



Connah's Quay Low Carbon Power

Framework Construction Environmental Management Plan (Tracked)

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1. Introduction

1.1 Overview

- 1.1.1 This **Framework Construction Environmental Management Plan (CEMP)** (**EN010166/APP/6.5**) has been prepared by AECOM on behalf of Uniper UK Limited (the Applicant). It forms part of the application (Application) for a Development Consent Order (DCO), that has been submitted to the Secretary of State (SoS) for The Department for Energy Security and Net Zero (DESNZ), under Section 37 of 'The Planning Act 2008' (the '2008 Act') (Ref 1).
- 1.1.2 The Applicant is seeking a Development Consent Order (DCO) for the construction, operation (including maintenance) and decommissioning of a proposed low carbon Combined Cycle Gas Turbine (CCGT) Generating Station fitted with Carbon Capture Plant (CCP) (the 'Connah's Quay Low Carbon Power (CQLCP) Abated Generating Station') and supporting infrastructure (collectively 'the Proposed Development').

1.2 The Proposed Development

- 1.2.1 The Proposed Development would comprise up to two CCGT with CCP units (and supporting infrastructure) achieving a net electrical output capacity of more than 350 megawatts (MW; referred to as MWe for electrical output) and up to a likely maximum of 1,380 MWe (with CCP operational) onto the national electricity transmission network.
- 1.2.2 Through a carbon dioxide (CO₂) pipeline, comprising existing and new elements the Proposed Development would make use of CO₂ transport and storage networks owned and operated by Liverpool Bay CCS Limited, currently under development as part of the HyNet Carbon Dioxide Pipeline project (referred to as the HyNet CO₂ Pipeline Project), that would transport CO₂ captured from existing and new industries in North Wales and North West England, for offshore storage. The captured CO₂ would be permanently stored in depleted offshore gas reservoirs in Liverpool Bay.
- 1.2.3 For the purposes of the electrical connection, National Grid Electricity Transmission plc (NGET), which builds and maintains the electricity transmission networks, is responsible for the operation and maintenance of the existing 400 kV NGET Substation.
- 1.2.4 A description of the Proposed Development, including details of maximum parameters, is set out in **Chapter 4: The Proposed Development (EN010166/APP/6.2.4)**, of the **Environmental Statement (ES)**. At this stage in the development, the design of the Proposed Development incorporates a necessary degree of flexibility to allow for ongoing design development.
- 1.2.5 The Proposed Development is located approximately 0.6 kilometres (km) north-west of Connah's Quay in Flintshire, North East Wales. The Main Development Area is centred approximately at national grid reference 327347, 371374, and, together with the Proposed CO₂ Connection Corridor, Repurposed CO₂ Connection Corridor, Electrical Connection Corridor, Water Connection Corridor, Construction and Indicative Enhancement Area

(C&IEA), and ancillary works to access roads and minor assets, is wholly within the administrative area of Flintshire County Council (FCC).

- 1.2.6 The Order limits, as shown in **Figure 1-2: Order limits (EN010166/APP/6.3)**, encompass a total area of approximately 105.11 hectares (ha).
- 1.2.7 Around 86.33 ha of the Order limits is focused on the 'Construction and Operation Area', comprising the Main Development Area, construction areas and connection corridors necessary for the construction and operation of the Proposed Development shown in **Figure 1-2: Order limits (EN010166/APP/6.3)**. A further 18.78 ha of land included for the 'Accommodation Works Areas', comprising areas of works required to facilitate the movement and temporary storage of Abnormal Indivisible Loads (AIL) during construction of the Proposed Development. Further information on the Order limits is provided in **Chapter 3: Location of the Proposed Development (EN010166/APP/6.2.3)**.
- 1.2.8 **Figure 1: Areas Described in the CEMP** identifies the different components of the Proposed Development and Order limits which are referenced throughout this document. These comprise:
- The Construction and Operation Area:
 - Main Development Area;
 - Construction and Indicative Enhancement Area (C&IEA);
 - Water Connection Corridor;
 - Surface Water Outfall Area;
 - Proposed CO₂ Connection Corridor;
 - Repurposed CO₂ Connection Corridor;
 - Electrical Connection Corridor;
 - Access to the Main Development Area;
 - Hardstanding Expansion at Connah's Quay North Jetty;
 - The Accommodation Work Areas.

