BEACON FEN ENERGY PARK

Planning Inspectorate Reference: EN010151

Appendix 11.6: Water Framework Directive Assessment
Document Reference: 6.3 ES Volume 2, 6.3.86
April 2025

The Planning Act 2008
The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 - Regulation 5(2)(a)
The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 (SI 2017/572) – Regulation 14

Quality information

Prepared by	Checked by	Verified by	Approved by
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1. INTRODUCTION

1.1 Purpose

1.1.1 Appendix 11.6: Water Frame Work Directive Assessment has been prepared by Wardell Armstrong LLP (part of SLR) ('WA') on behalf of Beacon Fen Energy Park Ltd (the 'Applicant') in support of an application for a Development Consent Order (DCO) for Beacon Fen Energy Park (the 'Proposed Development').

1.1.2 The purpose of this document is to present a screening level Water Framework Directive (WFD) Compliance Assessment for the Proposed Development. This approach was agreed by the Environment Agency in their response to the Scoping Report (**Document Ref: 6.3 ES Vol.2, 6.3.1**), presented in April 2023 and to the Preliminary Environmental Information Report (PEIR) assessment (report number ST19595 REP-002), presented in January 2024, which stated that a WFD assessment / screening WFD assessment was required to consider watercourse crossings. Additionally, the Planning Inspectorate (PINS) could not agree to scope out the requirements for a WFD assessment in the Scoping Opinion **(Document Ref: 6.3 ES Vol.2, 6.3.1**).

1.2 Background and Scope

1.2.1 Wardell Armstrong LLP (hereafter referred to as 'WA') has been appointed by Beacon Fen Energy Park LTD (hereafter referred to as BFEP) to undertake a Water Framework Directive (WFD) screening assessment relating to the Environmental Impact Assessment (EIA) of Beacon Fen Energy Park. The Proposed Development will comprise of solar photovoltaic (PV) electricity generation and Battery Energy Storage System ('BESS'), together with infrastructure connected by an underground 'Cable Route' of approximately 13 km length to Bicker Fen substation the Bespoke Access Road, access tracks are proposed at the Site (the 'Proposed Development'), at land surrounding Heckington, near Sleaford, Lincolnshire (thereafter referred to as 'the Site').

1.2.2 The Proposed Development would have a generation capacity of approximately 400 megawatts (MW), with the BESS of a similar capacity, and would be capable of powering approximately 130,000 UK homes. See **Chapter 2: Proposed Development (Document Ref: 6.2 ES Vol.1,6.2.2**). The Proposed Development constitutes a Nationally Significant Infrastructure Project (NSIP) under Sections 14(1)(a) and 15(2) of the Planning Act 2008 as an onshore generating station in England exceeding 50 MW, which requires a Development Consent Order (DCO) application to the Secretary of State (SoS).

1.3 Legislative Requirements

1.3.1 Directive 2000/60/EC of the European Parliament and Council (the Water Framework Directive or WFD) came into force on 22nd December 2000 and

established a framework for community action in the field of water policy. The WFD has been transposed into regulations via The Water Environment (Water Framework Directive) (England and Wales) Regulations 2017.

1.3.2 The WFD required UK nations to reach Good chemical and ecological status in inland and coastal waters by 2015. The WFD is designed to enhance the status and prevent further deterioration of aquatic ecosystems and associated wetlands, to promote sustainable water use, to reduce pollution of water and to ensure a progressive reduction in groundwater pollution. The WFD establishes a strategic framework for managing the water environment and requires a management plan for each river basin to be developed every six years. In cases where good ecological status/potential could not be achieved by 2015, a provision was included under Article 4(4) of the WFD, extending the deadline to 2021 or 2027. The date has been extended to 2027 and 2063 in respect of many waterbodies in England. Within England, the competent authority for delivering the WFD is the Environment Agency (EA).

1.3.3 The role of a WFD Assessment is to evaluate the potential for deterioration in the overall status of a water body from a Proposed Development, based on the 2022 River Basin Management Plan (RBMP). The role of a WFD Assessment is also to determine whether the Proposed Development may hinder any existing Programmes of Measures in returning a failing water body to Good status.

2. BASELINE DESCRIPTION

2.1 Site Description And Proposed Development

2.1.1 The Site is located approximately 6.5 km northeast of Sleaford and 2.5 km north of Heckington and centred at National Grid Reference (NGR) TF 16348 42178. The Site is comprised of the area outlined in red on **Figure 11.1: Regional Surface Water Catchment (Document Ref: 6.4 ES Vol.3, 6.4.62)** and within the Site are three areas: the 'Solar Array Area', where the Solar PV, BESS and ancillary infrastructure are proposed to be located, the 'Bespoke Access Corridor', which will facilitate all phases of the Proposed Development (construction, operational and decommissioning) via the construction of the 'Bespoke Access Road', and the 'Cable Route Corridor', which is the section of the Site where the cables from the Solar Array Area will connect to the Bicker Fen Substation via the 'Cable Route'. All three of these areas are collectively known as the DCO 'Order Limits,' which is illustrated on **Figure 11.1: Regional Surface Water Catchment (Document Ref: 6.4 ES Vol.3, 6.4.62)**.

2.1.2 The Cable Route will be installed predominantly via standard open-cut trenched methods and will require several watercourse crossings across ordinary watercourses and ditches via 'trenched methods/techniques' such as Cofferdam. However, where required, main river watercourse crossings, such as the Hodge Dike, Heckington Eau and South Forty Foot Drain, will require 'trenchless methods/techniques' such as Horizontal Directional Drilling (HDD), micro-tunnelling or auger boring methods. Some ordinary watercourse crossings will retain flexibility on the use of both trenched and trenchless methods, which will be determined in and during the detailed design phase.

2.1.3 There is no need to develop a new National Grid substation; however, works to upgrade and extend the Bicker Fen Substation are proposed.

2.1.4 The total Site area is approximately 757.4 ha which is illustrated on **Figure 11.1: Regional Surface Water Catchment (Document Ref: 6.4 ES Vol.3, 6.4.62)** as the DCO Order Limits Site boundary.

2.1.5 The Solar Array Area is approximately 529 ha in size and predominantly comprises agricultural land in arable use, divided by ditches with sparse tree cover that is limited to small woodland blocks and scattered hedgerow trees. A small reservoir is located in the south-west of the Solar Array Area. This area comprises the largest proportion of the Site area.

2.1.6 The Cable Route Corridor is approximately 183 ha in size and extends c. 13 km south-east from the Solar Array Area to Bicker Fen Substation. The Cable Route Corridor has been refined, informed by results from environmental surveys and consultation feedback. Land use within the Solar Array Area and Cable Route Corridor is predominantly agricultural.

2.1.7 The Proposed Development will also include a new Bespoke Access Road from the A17 to the Solar Array Area to facilitate all phases of the Proposed Development (construction, operational and decommissioning). This is termed the 'Bespoke Access Road,' which will be located within the Bespoke Access Corridor as part of the DCO Order Limits. The Bespoke Access Corridor is approximately 45.4 ha in size and extends 3 km south-west from the Solar Array Area to the A17.

2.1.8 As Beacon Fen Energy Park would produce over 50 MW of electricity, it is classed as a Nationally Significant Infrastructure Project (NSIP) and, therefore, a Development Consent Order (DCO) must be applied for before the Proposed Development can be built. Subject to the DCO Application being granted consent in 2026, construction is anticipated to commence in 2027 and last for 2.5 to 5 years. However, the rate of construction is dependent on environmental and market factors.

2.1.9 The Proposed Development is expected to be operational for approximately 40 years after which it would be safely decommissioned and the Solar Array Area returned to agricultural use via the Decommissioning phase of the Proposed Development. The Bespoke Access Road will remain in place to facilitate the Decommissioning phase of works.

2.2 Hydrological Setting

2.2.1 The majority of the Site is situated within the EA's 'Black Sluice Internal Drainage Board (IDB) area draining to the South Forty Foot Drain Water Body.' This water body is monitored by the EA under the WFD[1] and it was assigned an overall 'moderate ecological status' in 2019 and failing to overall 'poor

[1] EU Directive 2000/60/EC of the European Parliament and of the Council of 23 October 2000 establishing a framework for action in the field of water policy. The Water Framework Directive was adopted into UK law through the Water Environment (Water Framework Directive) (England and Wales) Regulations 2017 Available at: https://www.legislation.gov.uk/uksi/2017/407/contents/made Accessed January 2025

ecological status' in 2022.[2] The water body is located within the South Forty Foot Drain Operational Catchment.

2.2.2 This WFD Compliance Assessment report will assess the Proposed Development as though it exists entirely within the 'Black Sluice IDB draining to the South Forty Foot Drain Water Body' due to there only being a very small portion of an access track within the northeastern portion of the Solar Array Area, which is technically outside the water body. This does not warrant a separate WFD Compliance assessment against the Kyme Eau Water Body[3], as this section of the Site area sits on the boundary of the EA water body divide, the area of the Site access road is insignificant and any potential environmental impacts from the construction of access roads/footbridges and other activities will be applied to not have any effect on the Kyme Eau Water Body[3].

2.2.3 The majority of the Site is located within the Black Sluice IDB area (N.B. this is not referring to the EA water body area). Only the west of the Solar Array Area and part of the Bespoke Access Corridor are not located within the Black Sluice IDB area.

2.2.4 The Solar Array Area, the Bespoke Access Corridor and the Cable Route Corridor cross multiple ordinary watercourses and EA designated main rivers including but not limited to (listed in order from north to south):

- Twelve Drain (Ordinary Watercourse);
- Catchwater Drain (Ordinary Watercourse);
- Hodge Dike (Main River);
- Heckington Eau (Main River);
- Great Hale Eau (Ordinary Watercourse);
- Old Sixteen Foot Drain (Ordinary Watercourse); and
- South Forty Foot Drain (Main River).

2.2.5 The Site also comprises a vast network of unnamed drains (ordinary watercourses), which are either IDB drains, private drains where the IDB takes a supervisory role or those outside of the IDB's area and so where the Lead Local Flood Authority (LLFA) is the supervisor. There is also likely the presence of field underdrainage throughout the Site.

2.2.6 Hydrological walkover surveys (see **Appendix 11.3: Summary of Watercourse Crossings and Photographs (Document Ref: 6.3 ES Vol.2, 6.3.83**) and **Figure 11.6: Watercourse Crossings (Document Ref: 6.4 EA Vol.3, 6.4.67)** were undertaken in July 2023, March 2024 and December 2024 to record the hydrological characteristics of the watercourses within the Site and the study area. The indicative location of watercourse crossings at each watercourse encountered within the DCO Order Limits Site boundary is found within **Chapter 11: Water Resources and Flood Risk (Document Ref: 6.2 ES Vol.1, 6.2.11)** alongside the results of the hydrological walkover surveys. Watercourse crossing locations are indicative at this stage but will stay within the DCO Order Limits.

[2] Catchment Data Explorer, Environment Agency (2024). Available [online] at: Black Sluice IDB draining to the South Forty Foot Drain | Catchment Data Explorer | Catchment Data Explorer. Accessed December 2024.

[3] Catchment Data Explorer, Environment Agency (2025). Available [online] at: Kyme Eau | Catchment Data Explorer | Catchment Data Explorer. Accessed February 2025.

2.2.7 The Hodge Dike main river intersects the centre of the Solar Array Area and flows in a west to east direction, which joins the Heckington Eau main river flowing in a west to east direction within and along the northern part of the Site. The Heckington Eau main river then joins the South Forty Foot Drain main river, which flows from south to north and intersects the Cable Route Corridor (further south). In general, the local watercourses drain either to the east or to the southeast, towards The Wash (North Sea).

2.2.8 For the Bespoke Access Corridor, there are a few unnamed drainage ditches located within this area, which will be crossed by the Bespoke Access Road.

2.3 Geological and Hydrogeological Setting

2.3.1 The British Geological Survey (BGS) published mapping, **Figure 11.3: Superficial Geology (Document Ref: 6.4 ES Vol.3, 6.4.64)**, shows the superficial deposits underlie the majority of the Site. The Bespoke Access Corridor is predominantly underlain by Till (diamicton) that extends into the Solar Array Area. There is an area of Sleaford Sand and Gravel at the southwestern end of the Bespoke Access Corridor and an area of Glaciofluvial Deposits towards the southern part of the Bespoke Access Corridor. Borehole records from the BGS (BGS reference TF14NW9, included in **Appendix 11.4: Borehole Logs (Document Ref: 6.3 EA Vol.2, 6.3.84)**) record the Glaciofluvial Deposits to be 6 m thick and to be underlain by 2 m of Till.

2.3.2 The superficial deposits within the Solar Array area comprise of Tidal Flat Deposits, Till, Alluvium and Glaciofluvial Sheet Deposits.

2.3.3 The Cable Route Corridor is underlain by Till with small areas of Sleaford Sand and Gravel, Glaciofluvial Ice Contact Deposits, Glaciofluvial Sheet Deposits, and Tidal Flat Deposits. According to BGS boreholes (BGS reference: TF14NE7, TF14NE10, TF14NE14, TF14NE15, TF14NE17), located along the Heckington Eau, groundwater was encountered in the Sleaford Sand and Gravel at 2.4 m to 2.6 meters below ground level (mbgl). The Southern half of the Cable Route Corridor is entirely underlain by Tidal Flat Deposits.

2.3.4 The Bicker Fen Substation also lies entirely on Tidal Flat Deposits. BGS borehole records (TF13NE11, TF13NE10 and TF13NE21) to the west of the substation identified groundwater levels in the Tidal Flat Deposits of 2.5 to 2.7 mbgl.

2.3.5 According to the EA's Aquifer Designation Map[9] the superficial deposits have the following aquifer designations:

- Tidal Flat Deposits – Unproductive Strata;[4]
- Till – Secondary Undifferentiated;[5]

[4] Defined as "*Unproductive strata are largely unable to provide usable water supplies and are unlikely to have surface water and wetland ecosystems dependent on them*." Taken from Environment Agency (2025) Guidance: Protect groundwater and prevent groundwater pollution [online]. Accessed January 2025. Available at: https://www.gov.uk/government/publications/protect-groundwater-and-prevent-groundwater-pollution/protect-groundwater-and-prevent-groundwater-pollution#groundwater-definition

[5] Defined as "*aquifers where it is not possible to apply either a Secondary A or B definition because of the variable characteristics of the rock type. These have only a minor value*." Taken from Environment Agency (2025) Guidance: Protect groundwater and prevent groundwater pollution [online]. Accessed January 2025... Available at: https://www.gov.uk/government/publications/protect-groundwater-and-prevent-groundwater-pollution/protect-groundwater-and-prevent-groundwater-pollution#groundwater-definition

- Glaciofluvial Ice Contact Deposits – Secondary A;[6]
- Glaciofluvial Sheet Deposits – Secondary A; and
- Sleaford Sand and Gravel - Secondary A.

2.3.6 The bedrock geology underlaying the majority of the Site belongs to the Oxford Clay Formation – mudstone. The east of the Solar Array Area, the northern part of the Cable Route Corridor and the northeastern area of the Cable Route Corridor are underlain by the West Walton Formation – mudstone and siltstone[7]. Both the Oxford Clay Formation and the West Walton Formation are classed by the EA as unproductive strata. According to the BGS 1:625,000 scale Hydrogeology Map, both bedrock formations are classed as "*rocks with essentially no groundwater*." According to the EA Catchment Data Explorer,[8] the Site is not located within groundwater catchment.

2.3.7 A 1972 BGS Borehole (Ref: TF14SE22)[7] within the central section of the Site, within the Cable Route Corridor on the eastern portion of Great Hale Drove Road, shows that the Oxford Clay Formation extends down to a thickness of 44 m bgl. There are seams of Oxford Clay with oolitic limestone bands present at 44-66 mbgl and some presence of Cornbrash, shales, mudstone and clays at 66-88 mbgl, before reaching the Lincolnshire limestone stratum at 88 mbgl.

2.3.8 Another 1972 BGS Borehole (REF: TF14NW6)[7] within the northern section of the Site, to the south of the Solar Array Area, shows that the Oxford Clay Formation is thicker at a depth of 76 mbgl, with the Kellaways Sand Member present at 77-91 mbgl, and Oolite Clay and Oolite Limestone present at 90-104 mbgl. Lincolnshire Limestone stratum is present at 106 mbgl.

2.3.9 The West Walton Formation is present across a small area of the Site to the northeast of Heckington and in the south-eastern portion of the solar PV area. The West Walton Formation is comprised of calcareous mudstone, silty mudstone and siltstone with subordinate fine grained sandstones and argillaceous limestone or siltstone nodules[7].

2.3.10 A 1992 BGS borehole (REF: TF14NE18)[7] within close proximity to the DCO Order Limits Site boundary in the northern section of the Cable Route Corridor at Walks Farm, shows that the West Walton Formation is underneath superficial Glacial Till, starts at a depth of 8.66 mbgl and stops at 22.9 mbgl due to the presence of the Oxford Clay Formation. Throughout the BGS borehole record, the West Walton Formation is comprised of mudstone and silty mudstone, with no presence of limestone nodules within these strata. The Oxford Clay Formation is present to a depth of 91.5 mbgl before showing presence of the Kellaways Sand Member, sandstone and Cornbrash between 91.6-99.8 mbgl. Lincolnshire limestone stratum was found below 99.93 mbgl.

2.3.11 Due to the fine-grained composition, hydrogeology of the Oxford Clay bedrock is classed as unproductive and the groundwater vulnerability is determined to

[6] Defined as "*comprise permeable layers that can support local water supplies and may form an important source of base flow to rivers*." Taken from Environment Agency (2025) Guidance: Protect groundwater and prevent groundwater pollution [online]. Accessed January 2025. Available at: https://www.gov.uk/government/publications/protect-groundwater-and-prevent-groundwater-pollution/protect-groundwater-and-prevent-groundwater-pollution#groundwater-definition

[7] BGS (2024) GeoIndex – British Geological Survey [online]. Accessed December 2024. Available at: [redacted]

[8] Environment Agency (2025) Catchment Data Explorer: Anglian GW Management Catchment [online]. Accessed January 2025. Available at: https://environment.data.gov.uk/catchment-planning/ManagementCatchment/1000

be 'low'[9]. However, at a depth of approximately 44 mbgl, there are intermittent oolitic limestone bands present that could possess artesian properties. To the north in the Solar Array Area, the oolitic limestone bands are deeper at approximately 90 mbgl.

2.3.12 The Lincolnshire Limestone Formation, a Principal Aquifer, is present at depths of around 100 m beneath the Site. On a regional scale groundwater flow in the Lincolnshire Limestone Formation is towards the east[10]. Artesian conditions are known from the Lincolnshire Limestone Formation where the aquifer is confined by the Oxford Clay Formation and West Walton Formation[11]. Based on the BGS borehole logs mentioned in Section 2.3.7 to Section 2.3.10 and BGS borehole TF14NW43[7], located within the most northern section of the Solar Array Area, it shows that the Lincolnshire Limestone Formation is present below the Site ranging from depths of 88-102 mbgl.

