)	Most / all project components	Operation Maintenance Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-42) Operation stage surface water management.	Not Significant Beneficial	Effect on surface water quality: Presence and operation of Project components within or upstream of watercourse(s) has the potential to result in changes in watercourse water quality. Changes in surface water abstraction, discharges and surface water runoff can lead to potential changes to water quality of the receiving watercourse. (Permanent)	No additional mitigation has been identified at this stage as the effect is likely to be beneficial.
Alluvium [WEN-492] (High)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-46) Emergency fire management system for Battery Energy Storage System (BESS).	Not Significant Adverse	Direct impacts to groundwater quality: There is the risk of degradation of groundwater quality due to the accidental spillage of pollutants (E.g. fuel leakage, battery electrolyte leaks, foul water, heavy metals) or leachate from material (E.g.: asphalt, concrete) during operational activities. In addition, there is the potential for runoff of sediments, hydrocarbons and de-icing salts from built surfaces impacting groundwater quality. There is also the potential for mobilisation of contaminants in saturated soils.	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-52) Measures to manage groundwater levels and flow routes.		(Permanent)	
Alluvium [WEN-468] (High)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding. (ED-52) Measures to manage groundwater levels and flow routes.	Not Significant Adverse	Direct impacts to groundwater levels or flows: Operational work in the area which permanently changes drainage and flow pathways has the potential to alter groundwater levels and flow. Drainage systems may intercept or redirect groundwater, impacting groundwater levels and flows and the recharging of aquifers. Permanent underground piling, structures and pipelines, including the reservoir, intersecting with aquifers may also alter groundwater levels and flows. Permanent landscape changes (e.g. impermeable surfaces and landscaping) and habitat creation, may influence groundwater recharge and shallow flow patterns and locally raise groundwater levels. (Permanent)	No additional mitigation required as the effect is not significant.
Head [WEN-470] (High)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding. (ED-52) Measures to manage groundwater levels and flow routes.	Not Significant Adverse	Direct impacts to groundwater levels or flows: Operational work in the area which permanently changes drainage and flow pathways has the potential to alter groundwater levels and flow. Drainage systems may intercept or redirect groundwater, impacting groundwater levels and flows and the recharging of aquifers. Permanent underground piling, structures and pipelines, including the reservoir, intersecting with aquifers may also alter groundwater levels and flows. Permanent landscape changes (e.g. impermeable surfaces and landscaping) and habitat creation, may influence groundwater recharge and shallow flow patterns and locally raise groundwater levels. (Permanent)	No additional mitigation required as the effect is not significant.
Head [WEN-494] (High)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate.	Not Significant Adverse	Direct impacts to groundwater quality: There is the risk of degradation of groundwater quality due to the accidental spillage of pollutants (E.g. fuel leakage, battery electrolyte leaks, foul water, heavy metals) or leachate from material (E.g.: asphalt, concrete) during operational activities. In addition, there is the potential for runoff of sediments, hydrocarbons and de-icing salts from built surfaces impacting groundwater quality.	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(ED-46) Emergency fire management system for Battery Energy Storage System (BESS). (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.		There is also the potential for mobilisation of contaminants in saturated soils. (Permanent)	
River Terrace Deposits [WEN-493] (High)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-46) Emergency fire management system for Battery Energy Storage System (BESS). (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-52) Measures to manage groundwater levels and flow routes.	Not Significant Adverse	Direct impacts to groundwater quality: There is the risk of degradation of groundwater quality due to the accidental spillage of pollutants (E.g. fuel leakage, battery electrolyte leaks, foul water, heavy metals) or leachate from material (E.g.: asphalt, concrete) during operational activities. In addition, there is the potential for runoff of sediments, hydrocarbons and de-icing salts from built surfaces impacting groundwater quality. There is also the potential for mobilisation of contaminants in saturated soils. (Permanent)	No additional mitigation required as the effect is not significant.