1.3 The Purpose and Structure of this Document

Purpose

- 1.3.1 This Framework CEMP has been prepared to accompany the ES and presents a framework for the management of environmental impacts during the construction phase of the Proposed Development. The aims of this document are to avoid and minimise adverse effects on the environment and to provide a clear and consistent approach to environmental mitigation during construction. This document does not address operation or decommissioning of the CQLCP Abated Generating Station, which would be subject to separate environmental management plans and procedures as detailed in the **Commitments Register (EN010166/APP/6.10)**.

- 1.3.2 This Framework CEMP outlines how the construction mitigation measures included within the ES would be implemented and sets out the monitoring and auditing activities designed to ensure that such mitigation measures are carried out, and that they are effective. It is anticipated that final CEMP(s) would be prepared, approved and implemented for individual phases of the Proposed Development. As a result, there would be multiple CEMP(s) prepared in accordance with the relevant parts of this **Framework CEMP**.
- 1.3.3 The **Draft DCO (EN010166/APP/3.1)** also includes certain preliminary works (defined as “site enabling works”) that can be carried out in advance of formally discharging Requirement 4 of the **Draft DCO (EN010166/APP/3.1)**. This Framework CEMP details the measures that would be followed during elements of these works. Structure
- 1.3.4 This document provides the anticipated structure of the final CEMP(s) as well as outline information relevant to the final CEMP(s). It indicates what additional information might be included under each sub-section within the CEMP(s). This **Framework CEMP** is designed with the objective of ensuring compliance with the relevant environmental mitigation measures set out within the ES.
- 1.3.5 The final CEMP(s) are anticipated to broadly reflect the structure of this **Framework CEMP**, which is as follows:
- Section 2 provides an indication of the construction arrangements that have been assessed in the ES;
 - Section 3 presents a summary of environmental control plans;
 - Section 4 presents additional information that might be included under each sub-section within the final CEMP(s), which includes –
 - environmental effects (assessed through the Environmental Impact Assessment (EIA) as documented in the ES);
 - impact avoidance or reduction of measures to be applied, where the ES has assumed they would be applied during the detailed design or construction phase(s) of the Proposed Development;
 - any other additional mitigation measures; and
 - additional surveys or monitoring considered necessary pre-construction or during construction in order to confirm the status of receptors, and the effectiveness of impact avoidance/mitigation measures.
 - Section 5 discusses the implementation and operation of the CEMP(s) including defining roles and responsibilities;
 - Section 6 outlines the environmental monitoring process and corrective action procedure to be applied, where mitigation/control measures are identified to not operating as effectively as anticipated;
 - Section 7 provides details of how environmental records should be held and managed;
 - Appendix A comprises the accompanying Figures; and

- Appendix B comprises a Framework Site Waste Management Plan (SWMP), as specified in Requirement 4(2)(a) of the **Draft DCO (EN010166/APP/3.1)**.

Compliance

- 1.3.6 The undertaker would appoint Principal Contractor(s) to deliver the construction of the Proposed Development. The Principal Contractor(s) would be responsible for working in accordance with the environmental controls documented in the final CEMP(s) and the undertaker would have overall responsibility for the implementation of the final CEMP(s). As described in **Chapter 4: The Proposed Development (EN010166/APP/6.2.4)**, Liverpool Bay CCS Limited are an undertaker in the **Draft DCO (EN010166/APP/3.1)** for works at the Proposed CO₂ AGI, construction works required for the new gas pipeline (Proposed CO₂ Connection). Liverpool Bay CCS Limited would also appoint Principal Contractor(s) for the construction of these components and therefore would be responsible for ensuring the requirements of any final CEMP(s) relevant to that works package are met.
- 1.3.7 The undertaker and the appointed Principal Contractor(s) would require all construction personnel to comply, as a minimum, with applicable environmental legislation at the time of construction, together with any additional environmental controls imposed by the **Draft DCO (EN010166/APP/3.1)**. The final CEMP(s) would, therefore, be designed with the objective of compliance with any relevant environmental legislation and the mitigation measures set out within the ES and this Framework CEMP. Any additional construction licences, permits or approvals (as detailed in the **Consents and Agreements Position Statement (EN010166/APP/3.3)**) that are required would be listed in the applicable final CEMP(s), including any environmental information submitted in respect of them.
- 1.3.8 If development consent is granted, final CEMP(s) would be produced for each phase of the construction of the Proposed Development following the appointment of a Principal Contractor(s). The final CEMP(s) would be in general accordance with the measures included in this Framework CEMP and approved by Flintshire County Council (FCC) prior to construction activities commencing, as secured in Requirement 4 of the **Draft DCO (EN010166/APP/3.1)**.
- 1.3.9 The Principal Contractor(s) and all construction personnel would be responsible for working in accordance with the environmental controls documented in the final CEMP(s), which would allocate responsibilities for environmental performance. The overall responsibility for implementation of the final CEMP(s) would lie with the undertaker.