2.3.13 The Site is not located within a WFD groundwater body within the Anglian River Basin District on Catchment Data Explorer[8]. This is a result of the Oxford Clay Formation and the West Walton Formation underlying the entire Site area, which are defined as Unproductive Strata and not delineated as water bodies under the WFD. Due to the absence of a groundwater body at the Site, this WFD compliance assessment report will not assess potential WFD status impacts on groundwater bodies.

2.3.14 None of the Site area is located within a Source Protection Zone (SPZ).

2.4 Ecology and Designated Sites

2.4.1 The Site is not located within a hydro-ecological statutory designated site, such as a Site of Special Scientific Interest (SSSI), Special Area of Conservation (SAC), Special Protected Area (SPA) or Ramsar[9] site.

2.4.2 The Site is located entirely within a surface water Nitrate Vulnerable Zone (NVZ) but is not located within a surface water drinking water safeguard zone or surface water drinking water protection area[9].

3. REVIEW OF THE RIVER BASIN MANAGEMENT PLAN

3.1 Surface Water

3.1.1 The Site is located within the Anglian River Basin District (RBD) which is monitored by the EA[8] as a requirement of the Water Framework Directive (WFD). The results of the WFD classification are summarised in the Anglian River Basin Management Plan[12]. (ARBMP). The Site is in the Witham

9 GOV (2024) Magic Map: Available at: https://magic.defra.gov.uk/magicmap.aspx Accessed December 2024.
10 Institute of Geological Sciences (1967) Hydrogeological Map of North and East Lincolnshire [online]. Accessed January 2025 [redacted]
11 Environment Agency (2006) Baseline Report Series: 23. The Lincolnshire Limestone [online]. Accessed January 2025.Available at: [redacted]
12 GOV.UK. (2022). Anglian River Basin District River Basin Management Plan [online]. Accessed December 2024. Available at: Anglian river basin district river basin management plan: updated 2022 - GOV.UK

Management Catchment, the South Forty Foot Drain Operational Catchment, and the 'Black Sluice IDB draining to the South Forty Foot Drain' Water Body (ID: GB205030051515)[2] (hereafter referred to as 'Black Sluice IDB Water Body'). This excludes the insignificantly small section of access road proposed on the northeastern side of the Solar Array Area. For the purposes of this WFD Compliance Assessment, the Proposed Development is assessed as if it is entirely within the Black Sluice IDB Water Body. The Black Sluice IDB Water Body and the South Forty Foot Drain Operational Catchment are illustrated on **Figure 11.1: Regional Surface Water Catchment (Document Ref: 6.4 ES Vol.3, 6.4.62)**. The Black Sluice IDB Water Body is 44,722 hectares (ha) in area, 34.7 km in length and has an overall 'Poor' ecological status, designated in 2022.[2] A summary of the classification for the Black Sluice IDB Water Body for 2013 to 2022 can be found in Table 1.

3.1.2 It is worth noting that Good Ecological Status is unattainable as a result of the water body being a Heavily Modified Water Body (HMWB), leaving Good Ecological Potential is the default objective for this water body. However, for the purposes of this assessment, this will be referred to hereafter as 'Good status.'

3.1.3 In terms of pressures identified by the WFD, the Black Sluice IDB Water Body is At Risk or Probably At Risk from agriculture and rural land management involving pollution from rural areas and physical modifications, urban and transport pollution, water industry pollution from wastewater and local and central government physical modifications.

3.1.4 The WFD objectives are also detailed in Table 1. The overall objective set by the EA for the Black Sluice IDB Water Body is Moderate by 2027. This environmental objective has been set with low confidence due to reasons of being disproportionately expensive; disproportionate burdens, unfavourable balance of costs and benefits, and being technically infeasible (no known technical solution is available). The RBMP notes that action to get the biological elements to Good status would have significant adverse impact on use.

Table 1 - WFD Status of Black Sluice IDB draining to South Forty Foot Drain Water Body

Classification Element	2013 Cycle	2014 Cycle	2015 Cycle	2016 Cycle	2019 Cycle	2022 Cycle	Objectives	Reasons
Overall Water Body	**Good**	**Good**	**Moderate**	**Moderate**	**Moderate**	**Poor**	**Moderate by 2015**	Disproportionately expensive: Disproportionate burdens; Disproportionately expensive: Unfavourable balance of costs and benefits; Good status prevented by A/HMWB designated use: Action to get biological element to good would have significant adverse impact on use; Technically infeasible: No known technical solution is available.
Ecological	Good	Good	Moderate	Moderate	Moderate	Poor	Moderate by 2015	
-Biological quality elements	-	-	Poor	Poor	Poor	Poor	Moderate by 2027 - Low confidence	
-Fish	-	-	Poor	Poor	Poor	Poor	Moderate by 2027 - Low confidence	
-Macrophytes and Phytobenthos Combined	-	-	-	-	Not assessed (High for Macrophytes sub element)	High	Not assessed (2015)	
Physico-chemical quality elements	-	-	Moderate	Moderate	Moderate	Moderate	Moderate by 2015	Disproportionately expensive: Unfavourable balance of costs and benefits; Technically infeasible: No known technical solution is available.
-Ammonia (Phys-Chem)	-	-	Good	High	High	High	Good by 2015	
-Dissolved oxygen	-	-	Moderate	Moderate	Moderate	Moderate	Good by 2015	
-Phosphate	-	-	Moderate	Moderate	Moderate	Good	Moderate by 2015	Disproportionately expensive: Unfavourable balance of costs and benefits.
-Temperature	-	-	Moderate	Moderate	High	High	Good by 2015	
-pH	-	-	High	High	High	High	Good by 2015	
Hydromorphological Supporting Elements	Supports good	Supports good	Supports good	Supports good	Supports good	Supports good	Supports good by 2015	
-Hydrological Regime	Supports good	Supports good	Supports good	Supports good	Supports good	Does not support good	Supports good by 2015	
Supporting elements (Surface Water)	-	-	Moderate	Moderate	Moderate	Moderate	Good by 2027 - Low confidence	Disproportionately expensive: Disproportionate burdens.

Table 1 - WFD Status of Black Sluice IDB draining to South Forty Foot Drain Water Body

Classification Element	2013 Cycle	2014 Cycle	2015 Cycle	2016 Cycle	2019 Cycle	2022 Cycle	Objectives	Reasons
Mitigation Measures Assessment	-	-	Moderate or less	Moderate or less	Moderate or less	Moderate or less	Good by 2027 - Low confidence	
Specific pollutants (all)	High	High	High	High	High	High	High by 2015	
Chemical	Fail	Fail	Fail	Fail	Fail	DNRA*	Good by 2063	Disproportionately expensive: Disproportionate burdens; Natural conditions: Chemical status recovery time.
Priority hazardous substances	Fail	Fail	Good	Fail	Fail	DNRA*	Good by 2063	
-Benzo(a)pyrene	-	-	-	-	Good	-	Good by 2015	
-Cadmium and Its Compounds	Good	Good	Good	Good	Good	-	Good by 2015	
-Dioxins and dioxin-like compounds	-	-	-	-	Good	-	Good by 2015	
-Heptachlor and cis-Heptachlor epoxide	-	-	-	-	Good	-	Good by 2015	
-Hexabromocyclo-dodecane (HBCDD)	-	-	-	-	Good	-	Good by 2015	
-Hexachlorobenzene	-	-	-	-	Good	-	Good by 2015	
-Hexachlorobutadiene	-	-	-	-	Good	-	Good by 2015	
-Hexachlorocyclohexane	Good	Good	-	-	Good	-	Good by 2021	Disproportionately expensive: Disproportionate burdens
-Mercury and Its Compounds	-	-	-	-	Fail	-	Good by 2040	Natural conditions: Chemical status recovery time
-Pentachlorobenzene	-	-	-	-	Good	-	Good by 2015	
-Perfluorooctane sulphonate (PFOS)	-	-	-	-	Good	-	Good by 2015	
-Polybrominated diphenyl ethers (PBDE)	-	-	-	-	Fail	-	Good by 2063	Natural conditions: Chemical status recovery time
-Quinoxyfen	-	-	-	-	Good	-	Good by 2015	
-Tributyltin Compounds	Fail	Fail	-	Fail	Good	-	Good by 2015	
Priority substances (all)	Good	Good	Good	Good	Good	DNRA*	Good by 2015	
Other Pollutants (all)	Good	Fail	Fail	Fail	Good	DNRA*	Good by 2021	Disproportionately expensive: Disproportionate burdens

Table 1 - WFD Status of Black Sluice IDB draining to South Forty Foot Drain Water Body

Classification Element	2013 Cycle	2014 Cycle	2015 Cycle	2016 Cycle	2019 Cycle	2022 Cycle	Objectives	Reasons
Notes	DNRA* – Does not require assessment							

3.1.5 The EA has reported a list of reasons why watercourses in the Black Sluice IDB Water Body (on Catchment Data Explorer[2]) have failed to achieve Good status and reasons for deterioration, which are presented in Table 2.

Table 2 - Reasons Why Black Sluice IDB draining to South Forty Foot Drain Surface Water Body is Not Achieving Good WFD Status

Classification Element Affected	Activity	Category
Fish	Sewage discharge (continuous)	Water Industry
Polybrominated diphenyl ethers (PBDE)	Not applicable	No sector responsible
Fish	Poor Livestock Management	Agriculture and rural land management
Fish	Poor nutrient management	Agriculture and rural land management
Phosphate	Urbanisation - urban development	Urban and transport
Phosphate	Private Sewage Treatment	Domestic General Public
Phosphate	Poor Livestock Management	Agriculture and rural land management
Fish	Land drainage - operational management	Agriculture and rural land management
Mitigation Measures Assessment	Other (not in list, must add details in comments)	Local and Central Government
Phosphate	Poor nutrient management	Agriculture and rural land management
Dissolved oxygen	Sewage discharge (intermittent)	Domestic General Public
Mercury and Its Compounds	Not applicable	No sector responsible
Dissolved oxygen	Poor Livestock Management	Agriculture and rural land management
Fish	Flood protection - water level management	Local and Central Government
Dissolved oxygen	Poor nutrient management	Agriculture and rural land management
Phosphate	Sewage discharge (continuous)	Water Industry
Dissolved oxygen	Urbanisation - urban development	Urban and transport
Fish	Saline or other intrusion	No sector responsible
Dissolved oxygen	Sewage discharge (continuous)	Water Industry
Fish	Other invertebrates	No sector responsible

Table 2 - Reasons Why Black Sluice IDB draining to South Forty Foot Drain Surface Water Body is Not Achieving Good WFD Status

Classification Element Affected	Activity	Category
Mitigation Measures Assessment	Other (not in list, must add details in comments)	Agriculture and rural land management
Fish	Barriers - ecological discontinuity	Other

Issues Preventing Waters Reaching Good Status

3.1.6 The EA's Catchment Data Explorer website includes information on the issues preventing waters reaching Good status and the sectors identified as contributing to these issues. Table 3 presents this information for the Black Sluice IDB Water Body and the numbers in the table are counts of the Reasons for Not Achieving Good status (RNAG) in water bodies.

Table 3 - Reasons for Not Achieving Good WFD Status for the Black Sluice IDB draining to the South Forty Foot Drain Water Body

Significant water management issue	Business Sector													
	Agriculture and rural land management	Industry	Mining and quarrying	Navigation	Urban and transport	Water Industry	Local & central government	Domestic general public	Recreation	Waste treatment and disposal	Other	No sector responsible	Sector under investigation	Total
Physical modifications	2	0	0	0	0	0	2	0	0	0	1	0	0	**5**
Pollution from wastewater	0	0	0	0	0	2	0	0	0	0	0	0	0	**2**
Pollution from towns, cities and transport	0	0	0	0	1	0	0	0	0	0	0	0	0	**1**
Changes to the natural flow and level of water	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Invasive non-native species	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**
Pollution from rural areas	4	0	0	0	0	0	0	0	0	0	0	0	0	**4**
Pollution from abandoned mines	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**

3.1.7 As shown in Table 3, the RNAG issues are related to pollution from wastewater, pollution from towns, cities and transport, pollution from rural areas and physical modifications to watercourses. These impacts are

attributed to agriculture, local and central government, the water industry, recreation, and urban and transport sector.

3.2 Groundwater

3.2.1 As previously stated in Section 2.3.13, the Site is not located within a groundwater body within the Anglian River Basin District on EA Catchment Data Explorer.[2] This is due to the presence of Unproductive Strata (Oxford Clay Formation and the West Walton Formation) underlying the entire Site area. This bedrock confines the Lincolnshire Limestone Formation to an approximate depth of 88-102 mbgl across the Site.

3.2.2 The thick layers of confining Oxford Clay Formation strata to a minimum depth of 44 mbgl ensures no pathway between the Site at ground level and the oolitic limestone bands with potential artesian properties in the sub-surface (depths greater than 44 mbgl). The risk of artesian conditions affecting Site activities, or the water body are discussed in Section 6.2.

3.2.3 Due to the Site not being in a groundwater body, this report will not assess potential WFD status impacts on groundwater bodies.

3.3 Programme of Measures

3.3.1 The EA has provided information on the Witham Catchment Partnership Priority Actions and Measures for the period 2022 to 2027, detailed in Appendix 1.

3.3.2 There are no Programme of Measures[13] listed specifically for the Black Sluice IDB Water Body, the South Forty Foot Drain Operational Catchment or the Witham Management Catchment. However, Appendix 1 provides the Programme of Measures for improvement in status for all or 'various' river basin districts, catchments and those focussed on the Anglian River Basin District, which consists of 106 measures. Appendix 1 assesses whether the activities from the construction, operation and maintenance of the proposed development are relevant to the measures.

3.3.3 Out of the 106 partnership priority actions and measures for improvement, 21 have the potential to be affected by activities that will take place for the construction, operation and maintenance of the proposed development.

3.3.4 As part of the WFD Compliance Assessment in Section 7, any potential for hinderance of the 21 relevant priority actions and measures will be detailed in Sections 6.9.1 and 6.9.2.

[13] DEFRA (2025) Catchment Data Explorer - Measures data for England. Accessed January 2025.https://environment.data.gov.uk/catchment-planning/v/c3-plan/England/measures

4. CONSULTATION

4.1 Response to EIA Scoping Report

4.1.1 The EA, the Planning Inspectorate (PINS), and other stakeholders provided a response to the Scoping Report **(Document Ref: 6.3 ES Vol.2, 6.3.1)** produced for the Site in April 2023 and responses to the PEIR assessment produced for the Site in January 2024. The findings of the consultation undertaken to date are presented in Table 11.1 of **Chapter 11: Water Resources and Flood Risk (Document Ref: 6.2 ES Vol.1, 6.2.11)**, of which this WFDCA Report is appended to. The following points provides additional commentary on Table 11.1 in **Chapter 11: Water Resources and Flood Risk (Document Ref: 6.2 ES Vol.1, 6.2.11)** for fields related to the WFD Compliance Assessment.

- The EA recommended that the ES chapter and WFD should consider the potential for artesian waters within the vicinity of the Site. This response has been considered in Section 11.5 of **Chapter 11: Water Resources and Flood Risk (Document Ref: 6.2 ES Vol.1, 6.2.11**) and in Section 6.2.2.
- The EA requested that a buffer zone of 8 m from any watercourse or asset would be desirable. This response has been noted and a buffer of 9 m from any watercourse or a EA asset (e.g. flood defences) has been incorporated into the design of the Proposed Development. Where watercourse crossings, associated access infrastructure and footbridges are required predominantly for the construction of the Cable Route Corridor and Bespoke Access Road, the 9 m buffer will not be followed, but adequate mitigation measures will be in place to prevent pollution or the deterioration of any watercourse or asset. Further detail is provided in Section 5 and **Appendix 2.4: Outline Construction Environmental Management Plan (OCEMP) (Document Ref: 6.3 ES Vol.2, 6.3.7)** provided within the Environmental Statement for the Proposed Development.

5. MITIGATION MEASURES

5.1 Introduction

5.1.1 This section outlines the embedded mitigation for the Site in terms of best practice and pollution prevention measures during construction, as well as elements of design mitigation to protect water resources during the operational life of the Site. The WFD Assessment presented in Section 7 takes these elements into account as implemented mitigation in the assessment.

5.2 Best Practice During Construction

5.2.1 The construction phase (as well as the decommissioning phase) is considered to be the phase of the Proposed Development when the receptors are at higher risk (in comparison to the operational phase) due to the various

activities required to construct (and decommission) the Proposed Development.

5.2.2 Construction (and decommissioning) of the Site would be undertaken in line with the current guidance and codes of best practice. Table 4 lists accepted, good practice industry guidance that is intended to prevent impacts upon the water environment during construction. The measures detailed in the guidance documents will limit the potential for disturbance or contamination of water resources and will be adopted.

Table 4- Good Practice and Guidance Documents to Protect the Water Environment

Guidance for Pollution Prevention (GPP) GPP1 Understanding your environmental responsibilities - good environmental practices – produced by Natural Resources Wales (NRW), the Northern Ireland Environment Agency (NIEA), the Scottish Environment Protection Agency (SEPA) and the Oil Care Campaign;[14] GPP2 Above Ground Oil Storage Tanks - produced by NRW, NIEA, and SEPA and the Oil Care Campaign;[14] GPP4 Treatment and disposal of wastewater where there is no connection to the public foul sewer - produced by NRW, NIEA, and SEPA;[14] GPP5 Works and Maintenance In or Near Water - produced by NRW, NIEA, and SEPA;[14] GPP6 Working at Construction and Demolition Sites - produced by NIEA, and SEPA;[14] GPP8 Safe Storage and Disposal of Used Oils - produced by NRW, NIEA, and SEPA;[14] GPP13 Vehicle washing and cleaning - produced by NRW, NIEA, and SEPA;[14] GPP21 Pollution Incident Response Planning - produced by NRW, NIEA, and SEPA;[14] GPP22: Dealing with spills- produced by NRW, NIEA, and SEPA;[14] GPP26 Safe storage - drums and intermediate bulk containers - produced by NRW, NIEA, and SEPA;[14] Construction Information Research and Information Association (CIRIA) C532 Control of Water Pollution from Construction Sites;[15] CIRIA C811 Environmental good practice on site guide;[16] CIRIA C750 Groundwater control - design and practice;[17] CIRIA C753 The SuDS manual;[18] and

[14] NetRegs Guidance for Pollution Prevention (GPPs) - Full list [online]. Accessed January 2025. Available at: [redacted]

[15] Construction Information Research and Information Association (2001) C532 Control of Water Pollution from Construction Sites [online]. Accessed January 2025. Available at: [redacted]

[16] Construction Information Research and Information Association (202) C811 Environmental good practice on site guide [online]. Accessed January 2025. Available at: [redacted].

[17] Construction Information Research and Information Association (2016) C750 Groundwater control - design and practice [online]. Accessed January 2025. Available at: [redacted]

[18] Construction Information Research and Information Association (2015) CIRIA C753 The SuDS Manual [online]. Accessed January 2025. Available at: [redacted]

Table 4- Good Practice and Guidance Documents to Protect the Water Environment

CIRIA C786 Culvert, screen, and outfall manual.[19] UK Technical Advisory Group on The WFD, UK Environmental Standards & Conditions (Phase 2), Final, 2008.