River Terrace Deposits [WEN-469] (High)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding. (ED-52) Measures to manage groundwater levels and flow routes.	Not Significant Adverse	Direct impacts to groundwater levels or flows: Operational work in the area which permanently changes drainage and flow pathways has the potential to alter groundwater levels and flow. Drainage systems may intercept or redirect groundwater, impacting groundwater levels and flows and the recharging of aquifers. Permanent underground piling, structures and pipelines, including the reservoir, intersecting with aquifers may also alter groundwater levels and flows. Permanent landscape changes (e.g. impermeable surfaces and landscaping) and habitat creation, may influence groundwater recharge and shallow flow patterns and locally raise groundwater levels. (Permanent)	No additional mitigation required as the effect is not significant.
Upper Greensand [WEN-465] (Very High)	Highways improvements Groundwater drain	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-52) Measures to manage groundwater levels and flow routes.	Not Significant Adverse	Direct impacts to groundwater levels or flows: Operational work in the area which permanently changes drainage and flow pathways has the potential to alter groundwater levels and flow. SuDS based drainage solutions may impact flow pathways and recharge into shallow aquifers. (Permanent)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Upper Greensand [WEN-489] (Very High)	Highways improvements	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance.	Not Significant Adverse	Direct impacts to groundwater quality: There is a risk of degradation of groundwater quality due to the accidental spillage of pollutants. Run off from highways/roads may carry hydrocarbons, sediments and de-icing salts into shallow aquifers. (Permanent)	No additional mitigation required as the effect is not significant.
Gault Formation [WEN-461] (Low)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding. (ED-52) Measures to manage groundwater levels and flow routes.	Not Significant Adverse	Direct impacts to groundwater levels or flows: Operational work in the area which permanently changes drainage and flow pathways has the potential to alter groundwater levels and flow. Drainage systems may intercept or redirect groundwater, impacting groundwater levels and flows and the recharging of aquifers. Permanent underground structures and pipelines, including the reservoir, intersecting with aquifers may alter groundwater levels and flows. Permanent landscape changes (e.g.: impermeable surfaces and landscaping) and habitat creation, may influence groundwater recharge and shallow flow patterns and locally raise groundwater levels. (Permanent)	No additional mitigation required as the effect is not significant.
Gault Formation [WEN-485] (Low)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-46) Emergency fire management system for Battery Energy Storage System (BESS). (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.	Not Significant Adverse	Direct impacts to groundwater quality: There is the risk of degradation of groundwater quality due to the accidental spillage of pollutants (E.g. fuel leakage, battery electrolyte leaks, foul water, heavy metals) or leachate from material (E.g.: asphalt, concrete) during operational activities. In addition, there is the potential for runoff of sediments, hydrocarbons and de-icing salts from built surfaces impacting groundwater quality. There is also the potential for mobilisation of contaminants in saturated soils. (Permanent)	No additional mitigation required as the effect is not significant.
Lower Greensand [WEN-464] (High)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding.	Not Significant Adverse	Direct impacts to groundwater levels or flows: Operational work in the area which permanently changes drainage and flow pathways has the potential to alter groundwater levels and flow. Drainage systems may intercept or redirect groundwater, impacting groundwater levels and flows and the recharging of aquifers. Permanent underground structures and pipelines, including the reservoir, intersecting with aquifers may alter groundwater levels and flows. Permanent landscape changes (e.g.: impermeable surfaces and landscaping) and habitat creation, may influence groundwater recharge and shallow flow patterns and locally raise groundwater levels.	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(ED-52) Measures to manage groundwater levels and flow routes.		(Permanent)	
Lower Greensand [WEN-488] (High)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-46) Emergency fire management system for Battery Energy Storage System (BESS). (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.	Not Significant Adverse	Direct impacts to groundwater quality: There is the risk of degradation of groundwater quality due to the accidental spillage of pollutants (E.g. fuel leakage, battery electrolyte leaks, foul water, heavy metals) or leachate from material (E.g.: asphalt, concrete) during operational activities. In addition, there is the potential for runoff of sediments, hydrocarbons and de-icing salts from built surfaces impacting groundwater quality. There is also the potential for mobilisation of contaminants in saturated soils. (Permanent)	No additional mitigation required as the effect is not significant.