2. Construction Phase Arrangements

2.1 Introduction

2.1.1 This section sets out the general arrangements for the construction of the Proposed Development.

2.2 Construction Programme

2.2.1 As the Proposed Development is comprised of up to two combined-cycle gas turbines (CCTGs) with carbon capture plant for each unit, the construction could either be undertaken in a single phase where both are constructed simultaneously ('simultaneous construction'), or in two phases where each CCGT is constructed in isolation ('phased construction').

2.2.2 Allowing sufficient time to receive consent and to discharge the DCO Requirements, it is anticipated that the earliest that site preparation and enabling works for the Proposed Development would start is late 2026.

2.2.3 A detailed construction programme would be prepared by the Principal contractor(s) once appointed and would be included in the final CEMP(s) to be agreed with Flintshire County Council post consent.

2.2.4 The final programme for construction would be determined by the Principal Contractor(s) but is expected to be between five and nine years duration, depending on whether phased or simultaneous construction is undertaken.

2.2.5 The construction of the Proposed Development would be undertaken in six main phases over the construction programme. These include:

- site enabling works – including preparation of construction laydown areas within the Main Development Area and C&IEA and demolition of the existing gas treatment plant (GTP), existing GTP above-ground installation (AGI), and existing stores buildings;
- construction activities for the Proposed CO₂ Connection (civil and integration works);
- earthworks (site preparations) phase – to provide a level development platform where this is required for new permanent infrastructure within the Main Development Area;
- main civil works phase and civil, mechanical, electrical, and integration works;
- construction activities for the Water Connection Works – minor upgrade and / or repair and integration works; and
- commissioning of the CQLCP Abated Generating Station ahead of commercial operation.

2.3 Construction Laydown

2.3.1 Six laydown areas within the Main Development Area and C&IEA ('A' to 'F') are required during construction to enable equipment and material storage, placement of site offices, batch concrete facilities, welfare facilities and car

parking, environmental / waste handling areas and vehicle wheel wash area(s). **Figure 3: Construction Areas** shows the maximum extents of the construction laydown areas. The final arrangement of the laydown areas required would be developed by the appointed Principal Contractor(s) who would consider the relevant constraints, such as the presence of overhead power lines.

- 2.3.2 The laydown areas would be levelled to provide an even surface and underlain by semi-permeable surfacing and secured by security fencing and gates as appropriate. Following completion of the construction works, temporary construction laydown areas would be used for habitat creation in accordance with the **Outline Landscape and Ecology Management Plan (LEMP) (EN010166/APP/6.9)**

2.4 Working Hours

- 2.4.1 Core construction working hours would be 08:00 and 18:00 Monday to Friday (except Bank Holidays) and 08:00 and 13:00 on Saturdays. However, it is likely that some construction activities may need to be undertaken outside of these core working hours. This is partly because certain construction activities cannot be stopped, such as concrete pouring, but also to manage the construction programme.
- 2.4.2 Where construction works are proposed outside core hours, additional noise assessments would be undertaken if the construction noise and vibration thresholds (within Table 9-10 of **Chapter 9: Noise and Vibration (EN010166/APP/6.2.9)** are likely to be exceeded. The assessment would identify the requirements for additional mitigation measures to ensure that construction noise and vibration thresholds would not be exceeded outside of core hours. Works conducted outside the core hours would comply with any restrictions agreed with the local planning authority, in particular regarding control of noise and traffic in accordance with the relevant requirements which are secured by the **Draft DCO (EN010166/APP/3.1)**.
- 2.4.3 Twenty-four hour working for certain activities has been considered and assessed in **Chapter 9: Noise and Vibration (EN010166/APP/6.2.9)** which sets out specific mitigation and control measures required to prevent disturbance from any activities outside of core working hours. The undertaker would aim to ensure that working outside of core hours is kept to a minimum wherever possible, and any such works would be carefully managed to reduce effects on the local community.