5.2.3 The measures detailed in these guidance documents will limit the potential for disturbance or contamination of water resources and will be adopted.

5.3 Pollution prevention during the construction phase

5.3.1 **Appendix 2.4: Outline Construction Environmental Management Plan (Document Ref: 6.3 ES Vol.2, 6.3.7)** incorporates the principles of good practice, legislation, regulations and guidance. Prior to the construction phase, a detailed Construction Environmental Management Plan (CEMP) will take into account the current good practice, legislation, regulations and guidance at the start of construction and will be updated throughout the construction phase if any new of amended relevant documents are produced.

5.3.2 With respect to protection of water resources, the OCEMP provides practical measures to avoid and minimise the impact of the Proposed Development on ground and surface waters, as well as providing emergency preparedness and corrective actions together with measures for monitoring, recording, and disseminating of information.

5.3.3 The OCEMP provides practical measures to avoid and minimise the risk of deterioration in status locally at the Site and within the Black Sluice IDB Water Body, as well as providing emergency preparedness and corrective actions, together with measures for monitoring, recording and disseminating information.

5.3.4 Section 11.7 of **Chapter 11: Water Resources and Flood Risk (Document Ref: 6.2 ES Vol.1, 6.2.11)** provides a summary of the water related measures that are included in the OCEMP.

Trenchless Techniques

5.3.5 Bentonite accounting will be necessary for HDD operations to check for any significant losses (that may indicate bentonite breakout) during the drilling operation that could pose a risk to the water environment. A note of how much bentonite is estimated and how much is used should be made. Bentonite may not be required for other trenchless methods such as, micro-tunnelling or auger boring for cable installation (hereafter referred to as trenchless techniques).

5.3.6 Contaminated water seeping from bentonite, cement and cement-bound sand materials has the potential to pollute water. Therefore, such contaminated water would not be allowed to be discharged to the water environment without prior treatment and an environmental permit to be applied for in the detailed

[19] Construction Information Research and Information Association (2019) C786 Culvert, screen and outfall manual [online]. Accessed January 2025. Available at: [redacted]

design phase prior to the start of construction. Pollution prevention measures in the OCEMP will be implemented during HDD operations.

Permitted Discharge to Surface Water

5.3.7 If discharge to surface water is required during any activity (i.e. dewatering of cable trenches), pH, suspended solids, visible oil and grease will be monitored and treated, (if necessary) with the use of a lamellar clarifier settlement tank with pH correction capability and/or oil interceptor, following the necessary acquisition of an Environmental Permit from the EA for trade effluent discharge to surface water.

5.3.8 The drainage proposals will ensure that the rate of surface water runoff discharged to the adjacent watercourses is maintained at the existing greenfield runoff rate, accommodating regional climate change allowances. Sustainable drainage features have been incorporated to ensure sufficient treatment for suspended solids, metals and hydrocarbons within surface water runoff onsite.

5.4 Mitigation for the operational phase

5.4.1 Use of SuDS for the management (see Appendix 11.1: Flood Risk Assessment **(Document Ref: 6.3 ES Vol.2, 6.3.81)** and controlled movement of water around the Proposed Development and restricting discharges from the Site to greenfield runoff rates. The SuDS features will provide water quality treatment and likely betterment from the baseline condition of the Site (arable land use). Hydrocarbons, heavy metals and other contaminants will be treated via SuDS features and maintained via visual monitoring and sediment management measures.

5.4.2 Cable trenches can act as shallow groundwater flow pathways for high pH water towards bodies of surface water (e.g. ditches, watercourses) necessitating treatment for extended periods of time.

5.4.3 In order to mitigate the potential for pollution from maintenance activities, maintenance vehicles and plant will carry a spill kit.

5.4.4 The Site will be managed during the operational phase to ensure that all cable installation systems and culverts beneath waterbodies are fully maintained and managed in accordance with good practice/guidance.

5.4.5 Once operational, it is not expected that the Site will pose a substantial pollution risk to the identified surface water and groundwater bodies considering code of good practice is followed and cable trenches are managed effectively.

5.5 Mitigation for the decommissioning phase

Introduction to the decommissioning phase

5.5.1 The decommissioning phase will have similar risks associated with it as the construction phase due to vehicle movements and removal of infrastructure, introducing potential sources of contamination (e.g. oil and grease) and disturbance of the ground exposing soil potentially leading to entrainment of sediment in runoff. Potential decommissioning phase effects relate to:

- Removal of principle features e.g. all PV modules, mounting structure, cabling, inverters, and transformers, which would lead to a decrease in impermeable area and obstructions to baseline flow pathways leading to re-establishment of pre-development runoff conditions and pre-development rainfall-runoff response time.
- Earthworks may lead to the release and mobilisation of sediment, which will increase sediment contents of surface water flows during storm events within and downstream of the Site.
- Re-vegetation may lead to re-establishment of pre-development interception and evapotranspiration rates and pre-development runoff conditions.
- Reinstatement of soil profile via backfilling activities may lead to pre-development infiltration rates and to pre-development runoff conditions.
- The use of machinery during the decommissioning activities could cause pollution from spills or leakage of fuel and oil.

Decommissioning phase mitigation

5.5.2 Decommissioning phase mitigation will be similar to construction phase mitigation for the activities and potential effects mentioned above and will include pollution prevention measures such as pollution incident response plans, SuDS and sediment runoff containment and treatment. An Outline Decommissioning Environmental Management Plan (ODEMP) (**Appendix 2.5: Outline Decommissioning Environment Management Plan (Document Ref. 6.3 ES Vol.2, 6.3.8)**) has been submitted as part of the DCO application which will be developed into a DEMP. The potential change to the water environment will likely be small and barely distinguishable from the current baseline condition.

6. WATER FRAMEWORK DIRECTIVE SCREENING ASSESSMENT

6.1 Overview of the Assessment Process

6.1.1 The EA's 'Water Framework Directive Risk Assessments: How to Assess the Risk of your Activity'[20] (April 2016) provides guidance as to how to undertake a WFD Assessment. The guidance identifies four stages:

1) *make sure that the assessment covers the receptors that are protected by WFD;*
2) *demonstrate that the activity supports the objectives of the local River Basin Management Plan (RBMP). The wider environmental objectives of the RBMPs that are relevant to physical works are:*

[20] Environment Agency (2016) Water Framework Directive Risk Assessment: How to Assess the Risks of your Activity [online]. Accessed 24/01/2025. Available at: https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/522426/LIT_10445.pdf

i. to prevent deterioration of the status or potential of surface waters and groundwater; and

ii. to aim to achieve good status for all water bodies (or for heavily modified water bodies and artificial water bodies, good ecological potential) and good surface water chemical status;

3) if a high level of confidence that your activity supports the objectives of your RBMP cannot be reached then you need to carry out more investigation into the risks on WFD receptors and possible ways of managing those risks. After amending the project to avoid, minimise, mitigate or compensate for the risks to WFD receptors the following questions need to be addressed:

i. could the activity still cause a water body (catchment/sub-catchment) to deteriorate from one WFD status class to another or cause significant localised impacts that could contribute to this happening?

ii. could the activity prevent or undermine action to get water bodies to good status? and

4) if the answer to the above questions is yes and your activity still does not support RBMP objectives, it will need to be demonstrated that the project meets the sustainability criteria set out in Article 4(7) of the WFD. Article 4(7) sets out stringent environmental and socio-economic tests to assess if a scheme meets strict environmental and sustainability criteria.

6.1.2 The results of the four stages of assessment are discussed in Sections 6.2 to 6.11.

6.2 Stage 1: Water Bodies for Assessment

6.2.1 The WFD protects the surface water bodies and groundwater bodies. This assessment covers the Black Sluice IDB draining to the South Forty Foot Drain Water Body (ID: GB205030051515)[2].

6.2.2 The EA requested for artesian properties to be considered in the WFD Compliance Assessment relating to groundwater bodies. Oolitic limestone bands, with the potential for artesian properties, are present within the Oxford Clay Formation, which underlies the majority of the Site area. However, the oolitic limestone bands are located at a minimum depth of 44 mbgl within the Oxford Clay Formation below the Site (see Section 2.3).

6.2.3 None of the activities from the Proposed Development are likely to penetrate the ground to depths approaching or exceeding 44 mbgl or penetrate the ground to depth approaching or exceeding the depth of the Lincolnshire Limestone Formation. Therefore, the likelihood of artesian conditions affecting the Proposed Development or the water environment due to Site activities is considered to be negligible.

6.2.4 The superficial sand and gravel layers within the vicinity of the Site are considered as either Secondary A or Secondary Undifferentiated Aquifers and therefore have the potential to be locally productive for abstraction, which are

defined as permeable layers that can support local water supplies and may form an important source of baseflow to rivers.

6.2.5 However, due to the presence of no groundwater catchments within the vicinity of the Site on EA Catchment Data Explorer, the WFD Assessment for groundwater bodies was scoped out of the assessment for the Proposed Development. Therefore, this assessment covers the appropriate receptors protected by the WFD, which is:

- the Black Sluice IDB draining to the South Forty Foot Drain Water Body (ID: GB205030051515).[2]

6.2.6 The EA required an assessment of the risk to surface water quality from the development and WFD status to be carried out for this development, with specific consideration on watercourse crossings within the WFD Assessment.

6.3 Stage 2: Surface Water - Deterioration

6.3.1 The approach of this section is to assess potential impacts to identified water environment receptors through the WFD screening assessment, whether that be for aquatic ecology, water quality or hydromorphology.

6.3.2 In relation to the potential for deterioration in WFD status, the following section scopes each construction, operational, and decommissioning phase activity for the possibility of deterioration in WFD status for each activity and classification status element. Table 5 provides details of the Site activities and the WFD classification elements that are relevant and scopes the risk that the activity may have on the Black Sluice IDB Water Body achieving its environmental objectives. Only WFD elements identified as having the potential for deterioration will be taken forward to assessment in Sections 6.10 to 6.11.

6.3.3 The scoping exercise undertaken for each table has been carried out in a precautionary manner, identifying the possibility of deterioration, for each activity and WFD status element combination, rather than the likelihood of deterioration. It will be in the assessment stages following Table 5 that the likelihood of deterioration following mitigation will be assessed.

Table 5 - Scoping of Activities and Potential Risks of Deterioration from the Site on Black Sluice IDB draining to South Forty Foot Drain Water Body

Activities	WFD Classification Element								Comments
	Ecological					Chemical			
	Biological Quality Elements	Physico-chemical Quality Elements	Hydro-morphological Supporting Elements	Supporting Elements (Surface Water) – Mitigation Measures Assessment	Specific Pollutants	Priority Substances	Other Pollutants	Priority Hazardous Substances	
Construction Phase									
Earthworks including excavation (Fence posts, Solar PV, BESS, cable trenches, watercourse crossings)	✓	✓	✓	×	✓	DNRA*			Scoped in. Earthworks have the potential to cause silty water impacts, reductions in dissolved oxygen, increase in nutrients, agricultural contaminants (pesticides) and impacts on aquatic ecology if unmitigated.
Dewatering of excavations	✓	✓	×	×	✓	DNRA*			Scoped in. Dewatering excavations has the potential to cause silty water impacts, reductions in dissolved oxygen, increases in heavy metals and impacts on aquatic ecology if unmitigated.
Construction of foundations	×	✓	×	×	×	DNRA*			Scoped in. Potential pH effects in surface water runoff + increased sediment load and potential contaminants.
Piling activities and potential damage to field underdrainage	×	×	×	×	×	DNRA*			Scoped out. Although this could cause disruption / damage to field underdrainage if present and lead to localised groundwater flooding, if damaged, it is unlikely to affect any WFD status elements and is scoped out.
Construction of impermeable surfaces such as roads / pavements	×	✓	✓	×	✓	DNRA*			Scoped in. Potential for silt effects from increased runoff and impacts on the channel hydromorphology if unmitigated.
Soil stripping and vegetation removal	✓	✓	✓	×	×	DNRA*			Scoped in. Potential for silt effects from increased runoff and impacts on the channel hydromorphology if unmitigated.
Soil compaction from vehicle plant	×	×	✓	×	×	DNRA*			Scoped in. Potential for silt effects from increased runoff and impacts on the channel hydromorphology if unmitigated.
Loss of hydrocarbons from motorised vehicles, plant machinery and fuel storage/refuelling facilities	✓	✓	×	×	×	DNRA*			Scoped in. Temporary surface water drainage onsite during construction has the potential to transmit hydrocarbons (including Polycyclic Aromatic Hydrocarbons (PAHs)) to surface water if unmitigated. Petroleum hydrocarbons would impede essential biological processes and impact aquatic ecology if unmitigated. Priority substances, other pollutants, and priority hazardous substances would potentially be impacted, depending on the specific contaminant.
Use of cement, cement-bound sand and concrete/lime stabilisation (for access track, watercourse crossings/cable trenches, underground cabling, fence post installation and solar panel installation)	✓	✓	×	×	✓	DNRA*			Scoped in. Potential pH and heavy metals (Copper, Zinc, Nickel, Chromium VI) effects in the surface water body. It is likely that cement (once mixed with water) in an unmitigated scenario would impact biological elements in the catchment.
Trenchless techniques for watercourse crossings such as HDD and the use of Bentonite.	✓	✓	×	×	✓	DNRA*			Scoped in. Potential bentonite breakout effects in watercourses (main river crossings) and local disruption to superficial geology groundwater flows.
Construction of cable trenches - Working in proximity to the water environment	✓	✓	✓	×	✓	DNRA*			Scoped in.
Construction of Access Tracks and underground cabling	✓	✓	✓	×	✓	DNRA*			Scoped in.
Operational Phase									
Loss of hydrocarbons from use of Motorised Vehicles for maintenance purposes	✓	✓	×	×	×	DNRA*			Scoped in. The use of motorised vehicles in 10 m proximity to watercourses has the potential to transmit hydrocarbons (including PAHs) to surface water if unmitigated. Petroleum hydrocarbons would impede essential biological processes and impact aquatic ecology if unmitigated. Priority substances, other pollutants, and priority hazardous substances would potentially be impacted, depending on the specific contaminant. Pollution prevention measures in a detailed CEMP or equivalent, would reduce the risk of an accidental release from occurring. The installed drainage scheme and SuDS would provide some attenuation of hydrocarbons.
Presence of the Onsite Substation, infrastructure and impermeable surfaces	✓	✓	✓	×	✓	DNRA*			Scoped in. Turning agricultural land into impermeable surfaces may cause a slight increase in surface runoff and impact ecological receptors and increase contaminant pathways to the surface water body without SuDS.
Presence of Solar Panels	✓	✓	×	×	✓	DNRA*			Scoped in. Rainfall onto the angled panels may cause erosion beneath the lower edge of each panel, resulting in erosion and sediment laden runoff. Potential for silt effects from increased runoff and impacts on the channel hydromorphology if unmitigated.
Watercourse Crossings - curing of Cement/Cement-bound sand and its proximity to water	✓	✓	×	×	×	DNRA*			Scoped in. Disruption / blockage of watercourse flow from watercourse crossing leading to flooding. Potential pH effects in the surface water body from concrete/cement-bound sand curing and contact with rainfall/watercourse.
De-icing of roads, walkways and parking areas	✓	×	×	×	×	DNRA*			Scoped In. Salts (sodium-chloride) entering the hydrological environment of these surface water body could temporarily affect the river environment for aquatic ecology.

Table 5 - Scoping of Activities and Potential Risks of Deterioration from the Site on Black Sluice IDB draining to South Forty Foot Drain Water Body

Activities	WFD Classification Element								Comments
	Ecological					Chemical			
	Biological Quality Elements	Physico-chemical Quality Elements	Hydro-morphological Supporting Elements	Supporting Elements (Surface Water) – Mitigation Measures Assessment	Specific Pollutants	Priority Substances	Other Pollutants	Priority Hazardous Substances	
Decommissioning Phase									
Earthworks, demolition and handling of demolition waste for the removal of principle features e.g. all PV modules, mounting structure, cabling, handstanding, fences, BESS, inverters, and transformers	✓	✓	✓	×	✓	DNRA*			Scoped in. Earthworks have the potential to cause silty water impacts, reductions in dissolved oxygen and potential increases in trace heavy metals and trace hydrocarbons, impacting on aquatic ecology if unmitigated.
Revegetation	✓	✓	×	×	×	DNRA*			Scoped in. Potential for suspended sediments to be in solution prior to stabilisation of soils from vegetation growth, plant operating and potential release of hydrocarbon from sowing seeds in areas targeted for revegetation, and potential use of herbicides.
Backfilling material and reinstating soil profile	×	✓	✓	×	×	DNRA*			Scoped in. Potential for silt effects from increased runoff from new bare surfaces from soil profiling and movement/storage of materials onsite, of which surface water will drain from.
Loss of hydrocarbons from motorised vehicles, plant machinery and fuel storage/refuelling facilities	✓	✓	×	×	×	DNRA*			Scoped in. The use of motorised vehicles in 10 m proximity to watercourses has the potential to transmit hydrocarbons (including PAHs) to surface water if unmitigated. Petroleum hydrocarbons would impede essential biological processes and impact aquatic ecology if unmitigated. Priority substances, other pollutants, and priority hazardous substances would potentially be impacted, depending on the specific contaminant. Pollution prevention measures the ODEMP and eventually the DEMP, would reduce the risk of an accidental release from occurring. Drainage features, SuDS and sediment runoff containment and treatment will provide some attenuation of hydrocarbons.
Soil compaction from vehicle plant	×	×	✓	×	×	DNRA*			Scoped in. Potential for silt effects from increased runoff and impacts on the channel hydromorphology if unmitigated.

Note

✓ Indicates classification element may be affected by Site activity (Scoped into assessment).

× Indicates classification element is unlikely to be affected by Site activity (Scoped out of assessment).
DNRA* Indicates classification element does not require assessment.

6.4 Construction phase

6.4.1 The following potential construction phase activities at the Proposed Development have been scoped into the assessment (Table 5):

- Earthworks including excavation (Fence posts, Solar PV, BESS, cable trenches, watercourse crossings).
- Dewatering of excavations.
- Construction of foundations.
- Construction of impermeable surfaces such as roads / pavements.
- Soil stripping and vegetation removal.
- Soil compaction from vehicle plant.
- Loss of hydrocarbons from motorised vehicles, plant machinery and fuel storage/refuelling facilities.
- Use of cement, cement-bound sand and concrete/lime stabilisation (for access tracks, watercourse crossings/cable trenches, underground cabling, fence post installation and solar panel installation).
- Trenchless techniques for watercourse crossings such as HDD and the use of Bentonite.
- Construction of cable trenches - Working in proximity to the water environment.
- Construction of Access Tracks and underground cabling.

6.4.2 The following subsections discuss the above construction activities in terms of the WFD status classification elements that could be affected.