Kimmeridge Clay Formation and Ampthill Clay Formation [WEN-462] (Low)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding. (ED-52) Measures to manage groundwater levels and flow routes.	Not Significant Adverse	Direct impacts to groundwater levels or flows: Operational work in the area which permanently changes drainage and flow pathways has the potential to alter groundwater levels and flow. Drainage systems may intercept or redirect groundwater, impacting groundwater levels and flows and the recharging of aquifers. Permanent underground piling, structures and pipelines, including the reservoir, intersecting with aquifers may also alter groundwater levels and flows. Permanent landscape changes (e.g. impermeable surfaces and landscaping) and habitat creation, may influence groundwater recharge and shallow flow patterns and locally raise groundwater levels. (Permanent)	No additional mitigation required as the effect is not significant.
Kimmeridge Clay Formation and Ampthill Clay Formation [WEN-486] (Low)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-46) Emergency fire management system for Battery Energy Storage System (BESS). (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.	Not Significant Adverse	Direct impacts to groundwater quality: There is the risk of degradation of groundwater quality due to the accidental spillage of pollutants (E.g. fuel leakage, battery electrolyte leaks, foul water, heavy metals) or leachate from material (E.g.: asphalt, concrete) during operational activities. In addition, there is the potential for runoff of sediments, hydrocarbons and de-icing salts from built surfaces impacting groundwater quality. There is also the potential for mobilisation of contaminants in saturated soils. (Permanent)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Corallian Group [WEN-463] (High)	Highways improvements Floating solar Groundwater drain	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-52) Measures to manage groundwater levels and flow routes.	Not Significant Adverse	Direct impacts to groundwater levels or flows: Operational work in the area which permanently changes drainage and evaporation pathways has the potential to alter groundwater levels and flow. SuDS based drainage solutions may impact flow pathways and recharge into shallow aquifers. Floating infrastructure on surface water bodies (E.g.: Floating solar) may reduce evaporation and influence local recharge dynamics. (Permanent)	No additional mitigation required as the effect is not significant.
Corallian Group [WEN-487] (High)	Highways improvements Solar on structures Ground-mounted solar (solar farm reprovision)	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-46) Emergency fire management system for Battery Energy Storage System (BESS).	Not Significant Adverse	Direct impacts to groundwater quality: There is the risk of degradation of groundwater quality due to the accidental spillage of pollutants (E.g. fuel leakage, battery electrolyte leaks) or leachate from material (E.g.: asphalt, concrete) during operational activities. In addition, there is the potential for runoff of sediments, hydrocarbons and de-icing salts from built surfaces, impacting groundwater quality. (Permanent)	No additional mitigation required as the effect is not significant.
Mapped Water Supply Spring [WEN-456] (High)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-46) Emergency fire management system for Battery Energy Storage System (BESS). (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.	Not Significant Adverse	Impact on Spring receptor due to changes in groundwater quality: Operational work in the area may impact groundwater quality and in turn may impact the water quality of this spring receptor. (Permanent)	No additional mitigation required as the effect is not significant.
Mapped Water Supply Spring [WEN-455] (High)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding.	Not Significant Adverse	Impact on Spring receptor due to changes in groundwater levels or flows: Operational work in the area which permanently changes drainage and flow pathways has the potential to impact this receptor. (Permanent)	No additional mitigation required as the effect is not significant.
Mapped Water Supply Spring [WEN-471] (High)	Most / all project components	Most / all project activities (operation)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance.	Not Significant Adverse	Impact on spring receptor due to changes in groundwater quality: Undertaking construction activities leads to the potential for contamination and degradation	No additional mitigation required

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
					of groundwater quality due to the risk of accidental spillage of pollutants (E.g. fuel leakage) or leachate from material (E.g.: asphalt, concrete). In addition there is the potential for runoff of sediment during constructions, impacting groundwater quality. This has the potential to cause indirect effects on receptor from altered groundwater quality due to construction activities. (Permanent)	as the effect is not significant.