2.5 Site Lighting

General Site Lighting

- 2.5.1 Temporary construction site lighting is proposed to enable safe working on the construction site in the hours of darkness. Standard working hours are set out in paragraph 2.4.1, however some construction activities may need to be undertaken outside of these core working hours during hours of low natural light or darkness.
- 2.5.2 Temporary construction lighting would be arranged so that glare is minimised outside the construction site. The Principal Contractor(s) would be

responsible for establishing the required approach to and levels of lighting in general accordance with the **Lighting Strategy (EN010166/APP/7.22)**.

- 2.5.3 Lighting would be designed so as not to cause a nuisance outside of the Order limits in relation to views from residential receptors or light disturbance to ecological receptors.

Lighting of Cranage

- 2.5.4 Cranes would be lit in accordance with Civil Aviation Publication (CAP) 1096, *Guidance to crane users on aviation lighting and notification*. Cranes shall be sufficiently conspicuous. Due to the proximity of the Main Development Area to Hawarden Aerodrome, aviation warning lighting and details of the heights of structures and temporary cranes would be discussed with the Civil Aviation Authority and Airbus and approved by the relevant planning authority, in accordance with Requirement 14 and Requirement 15 of the **Draft DCO (EN010166/APP/3.1)**.
- 2.5.5 For cranes 45 m above ground level or more, medium intensity (2000 candela) steady red lights would be displayed and be visible from all directions.
- 2.5.6 For cranes less than 45 m above ground level, low intensity (32 candela) steady red lights would be displayed and visible from all directions.
- 2.5.7 Lights would be located as close as possible to the top of the crane. Intermediate level lights are required for cranes over 45 m above ground level, spaced as equally as practicable, with the spacing not exceeding 52 m.
- 2.5.8 Lights would display the general definition and extent of the crane, with lights installed on both sides of the crane jib.

2.6 Parking Provisions

- 2.6.1 Parking demand would vary throughout the construction phase and parking areas would be set aside within the Order limits to accommodate parking for construction workers. It is anticipated that parking provisions would be allocated within each of the five laydown areas. Additionally, contractors may establish a park and ride system from location(s) outside of the Order limits to the Main Development Area, such as temporary accommodation or existing parking locations, subject to agreement with the relevant authorities and third parties. Further details are provided in the **Framework Construction Worker Travel Plan (EN010166/APP/6.7)**.

2.7 Site Security

- 2.7.1 The Principal Contractor(s) would undertake site-specific assessments of the security and trespass risk and ensure that suitable security arrangements are implemented to prevent unauthorised access to the sites. Access to the construction compounds would be limited to specified entry points only and personnel entries/ exits would be recorded and monitored for both security and health and safety purposes, the gates would be kept secure unless they are being used.

2.8 Recycling and Disposing of Waste

- 2.8.1 To control the waste generated during the enabling works and construction phase, the Principal Contractor(s) would minimise the creation of waste, maximise the use of recycled materials and assist the collection, separation, sorting, recycling and recovery of waste arisings, as far as reasonably practicable.
- 2.8.2 A Framework Site Waste Management Plan (Appendix B) has been developed to control construction activities to minimise, as far as reasonably practicable, impacts on the environment and would specify the waste streams to be estimated and monitored and sets goals with regards to the waste produced. The SWMP would be finalised by the Principal Contractor(s), with specific measures to be implemented prior to the start of construction. Preparation, approval and implementation of a site waste management plan which is in general accordance with the Framework Site Waste Management Plan (Appendix B) is secured by Requirement 4 in the **Draft DCO (EN010166/APP/3.1)**.

2.9 Soil Management

- 2.9.1 Impacts relating to the handling, movement and temporary storage of soils would be controlled through the final CEMP(s). The final CEMP(s) would include measures to:
- limit the potential for dispersal and accidental releases of potential contaminants, soil derived dusts and uncontrolled run-off to occur;
 - set out how material is to be excavated, segregated, and stockpiled; and
 - establish procedures for dealing with unexpected soil or groundwater contamination.
- 2.9.2 Excavated materials / soils to be retained for in-situ replacement following construction (except within the Proposed CO₂ Connection Corridor) would be stored as bunds within a secure area at a construction compound or laydown area and under an appropriate covering, if required