Biological Quality Elements

6.4.3 The following construction phase activities identified in Table 5 have been scoped in for consideration in the assessment for Biological Quality Elements: earthworks including excavations; dewatering of excavations; soil stripping and vegetation removal; loss of hydrocarbons from motorised vehicles and fuel storage/refuelling facilities; use of cement/cement-bound sand and concrete/lime stabilisation; Trenchless techniques for watercourse crossings such as HDD and the use of Bentonite; construction of cable trenches; and construction of Access Tracks and underground cabling. These relate principally to silt-laden water (biological and physico-chemical elements – dissolved oxygen) and are also associated with Specific Pollutants and Priority Substances, so will also be discussed in those subsections.

6.4.4 Biology Quality elements include the following sub-elements with a description of the activities that could cause deterioration and an assessment of the risk of deterioration following mitigation.

Fish, Macrophytes and Phytobenthos, and Macrophytes sub elements

6.4.5 All the activities stated in Section 6.4.3 pose a potential threat to fish, macrophytes and phytobenthos in the Black Sluice IDB Water Body, if unmitigated. Silt laden water would reduce light entering the water, reduce photosynthesis and thereby reduce dissolved oxygen concentrations. The silt could also get trapped in fish gills, increase turbidity, and suspended solids could impact macrophytes and phytobenthos. Hydrocarbons can result in reductions in dissolved oxygen affecting biological quality elements. Elevated

pH levels could change the balance of free ions and increase the toxic potential of ammonia. Surface water from construction areas could contain trace concentrations of nutrients, pesticides, heavy metals, copper, chromium (VI), nickel, zinc, elevated pH levels and other contaminants from site activities and have negative effects on the ecological health of the water body.

6.4.6 A bentonite breakout from HDD watercourse crossings, if it were to occur, could increase the amount of silt laden water, potentially elevate pH levels and be a source of metals and other pollutants (increased sodium, potassium, magnesium, sulphate)[21]. The activities stated in certain circumstances could contribute to reducing dissolved oxygen concentrations and may have negative impacts on fish, macrophytes and phytobenthos if unmitigated.

6.4.7 However, during construction, the stated impacts on fish, invertebrates, macrophytes or phytobenthos are anticipated to be unlikely as several measures will be in place to prevent and control the release of sediment into surface waters such as silt/fencing, sediment traps, settlement lagoons/tanks, SuDS features, secured and bunded areas for the storage of cement, cement-bound sand and bentonite of which will be located more than 10 m (up to 50 m where practicable) from a watercourse and will be outlined in the OCEMP, which will minimise the amount of silt contaminated water entering the Black Sluice IDB Water Body.

6.4.8 The pouring of concrete or cement-bound sand will take place within well shuttered pours, use the minimum amount of material required to minimise the likelihood of contamination from cement-bound sand and other alkaline materials. Trenched cable crossing work will be undertaken vegetation should only be carried out under the driest practicable conditions; this must take into account of prevailing weather conditions avoid accidental release of cement-bound sand/alkaline leachate entering the immediate ditch/watercourse.

6.4.9 Trenched techniques will be carried out to isolate the cable trench from the watercourse as much as possible, of which will prevent the release of cement/cement-bound sand leachate into the water environment – further detail to be provided in the OCEMP and CEMP prior to construction.

6.4.10 Additionally, any surface water discharge, or discharge from dewatering that is silt laden or has come into contact with concrete/cement-bound sand leachate would be treated with a lamellar clarifier settlement tank with pH correction prior to discharge to a watercourse following the acquisition of an Environmental Permit from the EA. The quality of the discharge(s) would need to be monitored at a frequency specified by the EA on the discharge permit(s) to show compliance for pH, suspended solids, visible oil and grease and any other parameter requested by the EA in granting the permit.

6.4.11 No bentonite contaminated water is permitted to enter the water environment (ground, surface drains and watercourses) and a and emergency response plan and pollution prevention measures in the OCEMP minimise the likelihood of contamination of the water environment.

[21] Heikola, T, et al. (2013) Influence of alkaline (pH 8.3–12.0) and saline solutions on chemical, mineralogical and physical properties of two different bentonites. Clay Minerals. Chapter 48. Vol 2. (Online). Influence of alkaline (pH 8.3–12.0) and saline solutions on chemical, mineralogical and physical properties of two different bentonites | Clay Minerals | GeoScienceWorld Accessed December 2024.

6.4.12 Pollution prevention measures in the OCEMP and CEMP will be followed and onsite resources (spill kits, absorbent materials, oil booms etc.) will be available for the control of accidental releases of pollution and other environmental incidents, which will provide adequate control upon an incidental release.

6.4.13 Following the mitigation measures in place, no significant impacts upon fish, invertebrates, macrophytes or phytobenthos are anticipated from the construction phase activities and the risk of status deterioration for these sub-elements will, therefore, be **Low**.

Invertebrates

6.4.14 All the activities stated in Section 6.4.3 pose a potential threat invertebrates in the Black Sluice IDB Water Body, if unmitigated. However, due to the ephemeral nature of invertebrates, recolonisation is anticipated to occur readily upon completion of the works and no long-term negative impacts are anticipated. Any surface water that is required to be discharged (e.g. from management of rainwater in excavations or dewatering activities) that has come into contact with concrete/cement-bound sand leachate leading to an increase in pH (above pH9), would be captured, treated and discharged via a lamellar clarifier settlement tank with pH correction under an Environmental Permit. Therefore, any effects upon the aquatic invertebrates would be considered to be short-lived and reversible. As a result, **no deterioration** in WFD status for the Invertebrates classification element is expected for the Black Sluice IDB Water Body.

Hydromorphology

6.4.15 The following construction phase activities identified in Table 5 have been scoped in for consideration in the assessment for Hydromorphology: earthworks including excavations; soil stripping and vegetation removal; soil compaction from vehicle plant; construction of impermeable surfaces such as roads / pavements; construction of cable trenches; and construction of access tracks and underground cabling.

6.4.16 The following provides additional detail on the likelihood of deterioration of the hydrological regime from the above construction-related activities.

Hydrological Regime

6.4.17 There are several mitigation measures suggested so that no significant changes to the hydrological regime of the Black Sluice IDB Water Body are anticipated. Mitigation measures have been set out in the OCEMP and will be finalised in the construction phase detailed CEMP prior to construction.

6.4.18 Mitigation measures are as follows but not limited to:

- temporary cutoff drains installed to prevent shallow throughflow through excavations; excavations will be reinstated as soon as practicable once construction works are complete and will ensure that natural hydrological conditions are restored as far as possible;,;
- drainage proposals to ensure that the existing greenfield runoff rate of surface water runoff is maintained for any discharge of surface water; for the construction of the Cable Route, certain trenchless techniques such as HDD will allow the unobstructed flow of the watercourse;

- the Bespoke Access Road will be constructed to have a permeable, granular surface and not cause drainage diversion into pathways not previously followed by natural drainage.
- SuDS features have been incorporated into the design of the Onsite Substation and all hardstanding features associated with the development, which will control surface water runoff rates and reflect the natural flow regime prior to the development.

6.4.19 As a result, **no deterioration** in WFD status for the Hydromorphology classification element is expected for the Black Sluice IDB Water Body.

Physico-chemical Quality Elements

6.4.20 The following construction phase activities identified in Table 5 have been scoped in for consideration in the assessment for Physico-chemical Quality Elements: earthworks including excavations; dewatering of excavations; construction of foundations; construction of impermeable surfaces such as roads/pavements; soil stripping and vegetation removal; loss of hydrocarbons from motorised vehicles, plant machinery and fuel storage/refuelling facilities; use of cement, cement-bound sand and concrete; trenchless watercourse crossings and use of bentonite; construction of cable trenches, access tracks and underground cabling.

6.4.21 Physico-chemical Quality Elements include the following sub-elements with a description of the activities that could cause deterioration and an assessment of the risk of deterioration.

Dissolved Oxygen sub-element

6.4.22 Earthworks, excavations, soil stripping and construction of foundations/ roads/ cable trenches/ underground cabling (impermeable surfaces) all have the potential to result in the increase of surface water runoff and the release of silt-laden water (from dewatering or unmitigated site runoff), which can reduce photosynthesis in aquatic plants and reduce dissolved oxygen concentrations.

6.4.23 Best practice sediment management will be implemented incorporating capture, settlement and the controlled release of surface water runoff via silt fencing, sediment traps, settlement tanks or lagoons and, if required, active treatment (e.g. by lamellar clarifier settlement tank with pH correction), where the discharge would be undertaken according to an Environmental Permit from the EA.

6.4.24 No bentonite contaminated water is permitted to enter the water environment (ground, surface drains and watercourses), a emergency response plan and pollution prevention measure in the OCEMP will be implemented. These measures will minimise and control the release of silt-laden surface water from entering any watercourse or other turbidity-related impacts on surface water, therefore dissolved oxygen concentrations in the Black Sluice IDB Water Body are unlikely to be affected. Therefore, the risk of deterioration for this sub-element will be **Low**.

6.4.25 Release of water contaminated by hydrocarbons (from leaks and spills from machinery) can also impact dissolved oxygen concentrations, but is covered under Specific Pollutants and Priority Substances in Section 6.4.39.

6.4.26 The construction of open cut trenched watercourse crossings has the potential to release untreated silt-laden and alkaline water (pH sub-element) into the watercourse if unmitigated. In the presence of any contaminated leachate, appropriate treatment will be required prior to any permitted discharge to the watercourse in accordance with an Environmental Permit from the EA. In addition, the design of trenching will be considered to minimise leachate generations and transfer. This will prevent pollution of the watercourse by suspended sediments from in channel works during construction and associated impacts for dissolved oxygen and biological quality elements. Therefore, **no deterioration** in status of dissolved oxygen is expected as a result of the installation of the Cable Route using trenched watercourse crossings following the mitigation proposed.

Ammonia and Phosphate sub-elements

6.4.27 Nutrient concentrations can be increased by the release of silt-laden water (from dewatering or unmitigated site runoff). Although the release of silt-laden water can impact nutrient concentrations (ammoniacal nitrogen and phosphate), silt mitigation measures ranging from silt fencing to the use of a lamellar clarifier settlement tank with pH correction for dewatering discharges will minimise silt-related impacts on ammoniacal nitrogen and phosphate. Additionally, any dewatering discharges containing silt-laden water will only be made subject to an approved Environmental Permit[22] from the EA. Therefore, the risk of deterioration for these sub-elements will be **Low**.

pH sub-element

6.4.28 This sub-element can be impacted by concrete, cement-bound sand or leachates from lime entering surface water (from watercourse crossings/cable trenches, underground cabling, fence post installation, lime stabilisation of soils, and the construction of solar panels, foundations and access tracks). Control measures are in place to minimise and control the risk of alkaline leachate contamination.

6.4.29 Cement, cement-bound sand, and bentonite will be stored in appropriately secured and bunded areas, have dedicated washout facilities (bentonite), take place as well shuttered pours using the minimum amount of material required, stored a minimum of 10 m away from watercourses (50 m where practicable), and near-channel works will take place during dry conditions where possible. However, where there is a risk of alkaline leachate affecting onsite surface waters, pH correction will be employed and discharges undertaken according to an Environmental Permit/s from the EA.

6.4.30 Bentonite can also affect pH levels if bentonite reaches the water environment during trenchless crossing work therefore an emergency response plan and pollution prevention measure in the OCEMP will be implemented. Therefore, the risk of deterioration for this sub-element will be **Low**.

Temperature sub-element

6.4.31 No activities are expected to deteriorate this sub-element as a result of the development.

[22] And abstraction license if greater than 20 m^3/day.

Biochemical Oxygen Demand (BOD) sub element

6.4.32 This is not expected to deteriorate as a result of the development as no foul water is expected to be discharged to surface water. However, if this is the case, such a discharge should be treated, appropriately permitted and risk assessed in relation to the BOD WFD sub element for the Black Sluice IDB Water Body.

Specific Pollutants

6.4.33 The following construction phase activities identified in Table 5 have been scoped in for consideration in the assessment for Specific Pollutants:

- earthworks including excavations;
- dewatering of excavations; construction of foundations and impermeable surfaces such as roads/pavements;
- use of cement/cement-bound sand and concrete/lime stabilisation; and
- construction of cable trenches, access tracks and underground cabling.

6.4.34 Surface water runoff that comes into contact with these activities may contain elevated trace concentrations of iron and manganese from excavations and dewatering. Any pumped rainwater or dewatering discharges will only be made subject to an approved Environmental Permit[22] from the EA. Any leachates from cement, cement-bound sand, concrete or lime can contain elevated concentrations of chromium (VI), copper, nickel and zinc.

6.4.35 The use of SuDS features will provide some treatment and adsorption of heavy metals, as well as removal of metals associated with suspended sediments by silt management techniques including but not limited to; silt fencing, sediment traps, settlement lagoons, settlement tanks and treatment. Discharges from treatment units will be monitored according to their Environmental Permit. The management of concrete/cement-bound sand/cement is considered in the pollution prevention section of the OCEMP, and will follow best practice to prevent the pollution of surface water.

6.4.36 No other specific pollutants are expected to be elevated in concentration in the Black Sluice IDB Water Body. With the environmental measures in place, the risk of status deterioration for the Specific Pollutant classification element is **Low**.

Priority Substances and Priority Hazardous Substances

6.4.37 Although these classification sub-elements are marked as Does Not Require Assessment (DNRA) in the 2022 classification reflected in Table 5, the following construction phase activities have been scoped in for consideration in the assessment for these classification elements: earthworks including excavations; dewatering of excavations; loss of hydrocarbons from motorised vehicles and fuel storage/refuelling facilities; soil stripping and vegetation removal; soil compaction; construction of impermeable surfaces such as roads/pavements; construction of cable trenches, access tracks/Bespoke Access Road and underground cabling.

6.4.38 Leaks or spillages from on-site fuel storage and refuelling can result in impacts related to Specific Pollutants and Priority Substances e.g. BTEX compounds

as well as aliphatic hydrocarbons (N.B. these compounds are not listed in the classification of status on Catchment Data Explorer[2]). Fuel management onsite will be undertaken in accordance with The Control of Pollution (Oil Storage) (England) Regulations 2001, which will be implemented through strict adherence to the Site's OCEMP.

6.4.39 Benzo(a)pyrene is the only PAH that is represented in the classification of the Black Sluice IDB Water Body. This is a possible airborne pollutant that can result from incomplete combustion of diesel from heavy goods vehicles or plant during construction. It is likely, however, that elevated concentrations of PAHs would be short-lived and localised following adherence to OCEMP pollution prevention measures.

6.4.40 Other Priority Hazardous Substances and Priority Substances listed in 2019 classification (does not require assessment in 2022) are not likely to enter the watercourse because these are principally pesticides, biocides (tributyltin), solvents, flame retardants, PFOS, toxic heavy metals (mercury), and from industrial processes (dioxins).

6.4.41 During construction, the risk of deterioration due to hydrocarbon inputs to the Black Sluice IDB Water Body would be **Low**, as the total quantity and range of potential pollutants to be used onsite is anticipated to be small.

6.4.42 All vehicles, plant and machinery will be refuelled in a designated fuelling area at a minimum distance of 10 m from any watercourse and the storage of fuel, oils and polluting substances will be within secure and bunded containers placed upon impermeable surfaces in accordance with GPP2 Above Ground Oil Storage Tanks and GPP8 Safe Storage and Disposal of Used Oils.[14]

6.4.43 Pollution prevention measures in the OCEMP will be followed and onsite resources (spill kits, absorbent materials, oil booms etc.) will be available for the control of accidental releases of pollution and other environmental incidents, which will provide adequate control upon an incidental release.

6.4.44 Integral drip trays (of 110% of the capacity of the fuel tank) for any static machinery/plant, will be used where practicable. All plant, vehicles and machinery will be regularly inspected for leaks. Additionally, with PAHs being hydrophobic in nature, they will readily associate with solid surfaces when in water, allowing the removal of these associated with suspended sediments (e.g. by lamellar clarifier settlement tank with pH correction, silt fencing, sediment traps, settlement tanks/lagoons) from any surface waters discharged/draining from the Site during construction.

6.4.45 With all the mitigation measures in place, it is anticipated, therefore, that the risk to WFD status for this sub-element will be **Low**.

Construction Phase Summary

6.4.46 Potential impacts from construction activities that could impact water quality and WFD status on the spatial scale (both local and water body scale) and over the timescale of surface water WFD classification (3 years; EA, 2022) are considered unlikely considering the mitigation measures proposed and secured in the OCEMP and will not result in WFD status deterioration for the Black Sluice IDB Water Body.

6.5 Operational Phase

6.5.1 The following potential operational phase activities have been scoped into the assessment (Table 5):

- Loss of hydrocarbons from motorised vehicles, plant machinery and fuel storage/refuelling facilities.
- Presence of the Onsite Substation, BESS and impermeable surfaces.
- Presence of Solar Panels and associated equipment.
- Watercourse Crossings including longer term curing of cement/cement-bound sand and its proximity to water.
- De-icing of roads, walkways and parking areas.

6.5.2 The following sections describe the elements of the design that address any risk of deterioration from the above activities in terms of the WFD status classification elements for the operational phase (identified in Table 5).

Biological Quality Elements

6.5.3 All the activities of the operational phase have the potential to cause deterioration for Biological Quality Elements if unmitigated. Increased surface runoff can increase nutrient load and potential contaminant pathways into the Black Sluice IDB Water Body. The use of motorised vehicles onsite may increase the concentrations of hydrocarbons and heavy metals into surface water runoff and the de-icing of roads may increase concentrations of salts (chloride) if left unmitigated. All of which would have negative effects on the ecological health of the water body. However, surface water runoff will be treated by SuDS features for all hardstanding features and infrastructure, which is likely to provide water quality betterment and control of surface water discharges at greenfield runoff rates.

6.5.4 The planned provision of SuDS and its associated benefit for water quality represents necessary treatment of specific/hazardous substance elements of the classification through the proposed development. However, for nutrients (e.g. ammoniacal nitrogen and phosphate) and their potential effect on Biological Quality Elements, the change in land use under the Proposed Development and provision represents a betterment to aquatic ecology in the river compared to the likely situation under the existing arable land use. Periodic visual monitoring will be undertaken on any SuDS features to ensure sediment management and vegetated measures are working effectively. Pollution prevention measures will be in place, regarding maintenance vehicles and the use of the Site.

6.5.5 Additionally, a buffer of 9 m from any watercourse or asset, except for the construction of watercourse crossings, associated access infrastructure and footbridges, which will provide a buffer for any accidental leaks or spills from vehicles and maintenance work, and any accidental releases will be addressed with spill kits.

6.5.6 The trenched watercourse crossings will have cement and cement-bound sand curing post construction. Although the initial curing process takes place within 24 hours, cement curing can still take place when the material is in contact with water, sometimes for a prolonged period post construction. These curing reactions will produce high pH water if the watercourse or rainfall comes

into contact with the cable trench, which will negatively affect the ecological health of the water body.

6.5.7 Following the mitigation measures in place, no significant impacts upon fish, invertebrates, macrophytes or phytobenthos are anticipated from the operational phase activities and the risk of deterioration for these sub-elements will, therefore, be **Low**.