Potential Springs (unmapped) [WEN-496] (High)	Wilts and Berks Canal Highways improvements	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-46) Emergency fire management system for Battery Energy Storage System (BESS). (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.	Not Significant Adverse	Impact on Spring receptor due to changes in groundwater quality: Operational work in the area may impact groundwater quality and in turn may impact the water quality of this spring receptor. (Permanent)	No additional mitigation required as the effect is not significant.
Potential Springs (unmapped) [WEN-513] (High)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding.	Not Significant Adverse	Impact on Spring receptor due to changes in groundwater levels or flows: Operational work in the area which permanently changes drainage and flow pathways has the potential to impact this receptor. (Permanent)	No additional mitigation required as the effect is not significant.
Marcham Salt Water Spring [WEN-472] (Moderate)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding.	Not Significant Adverse	Impact on Spring receptor due to changes in groundwater levels or flows: Operational work in the area which permanently changes drainage and flow pathways has the potential to impact this receptor. (Permanent)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
Marcham Salt Water Spring [WEN-495] (Moderate)	Highways improvements	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-46) Emergency fire management system for Battery Energy Storage System (BESS). (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.	Not Significant Adverse	Impact on Spring receptor due to changes in groundwater quality: Operational work in the area may impact groundwater quality and in turn may impact the water quality of this spring receptor. (Permanent)	No additional mitigation required as the effect is not significant.
Abingdon Area abstraction (TH/039/0018/011) [WEN-457] (Moderate)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding.	Not Significant Adverse	Impact on abstractions due to changes in groundwater levels or flows: Operational work in the area which permanently changes drainage and flow pathways has the potential to alter groundwater levels and flow Eg: due to permanent underground structures and piling. These changes could, in turn, affect the groundwater body this receptor abstracts from. (Permanent)	No additional mitigation required as the effect is not significant.
Abingdon Area abstraction (TH/039/0018/011) [WEN-458] (Moderate)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding.	Not Significant Adverse	Impact on abstractions due to changes in groundwater quality: Operational work in the area may impact groundwater quality and in turn may impact the water quality in the groundwater body this receptor abstracts from. (Permanent)	No additional mitigation required as the effect is not significant.
Corallian agricultural groundwater abstraction (TH/039/0017/001/R01) [WEN- 474] (Moderate)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate.	Not Significant Adverse	Impact on abstractions due to changes in groundwater levels or flows: Operational work in the area which permanently changes drainage and flow pathways has the potential to alter groundwater levels and flow Eg: due to permanent underground structures and piling. These changes could, in turn, affect the groundwater body this receptor abstracts from. (Permanent)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding.			
Corallian agricultural groundwater abstraction (TH/039/0017/001/R01) [WEN-475] (Moderate)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-46) Emergency fire management system for Battery Energy Storage System (BESS). (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.	Not Significant Adverse	Impact on abstractions due to changes in groundwater quality: Operational work in the area may impact groundwater quality and in turn may impact the water quality in the groundwater body this receptor abstracts from. (Permanent)	No additional mitigation required as the effect is not significant.
Groundwater point River Terrace abstractions outside draft Order Limits (28/39/18/0055; 28/39/18/0009; TH/039/0018/003) [WEN-476] (Moderate)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base)	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding.	Not Significant Adverse	Impact on abstractions due to changes in groundwater levels or flows: Operational work in the area which permanently changes drainage and flow pathways has the potential to alter groundwater levels and flow . E.g.: due to reservoir footprint, drainage and potential recharge impacts. These changes could, in turn, affect the groundwater body this receptor abstracts from. (Permanent)	No additional mitigation required as the effect is not significant.
Groundwater point River Terrace abstractions outside draft Order Limits (28/39/18/0055; 28/39/18/0009; TH/039/0018/003) [WEN-477] (Moderate)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base)	Presence (of project components) Operation	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.	Not Significant Adverse	Impact on abstractions due to changes in groundwater quality: Operational work in the area may impact groundwater quality and in turn may impact the water quality in the groundwater body this receptor abstracts from. (Permanent)	No additional mitigation required as the effect is not significant.