2.10 Ecological Safeguarding Zones

- 2.10.1 The Proposed Development and construction laydown areas have been designed to include a minimum 30 m ecological safeguard zone, for the protection of sensitive habitats/species occupying the Dee Estuary (which is designated as a Ramsar site, Special Protection Area, Special Area of Conservation and a Site of Special Scientific Interest), as shown on **Figure 5-3: Construction Areas (EN010166/APP/6.3)**. Habitats in these areas would be retained during construction, however these areas may be required for short term site wide works and utility connections. Where these works are undertaken the following measures apply:
- works could only be undertaken between April and September inclusive;
 - the relevant working area would be checked by the Ecological Clerk of Works (ECoW) prior to any vegetation clearance who would advise on the requirement for ecological mitigation;

- any stockpiles would be stored outside of the Ecological Safeguard Zone; and
 - land would be re-instated on completion of the works.
- 2.10.2 The Ecological Safeguard Zone would include a 3 m acoustic fencing to the north of the Main Development Area and C&IEA and 3 m acoustic fencing to the western side of the Main Development Area.
- 2.10.3 The 3 m tall acoustic fencing would be installed between April and September inclusive. Unless otherwise agreed with FCC and Natural Resources Wales (NRW), no clearance works or site establishment works within the Main Development Area and C&IEA would occur between October and March inclusive in the absence of the 3 m acoustic fencing. Prior to the installation of the acoustic fencing, reptile and amphibian fencing should be implemented around the ecological safeguarding zone following displacement to prevent reptiles from being harmed by the works.
- 2.10.4 The ecological safeguarding zones within both the Main Development Area and the C&IEA should be managed accordingly to maintain and/or enhance suitability for reptiles. This may include implementing sufficient habitat management to these areas to prevent them from evolving into dense scrub habitat and introducing new refugia into these areas such as log piles.

2.11 Ground Protection or Track Matting

- 2.11.1 Ground protection or track matting must not be installed or used on habitats suitable for reptiles or amphibians (see Annex A of **Appendix 11-M: 2025 Reptile Survey Report [REP2-011]**) prior to the implementation of ecological mitigation, as matting can provide cover beneath which animals can shelter. Following completion of staged vegetation clearance under ECoW supervision and installation of reptile fencing to enclose the relevant works area, the risk of reptiles and amphibians being present within the fenced area would be considerably reduced. Once these measures are in place, ground protection matting or track matting may be used anywhere within the cleared and fenced C&IEA & Main Development Area, under ECoW supervision.

2.12 Finished Site Level

- 2.12.1 Land raising/levelling to provide a consistent platform of 7.4 m above ordnance datum (AOD) would be provided within the operation footprint of the Main Development Area.
- 2.12.2 Critical infrastructure would be raised to have a finished floor level of 7.7 m AOD to provide sufficient freeboard from predicted future sea levels identified in hydraulic modelling.

2.13 Proposed CO₂ Connection Corridor

- 2.13.1 Within the Proposed CO₂ Connection Corridor, soils would be stored within the 32 m-wide working area parallel to the excavation. Soil stockpiles would be split into different soil types, including topsoil, upper subsoil, lower subsoil, and basal material. Through appropriate separation and storage of soils, particularly for topsoil, this would ensure retention of any associated

seed bank within the soils, which would be reinstated in the correct layering post construction.

- 2.13.2 The dimensions and extents of temporary haul roads within the Proposed CO₂ Connection Corridor would be minimised and the shortest possible straight-line distances would be used where reasonably practicable outside of the proposed temporary compound and the working corridor.

2.14 Surface Water Outfall Area

- 2.14.1 It is expected that the Proposed Surface Water Outfall would be installed into an extension of the existing headwall via trenchless construction methods or open excavation.
- 2.14.2 Should open excavation be required it would be limited to areas to the edge of the saltmarsh and outside of the existing mudflat habitat and undertaken either by hand or use of mini diggers. In addition, any large plant required for the lifting of trench support panels etc such as cranes and/or long reach excavators would also be located on the access road to the northern side of the existing Connah's Quay Power Station fence line and would not enter areas of saltmarsh. Any removed topsoil would be stored during construction to allow for reinstatement.
- 2.14.3 Materials storage and location of plant would be limited to the area between the existing headwall and the existing access road to the northern side of the existing Connah's Quay Power Station fence line or this access road itself within the Surface Water Outfall Area, or otherwise within the Main Development Area.
- 2.14.4 Unless otherwise agreed with FCC and NRW, these works would also be completed between April and June inclusive.