Hydromorphology

6.5.8 The following activities could deteriorate the hydrological regime sub element of the Black Sluice IDB Water Body WFD status if unmitigated: presence of Onsite Substation, infrastructure and impermeable surfaces; and proximity to the water environment associated with trenched watercourse crossings. SuDS features will be incorporated into the design of the Onsite Substation and all hardstanding features associated with the development such as solar panels, inverters; transformers; BESS infrastructure; firewater storage tanks; and access infrastructure (roads). SuDS will control surface water runoff rates to greenfield rates and reflect the natural flow regime prior to the development. As a result, **no deterioration** in WFD status for the Hydromorphology classification element is expected for the Black Sluice IDB Water Body during the operational phase.

Physio-chemical quality elements

6.5.9 In terms of the Physio-chemical quality elements, the following presents a summary of the relevant sub-elements.

Ammonia (Phys-Chem), Phosphate and Dissolved Oxygen Sub-Elements

6.5.10 During the operational phase, the main physico-chemical impact that could be relevant would be related to suspended sediments in unmitigated site runoff to the Black Sluice IDB Water Body[23], from: the presence of the Onsite Substation, infrastructure, impermeable surfaces and solar panels. Unmitigated site runoff could contain increased concentrations of nutrients, suspended sediments and hydrocarbons which can affect dissolved oxygen concentrations. However, the Site surface water drainage design will incorporate SuDS features, so that runoff from large areas of impermeable surfaces containing dissolved oxygen is released into the Black Sluice IDB Water Body at greenfield runoff rates.

6.5.11 The SuDS attenuation, silt management and infiltration features would provide attenuation, treatment, settlement and adsorption of nutrients, suspended sediments and hydrocarbons. Existing vegetation would assist in the removal of trace chemicals and nutrients from surface runoff. The risk of operational phase accidental leaks or spills from the use of vehicles for maintenance would be mitigated by the use of spill kits.

6.5.12 With the mitigation measures, the use of SuDS and spill kits the likelihood of deterioration to the Ammonia, Phosphate and Dissolved Oxygen sub elements are determined to be **Low** during the operational phase.

[23] Effect of sediment on dissolved oxygen would relate to the reduction in photosynthesis by aquatic plants and algae in the watercourse.

pH Sub-Element

6.5.13 During the operational phase the only activity that poses a risk to the pH sub element is the curing process of cement and cement-bound sand in trenched watercourse crossings post construction. Cement curing reactions will produce high pH water if the watercourse or rainfall comes into contact with the alkaline materials from the cable trench, which in some cases can take place for a prolonged period post construction.

6.5.14 Any alkaline pH issues that arise may require treatment for pH correction prior to permitted discharge to surface water. Therefore, the risk of deterioration for the pH sub-element is determined to be **Low**.

Temperature

6.5.15 During the operational phase the potential heat arising from the cables during operation of the cable route within trenched cable crossings and trenchless crossings could affect localised surface water temperature and disrupt ecological receptors. However, trenched crossings will have sufficient depth, cement-bound sand and sand to ensure that heat is conducted and dissipated to not affect the ordinary watercourses/ditches and trenchless work will be ensure cables are installed at sufficient depth for heat to be conducted into the surrounding soil/superficial geology without causing temperature effects on the surface water. Therefore, the risk of deterioration for this sub-element is **Low**.

BOD physico-chemical

6.5.16 No effects on the BOD physico-chemical sub-element is anticipated to take place during the activities of the operational phase of the Proposed Development. Therefore, the risk of deterioration for Physico-chemical Quality Elements is **Low**.

Specific Pollutants, Priority Hazardous Substances and Priority substances

6.5.17 The use of motorised vehicles may cause increased concentrations of hydrocarbons and heavy metals such as copper from tyres. Benzo(a)pyrene is the only PAH that is represented in the classification of the Black Sluice IDB Water Body. This is a possible airborne pollutant that can result from incomplete combustion of petrol and diesel from vehicles onsite. It is likely, however, that elevated concentrations of PAHs would be considerably low for the general use of personal vehicles (compared with plant machinery or heavy good vehicles).

6.5.18 Other Priority Hazardous Substances and Priority Substances listed in 2019 classification (does not require assessment in 2022) are not likely to enter the watercourse because these are principally pesticides, biocides (tributyltin), solvents, flame retardants (PFOS), toxic heavy metals (mercury), and from industrial processes (dioxins), which are not related to Site activities and are not likely to be present. However, surface water runoff will be treated by SuDS features for all hardstanding features and infrastructure, which is likely to provide water quality betterment and control discharges at greenfield runoff rates.

6.5.19 The SuDS attenuation, silt management and infiltration features would provide attenuation, treatment and adsorption of heavy metals and hydrocarbons before draining into the water body. Existing vegetation would assist in the removal of trace chemicals from surface runoff. Periodic visual monitoring will be undertaken on any SuDS features to ensure sediment management and vegetated measures are working effectively. All infrastructure will be a minimum distance of 9 m from any watercourse, except for the construction of watercourse crossings, associated access infrastructure and footbridges, which will provide a buffer for any accidental leaks or spills from vehicles and maintenance work, and any accidental releases will be addressed with spill kits. It is anticipated, therefore, that the risk to WFD status for this classification element would be **Low** during the operational phase.

6.6 Operational Phase Summary

6.6.1 The main activity that has the potential to cause deterioration in the operational phase is related to the curing process of cement and cement-bound sand in trenched watercourse crossings post construction. Any alkaline pH issues that arise may require treatment prior to discharge to surface water.

6.6.2 Other activities have the potential to cause deterioration due to a new surface water drainage scheme, use of motorised vehicles and de-icing of roads, walkways and parking areas. Although these have the potential to induce local deterioration with respect to dissolved oxygen, phosphate, ammonia, copper, and some Priority Hazardous Substances and Priority Substances (hydrocarbons).

6.6.3 Provisions for water quality treatment embedded in the design of the surface water drainage through SuDS would provide mitigation that reduces the risk of deterioration to **Low** for the operational phase of the Proposed Development.

6.7 Decommissioning phase

6.7.1 The following potential decommissioning phase activities at the Proposed Development have been scoped into the assessment (Table 5):

- Earthworks, demolition and handling of demolition waste for the removal of principle features e.g. all PV modules, mounting structure, cabling, handstanding, fences, BESS, inverters, and transformers.
- Revegetation.
- Backfilling material and reinstating soil profile.
- Loss of hydrocarbons from motorised vehicles, plant machinery and fuel storage/refuelling facilities.
- Soil compaction from vehicle plant.

6.7.2 The following subsections discuss the above decommissioning activities in terms of the WFD status classification elements that could be affected, with an assessment of the risk of deterioration following mitigation (identified in Table 5).

Biological Quality Elements

6.7.3 The following decommissioning phase activities identified in Table 5 have been scoped in for consideration in the assessment for Biological Quality Elements: earthworks, demolition and handling of demolition waste for the removal of principle features, revegetation and loss of hydrocarbons from motorised vehicles, plant machinery and fuel storage/refuelling facilities.

6.7.4 These relate principally to silt-laden water (biological and physico-chemical elements – dissolved oxygen) and are also associated with Specific Pollutants and Priority Substances, so will also be discussed in those subsections. Silt laden water would reduce light entering the water, reduce photosynthesis and thereby reduce dissolved oxygen concentrations. The silt could also get trapped in fish gills, increase turbidity, and suspended solids could impact macrophytes and phytobenthos. Hydrocarbons can result in reductions in dissolved oxygen affecting biological quality elements. Surface water draining from demolition waste stockpiles, earthworks and bare soil could contain trace concentrations of heavy metals such as copper, chromium (VI), nickel, zinc and other contaminants which could have negative effects on the ecological health of the water body. The activities stated can contribute to reducing dissolved oxygen concentrations and have negative impacts on Biological Quality Elements if unmitigated.

6.7.5 During decommissioning, the stated impacts on Biological Quality Elements are anticipated to be unlikely as several measures will be in place to prevent and control the release of sediment into surface waters. These mitigation measures will involve sediment management measures alongside, discharges at greenfield runoff rates, and revegetation of bare soil areas, which will be outlined in the ODEMP and minimise the amount of silt contaminated water entering the Black Sluice IDB Water Body. Periodic visual monitoring will be undertaken to ensure sediment management is working effectively. Pollution prevention measures are in the ODEMP regarding the use and maintenance of plant, vehicles and machinery. The storage and refuelling of vehicles would occur in secured and bunded areas. Pollution incident response plans in the ODEMP will be followed and onsite resources (spill kits, absorbent materials, oil booms etc.) will be available for the control of accidental releases of pollution and other environmental incidents, which will provide adequate control upon an incidental release.

6.7.6 With the following the mitigation measures in place, no significant impacts upon fish, invertebrates, macrophytes or phytobenthos are anticipated from the construction phase activities and the risk of status deterioration for these sub-elements will, therefore, be **Low**.

Hydromorphology

6.7.7 The following decommissioning phase activities identified in Table 5 have been scoped in for consideration in the assessment for Hydromorphology: earthworks, demolition and handling of demolition waste for the removal of principle features, backfilling material and reinstating soil profile, and soil compaction from vehicle plant. Mitigation will involve:

- temporary cutoff drains installed to prevent shallow throughflow through excavations;

- excavations to be reinstated as soon as practicable once demolition works are complete;
- drainage proposals to ensure that the existing greenfield runoff rate of surface water runoff is maintained and restored to pre-development conditions;
- reprofiling, backfilling and revegetation activities will control surface water runoff rates in order to restore the natural flow regime prior to the development.

6.7.8 As a result, **no deterioration** in WFD status for the Hydromorphology classification element is expected for the Black Sluice IDB Water Body.

Physico-chemical Quality Elements

6.7.9 In terms of the Physio-chemical quality elements, the following presents a summary of the relevant sub-elements, with a description of the activities that could cause deterioration and an assessment of the risk of deterioration.

Dissolved Oxygen sub-element:

6.7.10 The following activities could deteriorate the dissolved oxygen sub-element in the receiving waterbody if unmitigated:

- earthworks, demolition and handling of demolition waste for the removal of principle features;
- revegetation (prior to growth);
- backfilling material and reinstating the soil profile; and
- loss of hydrocarbons from motorised vehicles, plant machinery and fuel storage/refuelling facilities.

6.7.11 These activities could lead to the release of unmitigated runoff containing increased concentrations of suspended sediments and hydrocarbons which can affect dissolved oxygen concentrations. However, the surface water control measures will provide adequate treatment for suspended solids, nutrients, and hydrocarbons via infiltration, silt management, revegetation measures and periodic visual monitoring of sediment management features, which are outlined in the ODEMP.

6.7.12 The storage and refuelling of vehicles would occur in secured and bunded areas. Pollution prevention measures in the ODEMP will be followed. Onsite resources (spill kits, absorbent materials, oil booms etc.) will be available for the control of accidental releases of pollution and other environmental incidents, which will provide adequate control upon an incidental release and prevent hydrocarbons entering the water body. These measures will minimise and control the release of silt-laden surface water from entering any watercourse or other turbidity-related impacts on surface water, therefore dissolved oxygen concentrations in the Black Sluice IDB Water Body are unlikely to be affected. Therefore, the risk of deterioration for this sub-element will be **Low**.

Ammonia and Phosphate sub-elements

6.7.13 Nutrient concentrations can be increased by the release of silt-laden water from unmitigated site runoff. Although the release of silt-laden water can impact nutrient concentrations (ammoniacal nitrogen and phosphate), silt mitigation measures outlined in the ODEMP will minimise silt-related impacts

on ammoniacal nitrogen and phosphate. Therefore, the risk of deterioration for these sub-elements will be **Low**.

pH sub-element

6.7.14 Due to the lack of use of cement, pouring of concrete, or any alkaline leaching substances being used onsite, the surface water draining from the Site is unlikely to have pH levels outside of the pH6-9 range. In the unlikely event that there are alkaline pH waters draining from the Site, pH correction will be employed and discharges undertaken according to an Environmental Permit/s from the EA. Therefore, no activities are expected to deteriorate this sub-element as a result of the decommissioning phase (**no deterioration**).

Temperature sub-element

6.7.15 No activities are expected to deteriorate this sub-element as a result of the decommissioning phase (**no deterioration**).

Biochemical Oxygen Demand (BOD) sub element

6.7.16 This is not expected to deteriorate as a result of the decommissioning phase as no foul water is expected to be discharged to surface water, if this is the case, this should be appropriately risk assessed in relation to the BOD WFD sub element for the Black Sluice IDB Water Body (**no deterioration**).

Specific Pollutants

6.7.17 Earthworks, demolition and handling of demolition waste for the removal of principal features was the only decommissioning phase activity identified in Table 5 for consideration in the assessment for Specific Pollutants. Surface water draining from demolition waste stockpiles and earthworks could contain trace concentrations of heavy metals such as copper, chromium (VI), nickel, zinc and other contaminants, predominantly from past land-use and exposure of demolished material. The use of sediment management measures will provide some treatment and adsorption of heavy metals, as well as removal of metals associated with suspended sediments. No other specific pollutants are likely to be elevated in concentration in the Black Sluice IDB Water Body. With the environmental measures in place, the risk of status deterioration for the Specific Pollutant classification element is **Low**.

Priority Substances and Priority Hazardous Substances

6.7.18 Although these classification sub-elements are marked as Does Not Require Assessment (DNRA) in the 2022 classification reflected in Table 5, all the decommissioning phase activities have been scoped in for consideration in the assessment for these classification elements due to all activities requiring the use of motorised vehicles, plant machinery and fuel storage/refuelling facilities.

6.7.19 Leaks or spillages from onsite fuel storage and refuelling can result in impacts related to Specific Pollutants and Priority Substances e.g. BTEX compounds as well as aliphatic hydrocarbons (N.B. these compounds are not listed in the classification of status on Catchment Data Explorer[2]). Fuel management onsite will be undertaken in accordance with The Control of Pollution (Oil Storage) (England) Regulations 2001, which will be implemented through strict adherence to the Site's ODEMP.

6.7.20 Benzo(a)pyrene is the only PAH that is represented in the classification of the Black Sluice IDB Water Body. This is a possible airborne pollutant that can result from incomplete combustion of diesel from heavy goods vehicles or plant during construction. It is likely, however, that elevated concentrations of PAHs would be short-lived and localised following adherence to the ODEMP pollution prevention measures.

6.7.21 Other Priority Hazardous Substances and Priority Substances listed in 2019 classification (does not require assessment in 2022) are not likely to enter the watercourse because these are principally pesticides, biocides (tributyltin), solvents, flame retardants, PFOS, toxic heavy metals (mercury), and from industrial processes (dioxins).

6.7.22 During the decommissioning phase, the risk of deterioration due to hydrocarbon inputs to the Black Sluice IDB Water Body would be **Low**, as the total quantity and range of potential pollutants to be used onsite is anticipated to be small.

6.7.23 All vehicles, plant and machinery will be refuelled in a designated fuelling area at a minimum distance of 10 m from any watercourse and the storage of fuel, oils and polluting substances will be within secure and bunded containers placed upon impermeable surfaces in accordance with GPP2 Above Ground Oil Storage Tanks and GPP8 Safe Storage and Disposal of Used Oils.

6.7.24 Pollution prevention measures in the ODEMP will be followed and onsite resources (spill kits, absorbent materials, oil booms etc.) will be available for the control of accidental releases of pollution and other environmental incidents, which will provide adequate control upon an incidental release. Integral drip trays (of 110 % of the capacity of the fuel tank) for any static machinery/plant, will be used where practicable. All plant, vehicles and machinery will be regularly inspected for leaks. Additionally, with PAHs being hydrophobic in nature, they will readily associate with solid surfaces when in water, allowing the removal of these associated with suspended sediments (e.g. by sediment management) from any surface waters discharged/draining from the Site during decommissioning.

6.7.25 With all the mitigation measures in place, it is anticipated, therefore, that the risk to WFD status for this sub-element will be **Low**.

6.8 Decommissioning Phase Summary

6.8.1 Potential impacts from decommissioning activities that could impact water quality and WFD status on the spatial scale (both local and water body scale) and over the timescale of surface water WFD classification (3 years; EA, 2022) are considered unlikely considering the mitigation measures proposed. Therefore, it is unlikely that decommissioning activities would result in WFD status deterioration for the Black Sluice IDB Water Body.

6.9 Stage 2 - Assessment of hindrance of measures

6.9.1 As the second wider objective is to "*aim to achieve good status for all water bodies*" it is important that the Proposed Development not only supports this objective but does not hinder any existing Programmes of Measures[13] for improving the status of the Black Sluice IDB Water Body. The EA have

provided information on the Anglian River Basin District partnership priority actions and measures for 2022 to 2027, of which there are no specific actions or measures for the Witham Management Catchment, the South Forty Foot Drain Operational Catchment or the Black Sluice IDB Water Body (explained in Section 3.3.1). The measures deemed as 'relevant' in Appendix 1 have been brought forward into Appendix 2 to assess the potential hinderance of each measure from the Proposed Development following the mitigation measures embedded and implemented.

6.9.2 An assessment of each 'relevant' measure (Total 21) in Appendix 2 indicates that the Proposed Development is unlikely to hinder the Programme of Measures13 for improvement in Status. Therefore, no measures are considered to be at risk of being hindered by the Proposed Development.

Surface Water - Summary

6.9.3 Table 6 summarises the risk that the Site may have on the Black Sluice IDB Water Body and whether this water body will achieve its environmental objectives.

6.9.4 There will be a **Low** risk of deterioration to the Black Sluice IDB Water Body as sufficient environmental measures are in place to address all potential impacts from the construction, operational, and decommissioning phases of the Beacon Fen Energy Park development, which principally relate to silt management, adherence to best practice and established guidance on the use, storage and control of hazardous materials in the event of accidental releases, the provision of SuDS and vegetation management, an emergency response plan and pollution prevention measures. Discharges from dewatering activities and from potentially silt-laden/contaminated areas will be collected, treated, permitted (as required) and monitored to demonstrate environmental compliance of the discharge.

6.9.5 On a local scale, surface water runoff treated by SuDS, will provide water quality treatment. Sediment management measures such as sediment traps, silt fencing, settlement lagoons/tanks and SuDS features will offer water quality benefits as well as enhanced biodiversity and amenity compared to the current baseline. The planned provision of SuDS and its associated benefit for water quality represents a neutral effect to aquatic ecology in the river, hydromorphology and specific/hazardous substance elements of the classification through the Proposed Development.

6.9.6 The solar arrays will replace agricultural crops and the arable land, which will reduce the diffuse pollution of nutrients from inorganic and organic fertilizers. By reducing the volumes of fertiliser whilst maintaining grass and vegetation, the Proposed Development could lead to a reduction in nutrient loading (e.g. ammoniacal nitrogen, phosphate) and help prevent any eutrophication issues in the surface waters, which is stated as a reason for not achieving good status in the water body. For the decommissioning phase, the land-use will be re-instated to a different land-use and the nutrient loading may change again.

6.9.7 The level topography of the Site, the low height of the PV units and the distance of the PV units from any watercourse means there is low risk of over shadowing of the watercourse by PV infrastructure that would lead to deterioration of aquatic ecology.

6.9.8 In summary, the overall effect for the Black Sluice IDB Water Body would be neutral during the construction, operational, and decommissioning phases with an element of betterment in the operational phase only due to replacing agricultural land and reducing nutrient loading on the water body. The SuDS will provide additional habitats for invertebrates and through passive treatment will provide a treatment to water quality.