River Gravels Industrial groundwater abstraction (TH/039/0018/012) [WEN-499] (Moderate)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.	Not Significant Adverse	Impact on abstractions due to changes in groundwater quality: Operational work in the area may impact groundwater quality and in turn may impact the water quality in the groundwater body this receptor abstracts from. (Permanent)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(ED-50) Drainage designed to reduce the risk of flooding.			
River Gravels Industrial groundwater abstraction (TH/039/0018/012) [WEN-498] (Moderate)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding.	Not Significant Adverse	Impact on abstractions due to changes in groundwater levels or flows: Operational work in the area which permanently changes drainage and flow pathways has the potential to alter groundwater levels and flow Eg: due to permanent underground structures and piling. These changes could, in turn, affect the groundwater body this receptor abstracts from. (Permanent)	No additional mitigation required as the effect is not significant.
Area abstractions outside draft Order Limits [WEN-459] (Moderate)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base)	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding.	Not Significant Adverse	Impact on abstractions due to changes in groundwater levels or flows: Operational work in the area which permanently changes drainage and flow pathways has the potential to alter groundwater levels and flow . E.g.: due to reservoir footprint, drainage and potential recharge impacts. These changes could, in turn, affect the groundwater body this receptor abstracts from. (Permanent)	No additional mitigation required as the effect is not significant.
Area abstractions outside draft Order Limits [WEN-460] (Moderate)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base)	Presence (of project components) Operation	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.	Not Significant Adverse	Impact on abstractions due to changes in groundwater quality: Operational work in the area may impact groundwater quality and in turn may impact the water quality in the groundwater body this receptor abstracts from. (Permanent)	No additional mitigation required as the effect is not significant.
River Ock reach abstraction (28/39/17/0027) [WEN-500] (Moderate)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.	Not Significant Adverse	Impact on abstractions due to changes in groundwater levels or flows: Operational work in the area which permanently changes drainage and flow pathways has the potential to alter groundwater levels and flow Eg: due to permanent underground structures and piling. These changes could, in turn, affect the groundwater body this receptor abstracts from. (Permanent)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(ED-50) Drainage designed to reduce the risk of flooding.			
River Ock reach abstraction (28/39/17/0027) [WEN-501] (Moderate)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding.	Not Significant Adverse	Impact on abstractions due to changes in groundwater quality: Operational work in the area may impact groundwater quality and in turn may impact the water quality in the groundwater body this receptor abstracts from. (Permanent)	No additional mitigation required as the effect is not significant.
River Thames reach abstraction outside draft Order Limits (TH/039/0015/003) [WEN-514] (Moderate)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base)	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding.	Not Significant Adverse	Impact on abstractions due to changes in groundwater levels or flows: Operational work in the area which permanently changes drainage and flow pathways has the potential to alter groundwater levels and flow . E.g.: due to reservoir footprint, drainage and potential recharge impacts. These changes could, in turn, affect the groundwater body this receptor abstracts from. (Permanent)	No additional mitigation required as the effect is not significant.
River Thames reach abstraction outside draft Order Limits (TH/039/0015/003) [WEN-515] (Moderate)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base)	Presence (of project components) Operation	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.	Not Significant Adverse	Impact on abstractions due to changes in groundwater quality: Operational work in the area may impact groundwater quality and in turn may impact the water quality in the groundwater body this receptor abstracts from. (Permanent)	No additional mitigation required as the effect is not significant.
Surface water abstractions outside draft Order Limits (28/39/17/0143; 28/39/17/0146; 28/39/18/0019; TH/039/0017/005; 28/39/17/0152; TH/039/0015/006) [WEN-516] (Moderate)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base)	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.	Not Significant Adverse	Impact on abstractions due to changes in groundwater levels or flows: Operational work in the area which permanently changes drainage and flow pathways has the potential to alter groundwater levels and flow . E.g.: due to reservoir footprint, drainage and potential recharge impacts. These changes could, in turn, affect the groundwater body this receptor abstracts from. (Permanent)	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(ED-50) Drainage designed to reduce the risk of flooding.			