2.15 Water Connection Corridor

- 2.15.1 Refurbishment and upgrades to the existing intake structure would be undertaken by competent operatives and divers and a support boat and/or barge, or similar, and foot-only access via the saltmarsh itself over an estimated three- to five-month period. Such work may include boat or shore-led pre-works surveys along the Dee Estuary. Eel screen upgrade works would comprise the removal of one existing 3 mm screen and the installation of one new 2 mm screen on each of the existing 28 intakes, in addition to minor repairs to surface concrete, metalwork, and timbers.
- 2.15.2 Works within the Water Connection Corridor would not interact with the riverbed. All materials and plant (if required - it is expected that the majority of works within the Water Connection Corridor would require hand tools only) would be stored within the support barge and a working area would be established using scaffolding attached to the existing protection structure.
- 2.15.3 Works would be undertaken at each of the seven intake pipes (each supporting existing four inlet baskets and to support two proposed inlet baskets) in turn with a temporary seal on the individual intake pipe undergoing works to allow for continued operation of the existing Connah's Quay Power Station during works within the Water Connection Corridor.

2.15.4 Unless otherwise agreed with FCC and NRW, these works would also be completed between April and June inclusive.

2.16 Responding to Environmental Incidents and Emergencies

2.16.1 An Emergency Response Plan (ERP) would be developed in consultation with the FCC, emergency services including the local fire service, as well as Natural Resources Wales in relation to responding to flood warnings and events. This would be included within the final CEMP(s).

2.16.2 The ERP would detail the procedures for responding to incidents and emergencies on site, and any reporting.

3. Environmental Control Plans

- 3.1.1 **Table 1** lists the provisional list of environmental control plans that are expected to be developed prior to construction which set out in detail the management systems and approach that would be implemented during construction to comply with the CEMP(s). Framework versions of a number of these control plans are provided within the **ES (EN010166/APP/6.2 and EN010166/APP/6.4)** or comprise their own application document (see reference below in **Table 1**).

Table 1: Environmental Control Plans

Control	Description	Framework version contained within the DCO application
Stakeholder Communications Plan	To be developed by the undertaker at detailed design. This plan would be prepared by the Community Liaison Officer and would include measures for community engagement before and during the construction phase; as well as detailing a complaints procedure. This is to be included within the final CEMP(s).	No
Construction Traffic Management Plan (CTMP)	During construction, the Principal Contractor(s) would ensure that the impacts from construction traffic on the local community (including local residents and businesses and users of the surrounding transport network) are minimised, where reasonably practicable. Final CTMP(s) are to be prepared in accordance with Requirement 5 of the Draft DCO (EN010166/APP/3.1) .	Yes (Framework CTMP (EN010166/APP/6.6))
Construction Worker Travel Plan (CWTP)	Prior to the commencement of construction phase, the Principal Contractor(s) would prepare a CWTP that contains measures to reduce the impact of workers travelling to and from the Construction and Operation Area. Final CWTP(s) are to be prepared in accordance with	Yes (Framework Construction Worker Travel Plan (EN010166/APP/6.7))

Control	Description	Framework version contained within the DCO application
	Requirement 5 of the Draft DCO (EN010166/APP/3.1) .	
Dust Management Plan (DMP)	To be developed by the Principal Contractor(s) to include measures to control other emissions, approved by the relevant planning authority. The DMP is anticipated to include requirements for monitoring of dust deposition, dust flux, real-time PM ₁₀ continuous monitoring and/or visual inspections. This is to be included within the final CEMP(s).	No
Site Waste Management Plan (SWMP)	This plan outlines the waste management strategy for the construction phase by considering likely waste arisings from construction activities and provides recommended management measures, taking into account the principles of the waste hierarchy. A final SWMP would be developed by the Principal Contractor(s) in general accordance with the Framework SWMP , as part of the final CEMP(s).	Yes, included in this document (Appendix B: Framework SWMP)
Written Scheme of Investigation for Terrestrial and Marine Heritage Mitigation	To be developed by the Principal Contractor(s) post-consent based on the Overarching Written Scheme of Investigation for Terrestrial and Marine Heritage Mitigation (EN010166/APP/6.8) to fully describe the additional mitigation measures to be implemented to preserve in situ and protect, or archaeologically excavate and record heritage assets, including upstanding earthworks and buried archaeological remains. This would be informed by the	Yes (Overarching Written Scheme of Investigation for Terrestrial and Marine Heritage Mitigation (EN010166/APP/6.8))