Table 6 - WFD Assessment Summary Table for the Black Sluice IDB draining to South Forty Foot Drain Surface Water Body (following implementation of OCEMP)

Activities	WFD Classification Element							
	Ecological					Chemical		
	Biological Quality Elements	Physico-chemical Quality Elements	Hydro-morphological Supporting Elements	Supporting Elements (Surface Water)	Specific Pollutants	Priority Substances	Other Pollutants	Priority Hazardous Substances
	Moderate by 2027 - Low confidence	Moderate by 2015	Supports good by 2015	Good by 2027 - Low confidence	High by 2015	Does not require assessment	Does not require assessment	Does not require assessment
Construction Phase								
Earthworks including excavation (Fence posts, Solar PV, BESS, cable trenches, watercourse crossings)	L	L	L	N/A	L	DNRA		
Dewatering of excavations	L	L	N/A	N/A	L	DNRA		
Construction of foundations	N/A	L	N/A	N/A	N/A	DNRA		
Piling activities and potential damage to field underdrainage	N/A	N/A	N/A	N/A	N/A	DNRA		
Construction of impermeable surfaces such as roads / pavements	N/A	L	L	N/A	L	DNRA		
Soil stripping and vegetation removal	L	L	L	N/A	N/A	DNRA		
Soil compaction from vehicle plant	N/A	N/A	L	N/A	N/A	DNRA		
Loss of hydrocarbons from motorised vehicles, plant machinery and fuel storage/refuelling facilities	L	L	N/A	N/A	N/A	DNRA		
Use of cement, cement-bound sand and concrete/lime stabilisation (for access track, watercourse crossings/cable trenches, underground cabling, fence post installation and solar panel installation)	L	L	N/A	N/A	L	DNRA		
Trenchless techniques for watercourse crossings such as HDD and the use of Bentonite	L	L	N/A	N/A	L	DNRA		
Construction of cable trenches (Working in proximity to the water environment)	L	L	L	N/A	L	DNRA		
Construction of Access Tracks and underground cabling	L	L	L	N/A	L	DNRA		
Operational Phase								
Loss of hydrocarbons from use of Motorised Vehicles for maintenance purposes	L	L	N/A	N/A	N/A	DNRA		
Presence of the Onsite Substation and impermeable surfaces	L	B	L	N/A	L	DNRA		
Presence of Solar Panels	L	L	N/A	N/A	L	DNRA		
Watercourse Crossings - curing of Cement/Cement-bound sand and its proximity to water.	L	L	N/A	N/A	N/A	DNRA		
De-icing of roads, walkways and parking areas	L	N/A	N/A	N/A	N/A	DNRA		
Decommissioning Phase								
Earthworks, demolition and handling of demolition waste for the removal of principle features e.g. all PV modules, mounting structure, cabling, handstanding, fences, BESS, inverters, and transformers.	L	L	L	N/A	L	DNRA		
Revegetation	L	L	N/A	N/A	N/A	DNRA		
Backfilling material and reinstating soil profile	N/A	L	L	N/A	N/A	DNRA		
Loss of hydrocarbons from motorised vehicles, plant machinery and fuel storage/refuelling facilities.	L	L	N/A	N/A	N/A	DNRA		
Soil compaction from vehicle plant	N/A	N/A	L	N/A	N/A	DNRA		

Note

L - Low risk following implementation of best practice construction, operational and decommissioning measures to be detailed in OCEMP/ODEMP.
The WFD assessment table assesses the risk that a WFD objective would not be met due to the Site.
WFD objective relevance is based on the Site activities and effects, see Table 5.

DNRA	Does not require assessment.
N/A	WFD Element is not applicable to this activity.
B	Betterment predicted.
L	Low risk of deterioration from current surface water body WFD status.
M	Medium risk of deterioration from current surface water body WFD status.
H	High risk of deterioration from current surface water body WFD status.

6.10 Stage 3

6.10.1 Only WFD elements identified as having the potential to hinder the Programme of Measures[13] for improvement in Status for the affected water body are to be taken forward to this assessment stage. The following is an extract from the EA's 'Water Framework Directive Risk Assessments: How to Assess the Risk of your Activity' (April 2016) for 'Stage 3' of the assessment:

If there is a high level of confidence that your activity cannot meet the objectives set out in the RBMP then you need to carry out further investigation into the risks on WFD receptors and possible ways of managing these risks. After amending the project to avoid, minimise, mitigate, or compensate for the risks to WFD receptors the following questions need to be addressed:

1. *Could the activity still cause a water body (catchment/sub-catchment) to deteriorate from one WFD status class to another or cause significant localised impacts that could contribute to this happening?*
2. *Could the activity prevent or undermine action (WFD Programme of Measures) to get water bodies to good status?*

6.10.2 The Site can meet the objectives of the RBMP (Appendix 2). No further assessment is required.

6.11 Stage 4

If the answer to the above questions is yes and your activity still does not support RBMP objectives, it will need to be demonstrated that the project meets the sustainability criteria set out in Article 4(7) of the WFD. Article 4(7) sets out stringent environmental and socio-economic tests to assess if a scheme meets strict environmental and sustainability criteria.

6.11.1 Stage 4 is not required.

7. CONCLUSION

7.1.1 The Black Sluice IDB draining to the South Forty Foot Drain Water Body has been assessed both in terms of the risk of WFD status deterioration and any potential hinderance of the planning improvements in the Programme of Measures. The WFD Compliance Assessment indicates that the Site is unlikely to include any activities that are likely to cause deterioration in WFD status for the water bodies within the DCO Order Limits Site boundary or prevent the water body from achieving its WFD objectives, provided that best practice and established guidance are adhered to. The assessment considered both the local scale in the vicinity of the Site and at the water body scale. At either scale, no effect has been identified that risks deterioration in WFD status.

7.1.2 The Site is expected to have no impact on groundwater resources as there are no groundwater catchments within the vicinity of the Site on EA Catchment Data Explorer. None of the Site area is located within a Source Protection Zone. Artesian conditions that could be present within the oolitic limestone

layers within the Oxford Clay Formation are at an assumed minimum depth of 44 metres below ground level (mbgl) across the entire DCO Order Limits Site boundary. Site areas above the West Walton Formation show no presence of limestone nodules and the Lincolnshire Limestone Formation is not encountered until depths of 88-102 mbgl across the entire Site area. Overall, the activities from the Proposed Development are not predicted to penetrate the ground to a depth as great as 44 mbgl (assumed minimum depth for artesian conditions) or approach the Lincolnshire Limestone Formation. Therefore, it is likely that the impact of artesian conditions affecting the Proposed Development or the water environment due to Site activities are negligible.

7.1.3 For surface water, the risk of status deterioration for aquatic ecological, water quality, chemical and hydromorphological elements was assessed. For aquatic ecological elements, deterioration of the water quality of the water body is unlikely due to several control measures being in place to prevent surface water runoff from being contaminated by Site activities. Embedded mitigation principally consists of: silt management and implementation of SuDS to provide treatment and adsorption of heavy metals, silt and hydrocarbons in surface water runoff; adherence to best practice and established guidance on the use, storage and control of hazardous materials in the event of accidental releases (including 9 m minimum distance from watercourse, with exceptions for watercourse crossings, footbridges and access roads); the provision of SuDS and vegetation management; an emergency response plan and pollution prevention measures.. All of which will prevent impacts on aquatic ecological elements. Discharges from dewatering activities and from potentially silt-laden/contaminated areas will be collected, treated, permitted (as required) and monitored to demonstrate environmental compliance of the discharge. Any discharge that has come into contact with concrete/cement-bound sand leachate may require treatment prior to discharge in accordance with an Environmental Permit from the EA.

7.1.4 The assessment presents the risk of deterioration in relation to hydrocarbons (primarily during the construction and decommissioning phase from plant leaks and vehicles), heavy metals (from vehicles onsite and cement leachate during construction), and pH (from concrete, cement and cement-bound sand leachate during construction). However, these effects will be mitigated by environmental measures embedded in the OCEMP/ODEMP and implemented through adherence to the detailed CEMP/DEMP prior to each development phase. Overall, the effect on the water body would be neutral during the construction and decommissioning phases.

7.1.5 During the operational phase, the planned provision of SuDS and its associated benefit for water quality represents a betterment to aquatic ecology in the river and specific/hazardous substance elements of the classification, compared to the likely situation under the existing arable land use. The SuDS attenuation, silt management and infiltration features would provide attenuation, treatment, settlement and adsorption of nutrients, suspended sediments and hydrocarbons. Existing vegetation would assist in the removal of trace chemicals and nutrients from surface runoff. The risk of deterioration of pH and heavy metals from the curing of cement/cement-bound sand from trenched cable crossings will be mitigated via clay capping and clay curtains to isolate the cement/cement-bound sand from the water environment and prevent throughflow in the trenches as a preferential pathway for shallow

groundwater to travel into the water body. Any alkaline pH issues that arise may require treatment prior to permitted discharge to surface water. Overall, the effect on the water body would be neutral with an element of providing betterment due to embedded mitigation from SuDS during the operational phase of the Proposed Development.

7.1.6 In terms of planned improvements in the Programme of Measures, there are no specific actions or measures for the Witham Management Catchment, the South Forty Foot Drain Operational Catchment or the Black Sluice IDB draining to the South Forty Foot Drain Water Body. Instead, 21 measures that apply to 'All' and 'Various' River Basin Districts, management catchments and operational catchments were listed in Appendix 1 with an assessment of each measure's relevance to the Site and its activities. This assessment indicates that the Site would not hinder the implementation of the 21 measures that were deemed to be relevant to the water environment and the Site activities, detailed in Appendix 2.

Appendix 1 River Basin Management Plan Priority Actions and Measures of Relevance

River Basin Management Plan Programmes of Measures category	Measure / Mechanism	Measure information	Broad type of mechanism	Mitigation Measure relevant to Site activities?	Reason for Applicability/Comments
Linked to 2027 outcomes	Water Industry Asset Management Plan Price Review 19 Water Industry National Environment Programme schemes - Habitat improvements	Habitat restoration or creation and species recovery. E.g. river and lake restoration, removing barriers to fish movement, tackle Invasive Non Native Species, achieve objectives for water-dependent Sites of Special Scientific Interest and European sites, actions to conserve and enhance priority habitats and species	Regulatory	Yes	Barriers for trenches via trenched techniques may impede fish movement in watercourses that are not undergoing trenchless technique work.
Linked to 2027 outcomes	Water Industry Asset Management Plan Price Review 2019 Water Industry National Environment Programme schemes - catchment schemes	Catchment schemes e.g. Farm nutrient management plans and soil testing - improved farming practice	Regulatory	No	Site will take arable land out of production (permanantly for access track and solar array area, but cable route may reinstate agricultural land use) and the Site will be decommissioned and returned to agricultural land use up to 40 years in the future.
Linked to 2027 outcomes	Water Industry Asset Management Plan Price Review 2019 Water Industry National Environment Programme schemes - water resources	Sustainable abstraction improvements through changes to abstraction licences, licence conditions and non licence changes at specific sites	Regulatory	No	No effect on permanent abstraction licenses predicted
Linked to 2027 outcomes	Abstraction Plan delivery - Environment	Greater access to water and sustainable abstraction improvements through: changes to abstraction licences including compulsory and voluntary licence changes, time limited licences renewal, apply powers for serious damage, revocation of unused licences, reducing quantities on under used licences and non licence changes	Regulatory and non-regulatory	No	
Linked to 2027 outcomes	Abstraction Plan delivery - Priority Catchments	Working collaboratively with all stakeholders to deliver integrated catchment solutions to mitigate the impact of climate change and unsustainable abstraction. Update Abstraction Licence Strategy with findings from priority catchments by 31 July 2021	Regulatory and non-regulatory	No	
Linked to 2027 outcomes	Environment Agency Environment Programme and Flood and Coastal Risk Management capital programme	Diffuse pollution control initiatives, recovery of priority species - habitat restoration or creation and reintroducing species	Financial incentives	No	Site activities are not expected to hinder habitat restoration or the reintroduction of species
Linked to 2027 outcomes	Water Industry Asset Management Plans Price Review 2019 Water Industry National Environment Programme schemes - sewage	Sewage treatment improvements by changes to licence conditions at specific sites	Regulatory	No	No effect on Sewage Treatment predicted.
Linked to 2027 outcomes	Coastal Transition Accelerator Programme	£36 million Coastal Transition Accelerator Programme will be used to help deliver innovative adaptation projects in North Norfolk and East Riding of Yorkshire Communities to trial innovative ways of adapting to coastal erosion - GOV.UK (www.gov.uk)	Financial incentives	No	Not applicable - Site located inland not on the coast
Not linked to 2027 outcomes	Aquatic Biosecurity Campaigns	Slowing the introduction and spread of Invasive Non Native Species via public awareness campaigns including Check, Clean, Dry. Funded by the Aquatic Biosecurity Partnership	Education, targeted information	No	Unlikely to have an effect on education and provision of biosecurity information
Not linked to 2027 outcomes	Enabling actions and legislation to enforce actions in the European Union Invasive Alien Species Regulation	Various measures controlling Invasive Non Native Species. Enabling actions and legislation to enforce actions in the European Union Invasive Alien Species Regulation	Regulatory	Yes	Site activities may encounter invasive species but safeguards will be in place through OCEMP and finalised in CEMP to reduce the likelihood of invasive species spreading on site and downstream
Not linked to 2027 outcomes	Great Britain level co-ordination of Invasive Non Native Species actions	Various measures to control Invasive Non Native Species. Co-ordination of Invasive Non Native Species actions and approach via the Great Britain Invasive Non Native Species programme board and strategy	Guidance / Process	Yes	
Not linked to 2027 outcomes	National Highways Invasive Non Native Species control work	Various measures to control Invasive Non Native Species by National Highways	Non-regulatory	Yes	
Not linked to 2027 outcomes	Invasive Non Native Species eradication - national programmes	Various measures to control Invasive Non Native Species. National eradication and control programmes for aquatic Invasive Non Native Species e.g. top mouth gudgeon and water primrose	Guidance / Process	Yes	
Not linked to 2027 outcomes	Management of invasive non-native species at selected protected sites by Natural England	Various measures to control Invasive Non Native Species. Management of invasive non-native species at selected protected sites by Natural England	Regulatory	Yes	
Not linked to 2027 outcomes	Invasive Non Native Species Secretariat; co-ordination of alert system, species records, and the Invasive Non Native Species Information Portal	Various measures to control Invasive Non Native Species. Supporting data, evidence and processes to inform Invasive Non Native Species control and management	Shared learning, research	Yes	
Not linked to 2027 outcomes	Partnership pennywort work - developing a shared strategy	Various measures to control floating pennywort	Partnerships	Yes	
Not linked to 2027 outcomes	Environment Agency, Natural England and partners will implement rapid responses to contain and eradicate new Invasive Non Native Species invasions, where practicable	Various measures to control Invasive Non Native Species Invasive Non Native Species - rapid response	Guidance / Process	Yes	

River Basin Management Plan Programmes of Measures category	Measure / Mechanism	Measure information	Broad type of mechanism	Mitigation Measure relevant to Site activities?	Reason for Applicability/Comments
Not linked to 2027 outcomes	Invasive non native species local action groups	Funding and support for local Invasive non native species action groups	inancial incentives and advice scheme	Yes	
Not linked to 2027 outcomes	England Woodland Creation Offer	Tree planting primarily to achieve UK Net Carbon Zero with incentives to target woodland in places with biodiversity, flood, water quality, water resources and climate adaptation benefits	Financial incentives	No	No effects on woodland from Site activities.
Not linked to 2027 outcomes	Riparian shade - provide tools and evidence to deliver targeted riparian shading at greater national scale with partners - Keeping Rivers Cool 2 – an England-wide tree shade map	Geographic Information Systems based tool to target woodland creation to provide riparian shade in areas most at need	Shared learning, research	No	
Not linked to 2027 outcomes	Safeguard and create thermal refuges through tree planting/fencing to increase riparian shade	Riparian tree planting and fencing - Seek to safeguard and create thermal refuges through tree planting/fencing to increase riparian shade - target 50,000 trees and 50km fencing in England by 2024	inancial incentives and advice scheme	No	No effect expected on riparian tree planting efforts from site activities due to limited interface with main river banks and corridors.
Not linked to 2027 outcomes	Water Industry Asset Management Plan Price Review 24 Water Industry National Environment Programme schemes - Habitat improvements	Habitat restoration or creation and species recovery. E.g. river and lake restoration, removal of barriers to fish movement, tackle Invasive Non Native Species, achieve objectives for water-dependent Sites of Special Scientific Interest and European sites, and actions to conserve and enhance priority habitats and species	Regulatory	Yes	Barriers for trenches via trenched techniques may impede fish movement in watercourses that are not undergoing trenchless technique work. Site activities may encounter invasive species but safeguards will be in place through OCEMP and finalised in CEMP to reduce the likelihood of invasive species spreading on site and downstream.
Not linked to 2027 outcomes	Maritime Fisheries Fund	Explore opportunity for Maritime Fisheries Fund to support measures to protect migratory fish in the marine environment	Financial incentives	No	Not applicable - Site located inland not in the marine environment
Not linked to 2027 outcomes	Fisheries Improvement Programme and Wild Trout Trust contract	Various habitat improvement projects to benefit fisheries in partnership will have additional benefits for River Basin Management Plans environmental objectives	inancial incentives and advice scheme	Yes	Site activities may negatively affect fish and aquatic ecology If unmitigated.
Not linked to 2027 outcomes	Nature Recovery Network	Various actions to protect, improve, expand, and connect habitats including water and water-dependent environments. Sites designated for nature conservation, such as European sites and Sites of Special Scientific Interest are at the core of this network	Non-regulatory	No	No Designated sites within vicinity of Site or predicted to be affected
Not linked to 2027 outcomes	Green Recovery Challenge Fund	Various environmental improvement projects - fish passage; land management change to address pollution; river, lake and wetland restoration; tree planting; peatland restoration. £80 million funding value over two £40million rounds, Round 1 delivery by March 2022, Round 2 by March 2023	Financial incentives	Yes	Barriers for trenches via trenched techniques may impede fish movement in watercourses that are not undergoing trenchless technique work.
Not linked to 2027 outcomes	Nature for Climate peatland restoration capital grant scheme	Creation and restoration of peatland - habitat creation and enhancements	Financial incentives	No	Site does not include peatland areas
Not linked to 2027 outcomes	Implement actions required to achieve and maintain objectives for European sites	Implement 'remedies' for the Sites of Special Scientific Interest that underpin water-dependent European sites. Remedies are actions needed to address reasons for adverse condition and restore the site to favourable condition. These are site-specific remedies and agreed between Natural England and the organisation responsible for their delivery on the site. Continue to progress actions identified in Site Improvement Plans. These provide a high level description of issues affecting the condition of a site and identify priority actions required to address the issues	Regulatory and non-regulatory	No	No Designated sites within vicinity of Site or predicted to be affected
Not linked to 2027 outcomes	Lake Restoration Programme for European sites and Sites of Special Scientific Interest	Continue developing and implementing lake restoration plans for European site and Site of Special Scientific Interest lakes e.g. action to improve water quality, advice on nutrient management within the catchment, restoration of natural hydrological regime, restoration of vegetation and natural fish communities, sediment removal	Regulatory and non-regulatory	No	
Not linked to 2027 outcomes	Wet agriculture and peatlands forestry - Paludiculture Exploration Fund	Providing technical support for new facilitative fund. Enable paludiculture (wetter farming) to become viable as a way of conserving carbon by raising the water table in peat soils, whilst maintaining a (different) peatland agricultural land use	Financial incentives	No	There is no presence of agricultural peat soils within the Agricultural Land Classification for the Site (see Soil's Chapter and assessment).
Not linked to 2027 outcomes	Delivery of Lowland Agricultural Peat outcomes	Develop strategic position on future for sustainable land use on lowland agricultural peat soils	Non-regulatory	No	
Not linked to 2027 outcomes	River Restoration Programme for European sites and Sites of Special Scientific Interest	Continue to develop and implement strategic river restoration plans for European sites and Site of Special Scientific Interest rivers	Regulatory and non-regulatory	No	No Designated sites within vicinity of Site or predicted to be affected
Not linked to 2027 outcomes	Improving Fish Passage at Environment Agency Assets	Improving fish passage at Environment Agency assets through opportunities and partnership programme of works approach	Guidance / Process	Yes	Barriers for trenches via trenched techniques may impede fish movement in watercourses that are not undergoing trenchless technique work.
Not linked to 2027 outcomes	Water Leaders Group aligned approaches to landscape scale restoration, from soil to sea	Water Leaders Group to act as advocates for landscape-scale restoration of natural processes within our freshwater catchments and coastal waters	Guidance / Process	No	Unlikely to affect activities of the Water Leaders Group