Surface water abstractions outside draft Order Limits (28/39/17/0143; 28/39/17/0146; 28/39/18/0019; TH/039/0017/005; 28/39/17/0152; TH/039/0015/006) [WEN-517] (Moderate)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base)	Presence (of project components) Operation	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.	Not Significant Adverse	Impact on abstractions due to changes in groundwater quality: Operational work in the area may impact groundwater quality and in turn may impact the water quality in the groundwater body this receptor abstracts from. (Permanent)	No additional mitigation required as the effect is not significant.
Surface water abstractions outside draft Order Limits (28/39/18/0059) [WEN-1135] (High)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base)	Presence (of project components)	(ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.	Not Significant Adverse	Impact on abstractions due to changes in groundwater quality: Operational work in the area may impact groundwater quality and in turn may impact the water quality in the groundwater body this receptor abstracts from. (Permanent)	No additional mitigation required as the effect is not significant.
Surface water abstractions outside draft Order Limits (28/39/18/0059) [WEN-1134] (High)	Reservoir (including embankment and directly associated infrastructure, such as pipes in the base)	Presence (of project components)	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding.	Not Significant Adverse	Impact on abstractions due to changes in groundwater levels or flows: Operational work in the area which permanently changes drainage and flow pathways has the potential to alter groundwater levels and flow . E.g.: due to reservoir footprint, drainage and potential recharge impacts. These changes could, in turn, affect the groundwater body this receptor abstracts from. (Permanent)	No additional mitigation required as the effect is not significant.
CAWM.1151 (Trade discharge to freshwater river) [WEN-478] (Low)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Operational work in the area which permanently changes drainage and flow pathways has the potential to alter groundwater levels and flows. These changes could, in turn, affect the receiving watercourse of this discharge, potentially modifying the impact of the consented discharge. (Permanent)	No additional mitigation required as the effect is not significant.
CAWM.1151 (Trade discharge to freshwater river) [WEN-479] (Low)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: There is a risk of degradation of groundwater quality due to operational activities. This could, in turn, affect the	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(ED-46) Emergency fire management system for Battery Energy Storage System (BESS). (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.		receiving watercourse of this discharge, potentially modifying the impact of the consented discharge. (Permanent)	
CNTD.0030 (Thames Water sewage discharge to freshwater river) [WEN-502] (Low)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Operational work in the area which permanently changes drainage and flow pathways has the potential to alter groundwater levels and flows. These changes could, in turn, affect the receiving watercourse of this discharge, potentially modifying the impact of the consented discharge. (Permanent)	No additional mitigation required as the effect is not significant.
CNTD.0030 (Thames Water sewage discharge to freshwater river) [WEN-503] (Low)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-46) Emergency fire management system for Battery Energy Storage System (BESS). (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: There is a risk of degradation of groundwater quality due to operational activities. This could, in turn, affect the receiving watercourse of this discharge, potentially modifying the impact of the consented discharge. (Permanent)	No additional mitigation required as the effect is not significant.
CNTD.0053 (Thames Water sewage discharge to freshwater river) [WEN-504] (Low)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Operational work in the area which permanently changes drainage and flow pathways has the potential to alter groundwater levels and flows. These changes could, in turn, affect the receiving watercourse of this discharge, potentially modifying the impact of the consented discharge. (Permanent)	No additional mitigation required as the effect is not significant.
CNTD.0053 (Thames Water sewage discharge to freshwater river) [WEN-505] (Low)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: There is a risk of degradation of groundwater quality due to operational activities. This could, in turn, affect the receiving watercourse of this discharge, potentially modifying the impact of the consented discharge.	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(ED-46) Emergency fire management system for Battery Energy Storage System (BESS). (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.		(Permanent)	
CTCR.1804 (Thames Water sewage discharge into freshwater river) [WEN-506] (Low)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Operational work in the area which permanently changes drainage and flow pathways has the potential to alter groundwater levels and flows. These changes could, in turn, affect the receiving watercourse of this discharge, potentially modifying the impact of the consented discharge. (Permanent)	No additional mitigation required as the effect is not significant.
CTCR.1804 (Thames Water sewage discharge into freshwater river) [WEN-507] (Low)	Wilts and Berks Canal	Presence (of project components) Operation	(ED-31) Lining of key watercourses and surface water features and provision of substrate.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: There is a risk of degradation of groundwater quality due to operational activities. This could, in turn, affect the receiving watercourse of this discharge, potentially modifying the impact of the consented discharge. (Permanent)	No additional mitigation required as the effect is not significant.
EPREB3990AK (Trade discharge to freshwater river) [WEN-518] (Low)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Operational work in the area which permanently changes drainage and flow pathways has the potential to alter groundwater levels and flows. These changes could, in turn, affect the receiving watercourse of this discharge, potentially modifying the impact of the consented discharge. (Permanent)	No additional mitigation required as the effect is not significant.
EPREB3990AK (Trade discharge to freshwater river) [WEN-519] (Low)	Wilts and Berks Canal	Presence (of project components) Operation	(ED-31) Lining of key watercourses and surface water features and provision of substrate.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: There is a risk of degradation of groundwater quality due to operational activities. This could, in turn, affect the receiving watercourse of this discharge, potentially modifying the impact of the consented discharge. (Permanent)	No additional mitigation required as the effect is not significant.
EPRTB3094RX (Sewage discharge to freshwater river) [WEN-520] (Low)	Highways improvements Access roads	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Operational work in the area which permanently changes drainage and flow pathways has the potential to alter groundwater levels and flows. These changes could, in turn, affect the receiving watercourse of this discharge,	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding.		potentially modifying the impact of the consented discharge. (Permanent)	
EPRTB3094RX (Sewage discharge to freshwater river) [WEN-521] (Low)	Highways improvements Access roads	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: There is a risk of degradation of groundwater quality due to operational activities. This could, in turn, affect the receiving watercourse of this discharge, potentially modifying the impact of the consented discharge. (Permanent)	No additional mitigation required as the effect is not significant.
TEMP.2989 (Thames sewage discharge to freshwater river) [WEN-522] (Low)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: Operational work in the area which permanently changes drainage and flow pathways has the potential to alter groundwater levels and flows. These changes could, in turn, affect the receiving watercourse of this discharge, potentially modifying the impact of the consented discharge. (Permanent)	No additional mitigation required as the effect is not significant.
TEMP.2989 (Thames sewage discharge to freshwater river) [WEN-523] (Low)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-46) Emergency fire management system for Battery Energy Storage System (BESS). (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.	Not Significant Adverse	Consented discharge impact on water course may be altered by changes to receiving water body: There is a risk of degradation of groundwater quality due to operational activities. This could, in turn, affect the receiving watercourse of this discharge, potentially modifying the impact of the consented discharge. (Permanent)	No additional mitigation required as the effect is not significant.
Shrivenham Corallian [WEN-466] (Very High)	Highways improvements Floating solar Groundwater drain	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-52) Measures to manage groundwater levels and flow routes.	Not Significant Adverse	Direct impacts to groundwater levels or flows: Operational work in the area which permanently changes drainage and evaporation pathways has the potential to alter groundwater levels and flow. Drainage systems may result in the reduction in recharge area and the capture groundwater and surface water which would previously have infiltrated into the ground. Floating infrastructure on surface water bodies (E.g.	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
					Floating solar) may reduce evaporation and influence local recharge dynamics. (Permanent)	
Shrivenham Corallian [WEN-490] (Very High)	Highways improvements Solar on structures Ground-mounted solar (solar farm reprovision)	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-46) Emergency fire management system for Battery Energy Storage System (BESS).	Not Significant Adverse	Direct impacts to groundwater quality: There is the risk of degradation of groundwater quality due to the accidental spillage of pollutants (E.g. fuel leakage, battery electrolyte leaks) or leachate from material (E.g.: asphalt, concrete) during operational activities. In addition, there is the potential for runoff of sediments, hydrocarbons and de-icing salts from built surfaces, impacting groundwater quality. (Permanent)	No additional mitigation required as the effect is not significant.