River Basin Management Plan Programmes of Measures category	Measure / Mechanism	Measure information	Broad type of mechanism	Mitigation Measure relevant to Site activities?	Reason for Applicability/Comments
Not linked to 2027 outcomes	Catchment Sensitive Farming Rural Development Programme England	Various farm infrastructure improvements and wider agricultural practice	inancial incentives and advice scheme	No	Site will take arable land out of production (permanantly for access track and solar array area, but cable route may reinstate agricultural land use) and the Site will be decommissioned and returned to agricultural land use up to 40 years in the future.
Not linked to 2027 outcomes	Championing the Farmed Environment - Advice to farmers on environmental improvements	Various measures to prevent impacts from agriculture	Advice schemes	No	
Not linked to 2027 outcomes	Countryside Stewardship Agri-env, including Water Environment Grant, schemes that run over into 2022 to 2027	Various environmental improvements by farmers and land managers including on farm, river corridor improvements and wider collaborative nature based solutions including Natural Flood Management	inancial incentives and advice scheme	No	
Not linked to 2027 outcomes	Environment Land Management Schemes	Various environmental improvements by farmers and land managers including on farm improvements to wider collaborative nature based solutions including Natural Flood Management and buffer zones	inancial incentives and advice scheme	No	
Not linked to 2027 outcomes	Regulation of agricultural and rural land including targeted regulation of protected areas such as Nitrate Vulnerable Zones	Regulation by Environment Agency officers - preventing pollution of nitrates, phosphates and sediment. Increased agricultural regulatory resource secured in 2021 continues to at least 2025. Activity focusses on: compliance with the Farming Rules for Water; compliance with Silage Slurry and Agricultural Fuel Oil Regulations. The aims are: - reducing diffuse pollution to all waterbodies including lakes, with a specific focus on protected sites - reducing point source pollution incidents, such as: oil spills, slurry store failures, silage effluent incidents	Regulatory	No	
Not linked to 2027 outcomes	Tried and Tested - Advice to farmers on nutrient management	Agricultural nutrient management	Advice schemes	No	
Not linked to 2027 outcomes	Diffuse Water Pollution Plans for European sites	Continue progressing implementing Diffuse Water Pollution Plans for European sites where the site condition is affected by diffuse water pollution.	Regulatory and non-regulatory	No	No Designated sites within vicinity of Site or predicted to be affected
Not linked to 2027 outcomes	Nature Based Solutions	Develop a strategic position and associated guidance on Nature Based Solutions, to support our activities and engagement with those working in this area	Non-regulatory	No	Site will not impact nature based solutions.
Not linked to 2027 outcomes	Environment Agency Third Adaptation Report and associated actions	Various actions to improve the Environment Agency's approach to adapting to climate change	Non-regulatory	No	Site will not affect EA's approach to climate change
Not linked to 2027 outcomes	National FCERM Strategy and Roadmap	The Environment Agency has worked with other Risk Management Authorities and partners to develop the National Flood and Coastal Risk Management Strategy for England and the FCERM Strategy Roadmap to 2026 (publishing.service.gov.uk), which specifically supports the goal of clean and plentiful water. This includes a doubling of natural flood management initiatives in the FCERM Programme by 2027 to 260 projects	Non-regulatory	No	Natural flow regime of Black Sluice IDB Water Body will not be affected.
Not linked to 2027 outcomes	Provide training, guidance and support for NFM projects	Embedding Natural Flood Management into mainstream FCRM delivery following the Defra funded £15 million NFM Programme aims include: •Developing a Natural Asset database •Creating a digital hub •Providing training and guidance materials for project teams Streamline the development of low value NFM investments	Multiple	No	Site activities will not affect the delivery of this scheme.
Not linked to 2027 outcomes	Re-fresh of Shoreline Management Plans	The Environment Agency has been working closely with the Coastal Group Network to manage a ‘refresh’ of the Shoreline Management Plans (SMPs) covering the English coast. The current SMPs were developed between 2006 and 2012. The refresh is not a third cycle of SMPs, but an update to ensure SMPs reflect the most current evidence, experience, and policy. The SMP Refresh project will be completed March 2023.	Shared learning, research	No	Not applicable - Site located inland not on the coast
Not linked to 2027 outcomes	Environment Agency Flood Coast Risk Management Coastal Habitat Compensation and Restoration Programme	Environment Agency Flood Coast Risk Management Coastal Habitat Compensation and Restoration Programme The Regional Habitat Compensation Programme (RHCP) is a strategic programme run by the Environment Agency which seeks to replace habitats that are lost due to coastal squeeze or tidal inundation effects that arise from the management of coastal defences Regional Habitat Compensation Programme — Coastal Partners	Financial incentives	No	
Not linked to 2027 outcomes	National Coastal Erosion Risk Map 2	National Coastal Erosion Risk Map 2 Update to the: National Coastal Erosion Risk Mapping (NCERM) - National (2018 - 2021) - data.gov.uk	Shared learning, research	No	
Not linked to 2027 outcomes	National Network of Regional Coastal Monitoring Programmes	National Network of Regional Coastal Monitoring Programmes	Shared learning, research	No	

River Basin Management Plan Programmes of Measures category	Measure / Mechanism	Measure information	Broad type of mechanism	Mitigation Measure relevant to Site activities?	Reason for Applicability/Comments
Not linked to 2027 outcomes	Environment Agency Flood Coast Risk Management Maintenance Programme	Implement the recent changes to funding policy arrangements, including payment for environmental benefits, the Environmental Statutory Allowance and Nature for Climate funding, to achieve greater environmental co-benefits from projects that manage flood and coastal erosion risk (Timescales: by 2027).	Financial incentives	No	
Not linked to 2027 outcomes	Environment Agency Flood Coast Risk Management Funding	Implement the recent changes to funding policy arrangements, including payment for environmental benefits, the Environmental Statutory Allowance and Nature for Climate funding, to achieve greater environmental co-benefits from projects that manage flood and coastal erosion risk (Timescales: by 2027).	Financial incentives	No	
Not linked to 2027 outcomes	Environment Agency Flood and Coastal Risk Management capital programme beyond current confirmed projects	Delivery of mitigation measures for Flood and Coastal Erosion Risk Management assets - river restoration and fish pass improvements	Financial incentives	No	
Not linked to 2027 outcomes	Environment Agency Navigation Capital Asset Investment	Addressing physical modification on Environment Agency owned regulatory assets to maintain navigable waterways and restore fish passage	Regulatory	Yes	Physical modification is already a problem + trenched watercourse crossings may impede fish passage in watercourses that are not undergoing trenchless technique work.
Not linked to 2027 outcomes	Water Leaders Group work on integrated investment in catchments	Water Leaders Group develop shared guidance and case studies for integrating investment in and across catchments	Shared learning, research	No	Unlikely to affect activities of the Water Leaders Group
Not linked to 2027 outcomes	Natural Environment Investment Readiness Fund (NEIF)	Create new woodlands, restore peatlands, create new coastal wetlands, restore freshwaters and wetlands	Financial incentives	No	Site does not include peatland areas, will not affect woodland areas, is not located near the coast or in wetlands or will affect the creation of new freshwaters.
Not linked to 2027 outcomes	Water Leaders Group shared guidance on developing and implementing market approaches to Paid Ecosystem Services	Implement measures through Paid Ecosystem Service markets	Guidance / Process	No	The Site will not affect the stated market or measures
Not linked to 2027 outcomes	Nature Based Solutions Landscapes Project	A set of demonstration projects to develop the multi-sector funding approach to landscape-scale Nature-based Solutions, funded through Shared Outcome Fund	Guidance / Process	No	Site will not impact nature based solutions.
Not linked to 2027 outcomes	Water Environment Transformation (WET) Programme	The Environment Agency to explore more flexible approaches to permitting, to support wider implementation of nature based solution through water industry price review process (PR24) and land managers/agriculture sector.	Guidance / Process	No	Site will not impact nature based solutions or EA's internal improvement measures.
Not linked to 2027 outcomes	European Union Structural Funded projects that may run over into 2022 to 2027 e.g. European Union Inter Regional Cooperation Programme Projects	Various environmental improvement projects e.g. pollution control initiatives, abstraction management and habitat restoration	Partnerships	No	No effect on permanent abstraction licenses, habitat restoration or pollution control predicted
Not linked to 2027 outcomes	Other Heritage Lottery, Landfill Charge Levy or Philanthropic funded projects that may run over into 2022 to 2027 e.g. European Union Inter Regional Cooperation Programme Projects or Local Enterprise Partnerships funded projects	Various environmental improvement projects e.g. pollution control initiatives, abstraction management and habitat restoration	Partnerships	No	
Not linked to 2027 outcomes	UK Prosperity Fund projects that may run over into 2022-27 e.g. with Local Enterprise Partnerships	Various environmental improvement projects e.g. pollution control, abstraction management and habitat restorations pollution control initiatives	Partnerships	No	
Not linked to 2027 outcomes	Climate risk screening tool	The Environment Agency is developing a climate risk screening tool to check that future measures/projects can perform as intended in a changing climate. This will highlight opportunities for making climate resilient decisions on the design and implementation of River Basin Management Plan measures	Guidance / Process	No	Site will not affect the EA's development of the climate risk screening tool.
Not linked to 2027 outcomes	Explore better data sharing approaches with Arm's Length Bodies and partners	Data sharing restrictions between partners, including Arm's Length Bodies can be a barrier for a holistic targeted approach to regulating, advice and grant aid. Explore better data and evidence sharing approaches	Guidance / Process	No	Data protection restrictions are irrelevant to Site activities.
Not linked to 2027 outcomes	Environment Agency Championing Coastal Coordination (3Cs) Project Phase 2	Phase 2 - work with coastal partners and other interested parties to review the phase 1 pilots and develop recommendations for a national framework for future governance and joint working to improve alignment of water planning and delivery.	Guidance / Process	No	Not applicable - Site located inland not on the coast
Not linked to 2027 outcomes	Catchment Based Approach	Catchment partnership led projects and measures related to multiple funding streams and outcomes for water quality, quantity, habitat and flood risk reduction. Examples can be seen in the River Basin Management Plan Catchment Partnership Pages	Partnerships	No	No projects or measures are stated for the Black Sluice IDB Water Body, South Forty Foot Drain operational catchment or Witham Management Catchment that the Site is within. Therefore, the Site will not affect any projects or measures.
Not linked to 2027 outcomes	Improved Integrated Local Delivery	Working with partners, to improve strategic national engagement for local collective action. Achieve this through better collaborative system governance, alignment and integration from catchment to coast for multiple environmental and social outcomes and climate resilience e.g. towards a national framework for water governance, local estuarine and coastal restoration plans	Guidance / Process	No	Site activities will not affect national engagement, system governance, or affect the measures stated. Site is not located in estuarine/coastal setting

River Basin Management Plan Programmes of Measures category	Measure / Mechanism	Measure information	Broad type of mechanism	Mitigation Measure relevant to Site activities?	Reason for Applicability/Comments
Not linked to 2027 outcomes	Blue Impact Fund - Marine habitat restoration fund bid	Developing ocean trust fund to support marine environmental enhancement	Financial incentives	No	Not applicable - Site located inland not in the marine environment
Not linked to 2027 outcomes	Environment Agency programme of work to realise our Ambition for Water	Various measures arising from the Environment Agency reviewing their approach to water and setting out a roadmap for how they will work with partners to deliver our Water Ambition. This will coordinate multiple activities detailed elsewhere in this River Basin Management Plan Programme of Measures spreadsheet	Guidance / Process	No	Site will not affect the EA's review process.
Not linked to 2027 outcomes	Water Environment Improvement Fund	Local habitat/Invasive Non Native Species improvement schemes and agricultural/urban pollution control initiatives. Also funding 2021-22 to support improved coordination of coastal-based partnership working	inancial incentives and advice scheme	Yes	Site activities may encounter invasive species but safeguards will be in place through OCEMP and finalised in CEMP to reduce the likelihood of invasive species spreading on site and downstream
Not linked to 2027 outcomes	Environment Agency Environment Programme beyond current confirmed projects	Diffuse pollution control initiatives, recovery of priority species - habitat restoration or creation and reintroducing species	Financial incentives	No	Site activities are not expected to hinder habitat restoration or the reintroduction of species
Not linked to 2027 outcomes	Environment Act Targets water and biodiversity	The Environment Act 2021 stipulates the Government will set a minimum of one long-term legally binding targets in four priority areas. These include water, waste and resources, air quality and biodiversity. There will need to be various environmental improvement projects to achieve these targets. The public consultation on the proposed targets closed on 27 June 2022. Those proposed for water include addressing rivers polluted by abandoned metal mines, pollution coming from wastewater; agriculture and to reduce water demand. Biodiversity targets will also aid the environment by halting the decline of species abundance, extinction and creating wildlife-rich habitats in our streams, rivers, estuaries and coastal waters.	Regulatory	No	Site will not affect environmental improvement projects or targets. Site will take some arable land out of production. The ability of the government to implement these targets will not be affected by Site activities.
Not linked to 2027 outcomes	Water Leaders Group aligning approaches to behaviour change campaigns on water		Education, targeted information	No	Unlikely to affect activities of the Water Leaders Group
Not linked to 2027 outcomes	Development Planning - Statutory Biodiversity net gain	Planning requirement that aims to ensure that developments have a net positive impact on biodiversity overall, by minimising any negative impacts, restoring existing areas or offsetting	Regulatory	No	Site will meet biodiversity requirements
Not linked to 2027 outcomes	A new framework of Green Infrastructure Standards supports mainstreaming of good green-blue infrastructure	Various measures that result in greener cities and cleaner waters	Guidance / Process	No	Site activities will not affect measures that result in greener cities, and the water body will be protected through mitigation measures outlined in the OCEMP and finalised in the CEMP.
Not linked to 2027 outcomes	Local Nature Recovery Strategies	Various actions to protect, improve, expand and connect habitats including water and water-dependent environments. These will be identified through the Statement of Biodiversity Priorities and the Local Habitat Map in each Local Nature Recovery Strategy. Actions to restore habitat should seek to deliver wider environmental outcomes such as flood risk mitigation, water quality improvements and climate change adaptation wherever possible	Non-regulatory	Yes	Barriers for trenches via trenched techniques may impede fish movement in watercourses that are not undergoing trenchless technique work. However, measures for habitat restoration, flood risk mitigation and climate change will be unaffected.
Not linked to 2027 outcomes	National Highways Strategic Road Investment Strategy	Measures to mitigate impacts from road run-off	Regulatory	Yes	Access Route Corridor adds additional road runoff. Control measures will be in place and outlined in the OCEMP to mitigate impacts from road runoff from the Access Route.
Not linked to 2027 outcomes	Regulatory campaigns in urban areas including industrial estates and retail parks	Regulation by Environment Agency officers - prevent pollution	Regulatory	Yes	Site activities could lead to pollution if unmitigated. Control measures will be in place to prevent pollution, permitted discharge will be acquired if necessary.
Not linked to 2027 outcomes	Environment Agency Chief Scientific Advisors Office Clean and Plentiful Water Environmental Quality Standards Project	Environmental Quality Standards development post European Union Exit	Regulatory	No	The Site will not change Environmental Quality Standards
Not linked to 2027 outcomes	Water Industry Asset Management Plan Price Review 2024 Water Industry National Environment Programme schemes arising from Chemicals Investigation programme	Sewage treatment improvements through changes to licence conditions at specific sites	Regulatory	No	No effect on Sewage Treatment predicted.
Not linked to 2027 outcomes	Water Industry Asset Management Plan Price Review 2024 Water Industry National Environment Programme schemes - catchment	Catchment schemes e.g. Farm nutrient management plans and soil testing - improved farming practice	Regulatory	No	Site will take arable land out of production (permanantly for access track and solar array area, but cable route may reinstate agricultural land use) and the Site will be decommissioned and returned to agricultural land use up to 40 years in the future.