Vale of White Horse Chalk [WEN-467] (Very High)	Highways improvements Floating solar Groundwater drain	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-52) Measures to manage groundwater levels and flow routes.	Not Significant Adverse	Direct impacts to groundwater levels or flows: Operational work in the area which permanently changes drainage and evaporation pathways has the potential to alter groundwater levels and flow. Drainage systems may result in the reduction in recharge area and the capture groundwater and surface water which would previously have infiltrated into the ground. Floating infrastructure on surface water bodies (E.g.: Floating solar) may reduce evaporation and influence local recharge dynamics. (Permanent)	No additional mitigation required as the effect is not significant.
Vale of White Horse Chalk [WEN-491] (Very High)	Highways improvements	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-46) Emergency fire management system for Battery Energy Storage System (BESS).	Not Significant Adverse	Direct impacts to groundwater quality: There is the risk of degradation of groundwater quality due to the accidental spillage of pollutants (E.g. fuel leakage, battery electrolyte leaks) or leachate from material (E.g.: asphalt, concrete) during operational activities. In addition, there is the potential for runoff of sediments, hydrocarbons and de-icing salts from built surfaces, impacting groundwater quality. (Permanent)	No additional mitigation required as the effect is not significant.
Potential Non-Designated GWDTE [WEN-480] (Very High)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines. (ED-50) Drainage designed to reduce the risk of flooding.	Not Significant Adverse	Impact on potential non-designated GWDTE due to changes in groundwater levels and flows: Potential indirect effects on GWDTEs from altered groundwater levels and flows due to operational activities. (Permanent)	No additional mitigation required as the effect is not significant.
Potential Non-Designated GWDTE [WEN-508] (Very High)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance.	Not Significant Adverse	Impact on potential non-designated GWDTE due to changes in groundwater quality: Potential indirect effects on GWDTEs from altered groundwater quality due to operational activities.	No additional mitigation required as the effect is not significant.

Receptor name [Effect ID] (Sensitivity of receptor)	Project component(s)	Project activity(ies)	Embedded design / standard good practice mitigation applied	Initial significance / Direction of effect	Description of effect (including duration)	Additional mitigation identified (including monitoring)
			(ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-46) Emergency fire management system for Battery Energy Storage System (BESS). (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.		(Permanent)	
Potential Private Water Supplies (unmapped) [WEN-497] (High)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.	Not Significant Adverse	Impact on water supply receptor due to changes in groundwater quality: Operational work in the area may impact groundwater quality and in turn may impact the water quality of this spring receptor. (Permanent)	No additional mitigation required as the effect is not significant.
Potential Private Water Supplies (unmapped) [WEN-473] (High)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance.	Not Significant Adverse	Impact on water supply receptors due to changes in groundwater levels or flows: Operational work in the area which permanently changes drainage and flow pathways has the potential to impact this receptor. (Permanent)	No additional mitigation required as the effect is not significant.
South Oxfordshire Crematorium [WEN-481] (High)	Most / all project components	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.	Not Significant Adverse	Impact on anthropogenic feature due to changes in groundwater levels and flows: Potential indirect effect on anthropogenic features from altered groundwater levels and flows as a result of operational activities. (Permanent)	No additional mitigation required as the effect is not significant.
South Oxfordshire Crematorium [WEN-509] (High)	Highways improvements Wilts and Berks Canal	Presence (of project components) Operation	(ED-22) Drainage Strategy to align with national and local planning policy and guidance. (ED-31) Lining of key watercourses and surface water features and provision of substrate. (ED-49) Measures embedded into the design to ensure permanent conveyance to tunnels/pipelines.	Not Significant Adverse	Impact on anthropogenic feature due to changes in groundwater quality: Potential indirect effects on anthropogenic features from altered groundwater quality due to operational activities. (Permanent)	No additional mitigation required as the effect is not significant.



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