River Basin Management Plan Programmes of Measures category	Measure / Mechanism	Measure information	Broad type of mechanism	Mitigation Measure relevant to Site activities?	Reason for Applicability/Comments
Not linked to 2027 outcomes	Implement findings from review of Polluter Pays/Fair Share project due end of 2021	Price Review/Asset Management Plan	Regulatory	No	No effect on Sewage Treatment predicted.
Not linked to 2027 outcomes	Water Industry Asset Management Plan Price Review 2024 Water Industry National Environment Programme schemes - sewage	Sewage treatment improvements through changes to licence conditions at specific sites	Regulatory	No	
Not linked to 2027 outcomes	Drainage Waste Water Management Plans to inform measures identified by Water Industry in Price Review24	Integrated drainage management - Measures to address pollution, flood risk and habitat function	Guidance / Process	Yes	Site activities could lead to pollution if unmitigated. Control measures are in place to prevent pollution.
Not linked to 2027 outcomes	Abstraction plan 2 - Refreshed Sustainable abstraction plan delivery	Measures include: changes to abstraction licences including compulsory and voluntary licence changes, time limited licences renewal, application of powers in relation to actual and risk of serious damage, risk of deterioration and actual deterioration, revocation of unused licences, and reducing quantities on under used licences and non licence changes, delivery of a stronger catchment focus updating Abstraction Licence Strategies	Regulatory	No	No effect on permanent abstraction licenses predicted
Not linked to 2027 outcomes	Achieve sustainable abstraction to deliver resilient catchments and meet the challenge of climate change	Greater clarity on un-sustainable abstraction improvements through: changes to abstraction licences for example time limited licences, serious damage, unused licences, new authorisations. New licences issued only to the sustainability standards of the flow and groundwater objective thresholds as consulted. Deviation from this only by agreed quality of scientific evidence, provided at the developers cost	Regulatory	No	
Not linked to 2027 outcomes	Develop Environmental Destination statements. Establish a consistent understanding of the long term water resource needs and climate change impacts	Environmental destination statement informs regional planning options and on the ground measures	Shared learning, research	No	Site activities will not affect the measure stated nor will it affect long term water resource needs.
Not linked to 2027 outcomes	Implementation of a stronger catchment focus for water resources	Working collaboratively with all stakeholders to deliver integrated catchment solutions to mitigate the impact of climate change and unsustainable abstraction. Where appropriate deliver innovative solutions to increase access to water and sustainable abstracting improvements and update all Abstraction Licencing System by 2027	Regulatory and non-regulatory	No	No effect on permanent abstraction licenses predicted
Not linked to 2027 outcomes	Modernise our abstraction licensing service to deliver resilient and sustainable catchments and to meet the challenge of climate change	Access to water and sustainable abstraction improvements through modernising the abstraction service. Ending exemptions, moving to a digital platform and introducing Environmental Permitting Regulation and a stronger regulatory and compliance regime based on delivering sustainable abstraction	Regulatory and non-regulatory	No	
Not linked to 2027 outcomes	New Authorisations - previously Exempt Licence determinations by December 2023	Abstractions Licensed and established for review against sustainability standards at Common End Dates against surface and groundwater sustainability tests	Regulatory	No	
Not linked to 2027 outcomes	Review of Heavily Modified Waterbody and Level Managed system flow objectives to assure achievement of sustainable abstraction and ecosystems they support.	Establish sustainable flow objectives for Heavily Modified Water Bodies and Level Managed Systems to identify unsustainable abstraction and establish these thresholds for licensing and the associated groundwater sustainability for licence reviews	Regulatory	No	
Not linked to 2027 outcomes	Development of Regional Plans Water Resources and environmental destination statement	Give the water sector a stronger strategic steer on long term water resources planning. Includes: coordinating Regional planning groups and setting the environmental destination. Also inform the development of new water infrastructure and design future regulatory frameworks. Do this through RAPID (Regulators' Alliance for Progressing Infrastructure Development) Abstraction Licence reductions to deliver Sustainable Abstraction. This is a key measure in our response to climate change	Regulatory	No	Site will not affect water resources planning, or the ability of the provider to undertake the measure.
Not linked to 2027 outcomes	Time Limited Abstraction Licence renewal - Give licence holders six years notice of renewal	Licence holders have six years notice to renew time limited licences. To meet the sustainability test, the Environment Agency will mainly prioritise action to prevent deteriorations up to the end of 2027	Regulatory	No	No effect on permanent abstraction licenses predicted
Not linked to 2027 outcomes	Water Resource Assets Capital Investment	Ensure water transfer schemes are safe, resilient, environmentally sustainable and can operate when required	Regulatory	No	Dewatering activities will obtain an abstraction license if over 20m^3/day. Preparation and planning of dewatering works will ensure all precautions and permissions are obtained from the Environment Agency or Local Authority before works commence.
Not linked to 2027 outcomes	Water Industry Asset Management Plan Price Review 2024 Water Industry National Environment Programme schemes - water resources	Sustainable abstraction improvements through changes to abstraction licences and licence conditions at specific sites	Regulatory	No	No effect on permanent abstraction licenses predicted.

River Basin Management Plan Programmes of Measures category	Measure / Mechanism	Measure information	Broad type of mechanism	Mitigation Measure relevant to Site activities?	Reason for Applicability/Comments
Not linked to 2027 outcomes	OxCam Arc - realising multiple environmental benefits from strategic growth. Mechanism = Other local funding source	Blue/green infrastructure provision, biodiversity net gain, strategic sites for achieving multiple benefits.	Non-regulatory	No	Site will meet biodiversity requirements
Not linked to 2027 outcomes	Future Fens: Integrated Adaptation Taskforce. Mechanism = Other local funding source	The Environment Agency will work in partnership with Anglian Water, local councils, internal drainage boards and land managers in the Fens to develop long-term plans for managing water differently. This will be part of the work of the Future Fens: Integrated Adaptation Taskforce, which is developing ways of adapting to flooding and drought in low lying, agricultural catchments	Non-regulatory	No	Site will not affect the Environment Agency's ability to; develop long-term plans for managing water; adapt to flooding/drought in low-lying areas; carry out policy reviews and; identify and acquire funding to address flood risk challenges in problematic areas. The Site will not affect flood risk and will incorporate SuDS to enable surface water discharges at greenfield runoff rates. Flood risk will is addressed in the Flood Risk and Drainage Strategy appended to the Chapter 11 of the environmental statement 'Water Resources and Flood Risk'.
Not linked to 2027 outcomes	Strategic Fens and Lowlands policy review. Mechanism = Other local funding source	By 2027, the Environment Agency and other Risk Management Authorities will work with other bodies to provide evidence and advice to government from the strategic work in the Fens and Lowlands to inform suggested areas for policy review in the Fens and Lowlands Strategic Area.	Non-regulatory	No	
Not linked to 2027 outcomes	Fens and Lowlands maintenance tactical planning. Mechanism = Other local funding source	By 2025, the Environment Agency will work in partnership with other Risk Management Authorities to develop a set of medium term tactical plans in the Fens and Lowlands to determine the level of maintenance and capital funding required for all flood risk assets and identify those areas where funding will be most challenging in the Fens and Lowlands Strategic Area.	Non-regulatory	No	
Not linked to 2027 outcomes	Chalk and Ephemeral Stream sustainability actions and flow protection	Policy and voluntary driven abstraction reductions against ground and surface water sustainability assessment standards under CaBA Chalkstream Strategy Actions, Environment Bill sustainability standards and designations. Includes review of licences and flow objective achievement against the naturalised perennial head	Regulatory and non-regulatory	No	Irrelevant Geology
Not linked to 2027 outcomes	Implementation of the Water Resources Catchment Based Approach (CaBA) Chalk Stream Restoration Group (CSRG) chalk strategy	Policy and voluntary measures to drive abstraction reductions in ground and surface waters in chalk catchments. A local response to climate change and abstraction pressure in these catchments. Policy support is intended to develop to underwrite these.	Multiple	No	No effect on permanent abstraction licenses predicted + Irrelevant geology
Not linked to 2027 outcomes	Marine Protected Areas (MPA) ReMEDIES EU Life funded	Measures to improve and restore favourable condition of MPA seagrass and maerl sub features. Two key measures include seagrass restoration, and the phasing out of chain moorings and replacing them with 'eco-moorings' to protect existing beds	Financial incentives	No	Not applicable - Site located inland not in the marine environment
Not linked to 2027 outcomes	Riverlands Partnership Programme - multiple catchment restoration projects across the country	Various measures to improve river habitat, reduce flood risk through nature based solutions and improve water quality	Partnerships	Yes	Site could impact river habitats and water quality if unmitigated but will not affect nature based solutions
Not linked to 2027 outcomes	Water companies work with catchment partners to support flagship chalk stream restoration projects	Habitat restoration measures	Partnerships	No	Irrelevant Geology
Not linked to 2027 outcomes	The Flood and Coastal Resilience Innovation Programme - 25 projects targeting flood resilience	Various measures to improve flood resilience, which may include: • nature based solutions • sustainable drainage systems • approaches for making existing properties more flood resilient • encouraging local businesses to improve their flood resilience • building community and voluntary sector capacity to respond and recover	Financial incentives	No	Site will not impact flood resilience, risk, nature based solutions, and will incorporate SuDS to enable surface water discharges at greenfield runoff rates. Flood risk will be addressed in a separate assessment. Additionally, the Site is located inland not on the coast.
Not linked to 2027 outcomes	As part of Water Ambition the Environment Agency will work with partners to bring a particular focus on protecting and improving chalk rivers	Various regulatory and partnership measures to improve and protect chalk rivers - quality, quantity, habitat and biodiversity	Guidance / Process	No	Irrelevant Geology
Not linked to 2027 outcomes	OxCam Arc - Working with the wider Defra group to influence the Spatial framework and wider OxCam work. Mechanism = Other local funding source	Ensuring we use planned growth and development as an opportunity for improving nature. Influencing planning policy, influencing development corporations, providing environmental evidence and advice and test/showcase best practice. Flood Alleviation Scheme tracking a spatial framework (delivered in 2 years) which will have the same standing as national planning policy and providing a framework for local authorities to follow. Influencing this to enable best outcomes for the environment.	Non-regulatory	No	Site will not affect the ability of OxCam and Defra to; influence planning policy; improve nature, provide evidence and showcase best practice; to deliver the Flood Alleviation Scheme, or; provide frameworks.

Notes

The River Basin Management Plan Programmes of Measures have been taken from a downloadable file from: DEFRA (2025) Catchment Data Explorer - Measures data for England. Accessed January 2025. https://environment.data.gov.uk/catchment-planning/v/c3-plan/England/measures

Appendix 2 Assessment of Hindrance of Relevant Measures

River Basin Management Plan Programmes of Measures category	Action	Measure / Mechanism	Mitigation Measure relevant to SIte?	Reason for Applicability	Measure at risk from the Site with mitigation in place?
Linked to 2027 outcomes	Water Industry Asset Management Plan Price Review 19 Water Industry National Environment Programme schemes - Habitat improvements	Habitat restoration or creation and species recovery. E.g. river and lake restoration, removing barriers to fish movement, tackle Invasive Non Native Species, achieve objectives for water-dependent Sites of Special Scientific Interest and European sites, actions to conserve and enhance priority habitats and species	Yes	Barriers for trenches via trenched techniques may impede fish movement in watercourses that are not undergoing trenchless technique work.	No (No deterioration predicted as the trenched watercourse crossings will take place in ditches/ordinary watercourses that are unlikely to have fish present within them, they are not to be constructed during the migratory season, will take place over a short time scale, and the impacts are predicted to be low. Additionally, trenchless techniques such as HDD drilling will not affect fish passage)
Not linked to 2027 outcomes	Enabling actions and legislation to enforce actions in the European Union Invasive Alien Species Regulation	Various measures controlling Invasive Non Native Species. Enabling actions and legislation to enforce actions in the European Union Invasive Alien Species Regulation	Yes	Site activities may encounter invasive species but safeguards will be in place through OCEMP and finalised in CEMP to reduce the likelihood of invasive species spreading on site and downstream	No (No deterioration predicted as the OCEMP will detail the working procedures of working in the vicinity of and controlling the spread of invasive species on site and near/within watercourses, which will be finalised in the CEMP prior to the construction and operational phases, and similarly in the DEMP prior to decommissioning)
Not linked to 2027 outcomes	Great Britain level co-ordination of Invasive Non Native Species actions	Various measures to control Invasive Non Native Species. Co-ordination of Invasive Non Native Species actions and approach via the Great Britain Invasive Non Native Species programme board and strategy	Yes		
Not linked to 2027 outcomes	National Highways Invasive Non Native Species control work	Various measures to control Invasive Non Native Species by National Highways	Yes		
Not linked to 2027 outcomes	Invasive Non Native Species eradication - national programmes	Various measures to control Invasive Non Native Species. National eradication and control programmes for aquatic Invasive Non Native Species e.g. top mouth gudgeon and water primrose	Yes		
Not linked to 2027 outcomes	Management of invasive non-native species at selected protected sites by Natural England	Various measures to control Invasive Non Native Species. Management of invasive non-native species at selected protected sites by Natural England	Yes		
Not linked to 2027 outcomes	Invasive Non Native Species Secretariat; co-ordination of alert system, species records, and the Invasive Non Native Species Information Portal	Various measures to control Invasive Non Native Species. Supporting data, evidence and processes to inform Invasive Non Native Species control and management	Yes		
Not linked to 2027 outcomes	Partnership pennywort work - developing a shared strategy	Various measures to control floating pennywort	Yes		
Not linked to 2027 outcomes	Environment Agency, Natural England and partners will implement rapid responses to contain and eradicate new Invasive Non Native Species invasions, where practicable	Various measures to control Invasive Non Native Species Invasive Non Native Species - rapid response	Yes		
Not linked to 2027 outcomes	Invasive non native species local action groups	Funding and support for local Invasive non native species action groups	Yes		
Not linked to 2027 outcomes	Water Industry Asset Management Plan Price Review 24 Water Industry National Environment Programme schemes - Habitat improvements	Habitat restoration or creation and species recovery. E.g. river and lake restoration, removal of barriers to fish movement, tackle Invasive Non Native Species, achieve objectives for water-dependent Sites of Special Scientific Interest and European sites, and actions to conserve and enhance priority habitats and species	Yes	Barriers for trenches via trenched techniques may impede fish movement in watercourses that are not undergoing trenchless technique work. Site activities may encounter invasive species but safeguards will be in place through OCEMP and finalised in CEMP to reduce the likelihood of invasive species spreading on site and downstream	No (No deterioration predicted as the trenched watercourse crossings will take place in ditches/ordinary watercourses that are unlikely to have fish present within them, they are not to be constructed during the migratory season, will take place over a short time scale, and the impacts are predicted to be low. Additionally, trenchless techniques such as HDD drilling will not affect fish passage. The CEMP will detail the working procedures of working in the vicinity of and controlling the spread of invasive species on site and near/within watercourses, which will be finalised in the CEMP prior to the construction and operational phases, and similarly in the DEMP prior to decommissioning)
Not linked to 2027 outcomes	Fisheries Improvement Programme and Wild Trout Trust contract	Various habitat improvement projects to benefit fisheries in partnership will have additional benefits for River Basin Management Plans environmental objectives	Yes	Site activities may negatively affect fish and aquatic ecology If unmitigated.	No (No deterioration predicted due to extensive mitigation procedures in place within the CEMP and DEMP for all phases of the Proposed Development)
Not linked to 2027 outcomes	Green Recovery Challenge Fund	Various environmental improvement projects - fish passage; land management change to address pollution; river, lake and wetland restoration; tree planting; peatland restoration. £80 million funding value over two £40million rounds, Round 1 delivery by March 2022, Round 2 by March 2023	Yes	Barriers for trenches via trenched techniques may impede fish movement in watercourses that are not undergoing trenchless technique work.	No (No deterioration predicted as the trenched watercourse crossings will take place in ditches/ordinary watercourses that are unlikely to have fish present within them, they are not

Not linked to 2027 outcomes	Improving Fish Passage at Environment Agency Assets	Improving fish passage at Environment Agency assets through opportunities and partnership programme of works approach	Yes	Barriers for trenches via trenched techniques may impede fish movement in watercourses that are not undergoing trenchless technique work.	to be constructed during the migratory season, will take place over a short time scale, and the impacts are predicted to be low. Additionally, trenchless techniques such as HDD drilling will not affect fish passage)
Not linked to 2027 outcomes	Environment Agency Navigation Capital Asset Investment	Addressing physical modification on Environment Agency owned regulatory assets to maintain navigable waterways and restore fish passage	Yes	Physical modification is already a problem + trenched watercourse crossings may impede fish passage in watercourses that are not undergoing trenchless technique work.	No (No deterioration predicted as the trenched watercourse crossings will take place in ditches/ordinary watercourses that are unlikely to have fish present within them, they are not to be constructed during the migratory season, will take place over a short time scale, and the impacts are predicted to be low. Additionally, trenchless techniques such as HDD drilling will not affect fish passage)
Not linked to 2027 outcomes	Water Environment Improvement Fund	Local habitat/Invasive Non Native Species improvement schemes and agricultural/urban pollution control initiatives. Also funding 2021-22 to support improved coordination of coastal-based partnership working	Yes	Site activities may encounter invasive species but safeguards will be in place through OCEMP and finalised in CEMP to reduce the likelihood of invasive species spreading on site and downstream	No (No deterioration predicted as the OCEMP will detail the working procedures of working in the vicinity of and controlling the spread of invasive species on site and near/within watercourses, which will be finalised in the CEMP prior to the construction and operational phases, and similarly in the DEMP prior to decommissioning)
Not linked to 2027 outcomes	Local Nature Recovery Strategies	Various actions to protect, improve, expand and connect habitats including water and water-dependent environments. These will be identified through the Statement of Biodiversity Priorities and the Local Habitat Map in each Local Nature Recovery Strategy. Actions to restore habitat should seek to deliver wider environmental outcomes such as flood risk mitigation, water quality improvements and climate change adaptation wherever possible	Yes	Barriers for trenches via trenched techniques may impede fish movement in watercourses that are not undergoing trenchless technique work. However, measures for habitat restoration, flood risk mitigation and climate change will be unaffected.	No (No deterioration predicted as the trenched watercourse crossings will take place in ditches/ordinary watercourses that are unlikely to have fish present within them, they are not to be constructed during the migratory season, will take place over a short time scale, and the impacts are predicted to be low. Additionally, trenchless techniques such as HDD drilling will not affect fish passage)
Not linked to 2027 outcomes	National Highways Strategic Road Investment Strategy	Measures to mitigate impacts from road run-off	Yes	Access Route Corridor adds additional road runoff. Control measures will be in place and outlined in the OCEMP to mitigate impacts from road runoff from the Access Route.	No (No deterioration predicted due to extensive mitigation procedures in place within the CEMP and DEMP. Access road will be constructed upon a permeable, granular surface, SuDS and vegetated features will provide treatment, adsorption and settlement of heavy metals, hydrocarbons and silt respectively, be discharged at greenfield runoff rates, and be maintained via visual monitoring and sediment/vegetative management measures)
Not linked to 2027 outcomes	Regulatory campaigns in urban areas including industrial estates and retail parks	Regulation by Environment Agency officers - prevent pollution	Yes	Site activities could lead to pollution if unmitigated. Control measures will be in place to prevent pollution, permitted discharge will be acquired if necessary.	No (No deterioration predicted due to extensive mitigation procedures in place within the OCEMP and ODEMP, not limited to the extent of: silt management; oil and fuel spill procedures and management; containment and control of surface water drainage and potential leachates (cement/cement bound sand/ bentonite) and; controlled, treated and permitted discharge of contaminated waters (if present) using a Siltbuster under an Environmental Permit from the Environment Agency)
Not linked to 2027 outcomes	Drainage Waste Water Management Plans to inform measures identified by Water Industry in Price Review24	Integrated drainage management - Measures to address pollution, flood risk and habitat function	Yes	Site activities could lead to pollution if unmitigated. Control measures are in place to prevent pollution.	
Not linked to 2027 outcomes	Riverlands Partnership Programme - multiple catchment restoration projects across the country	Various measures to improve river habitat, reduce flood risk through nature based solutions and improve water quality	Yes	Site could impact river habitats and water quality if unmitigated but will not affect nature based solutions	

Notes:

These measures apply to "All" or "Various" Water Bodies, due to there being no specific actions or measures for the Witham Management Catchment or the South Forty Foot Drain Operational Catchment or the Black Sluice IDB draining to South Forty Foot Drain Water Body.

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https://environment.data.gov.uk/catchment-planning/v/c3-plan/England/measures