Control	Description	Framework version contained within the DCO application
	results of the archaeological evaluation surveys.	
LEMP	To be developed by the Principal Contractor(s) in accordance with the Outline LEMP(EN010166/APP/6.9) as detailed in Requirement 10 of the Draft DCO (EN010166/APP/3.1) . This plan details the terrestrial and ecology mitigation and enhancement details within the Order limits.	Yes (Outline LEMP (EN010166/APP/6.9)).
Arboricultural Method Statement	To be developed by the Principal Contractor(s) prior to the start of construction. This statement would detail the final magnitude and extent of arboricultural impacts. This is to be included within the final CEMP(s).	No
Lighting Strategy	Provides details of requirements for external lighting during construction to be considered in the preparation of the final CEMP(s).	Yes (Lighting Strategy (EN010166/APP/7.22))
Marine Invasive Non-Native Species Management Plan	To be developed by the Principal Contractor(s) prior to the start of construction in areas below the Mean High Water Springs. This plan provides a framework for the prevention, detection and control of the introduction and spread of non-native species in the marine environment. The Marine Non-Native Species Management Plan must also include an updated Biosecurity Risk Assessment utilising NRW's Marine Invasive Non-native Species Biosecurity Risk Assessment and Management Plan template.	Yes (Appendix 12-F: Marine Invasive Non-Native Species Outline Management Plan (EN010166/APP/6.4)).

Control	Description	Framework version contained within the DCO application
	This would be included within the final CEMP(s), where relevant.	
Invasive Species Management Plan (ISMP)	To be developed by the Principal Contractor(s) prior to the start of construction. An Invasive Species Management Plan (ISMP) survey would be updated prior to construction to determine the current location and extent of plant Invasive Non-Native Species (INNS), and to inform specification of the ISMP. If determined as necessary through this survey and after consideration of other available plant and animal INNS data, an ISMP would be prepared to accompany the final CEMP(s) and would be discussed with relevant stakeholders. This is to be included within the final CEMP(s).	No
Emergency Response Plan	To be developed by the Principal Contractor(s) in consultation with the FCC, emergency services including the local fire service, as well as Natural Resources Wales in relation to responding to flood warnings and events. This is to be included within the final CEMP(s).	No
Fire Management Plan	To be developed by the Principal Contractor(s) prior to the start of construction. This would detail measures to prevent fires including the use of an early warning detection system as well as procedures to manage fire emergencies. This is to be included within the final CEMP(s).	No
Pollution Prevention Plan, including an	Prior to construction, this would be developed by the Principal Contractor(s). This plan would	No

Control	Description	Framework version contained within the DCO application
Emergency Spill Plan	include good environmental practices and measures to ensure adherence to relevant regulations. This is to be included within the final CEMP(s).	
Flood Risk Management Plan	To be developed by the Principal Contractor(s) to provide detail of the response to an impending flood. This is to be included within the final CEMP(s).	No
Construction Drainage Management Strategy	To be developed by the Principal Contractor(s) during detailed design. The Strategy would identify all known risks to the water environment and identify appropriate measures to prevent pollution during construction; and to manage runoff rates. The Strategy would define the installation of pre-construction drainage measures to intercept run-off and ensure that discharge and runoff rates are controlled in quality and volume, in turn causing no degradation to water quality. This may include specific measures to be used in high-risk areas (for example construction along or across steep gradients and water course crossings). A phased approach may be taken to the development of the Strategy to reflect the phasing of the construction programme. The Strategy would include a Site Drainage Plan. This is to be included within the final CEMP(s).	No
Water Management Plan	To be developed by the Principal Contractor(s) during detailed design. The plan would be annexed to the final CEMP(s) and detail the	No

Control	Description	Framework version contained within the DCO application
	management principles and procedures throughout the construction period that would be implemented on site to ensure that water features are protected from pollution from construction works. This is to be included within the final CEMP(s).	
Dewatering scheme	Where dewatering is required, a dewatering scheme would be developed by the Principal Contractor(s) prior to construction to demonstrate that there is an effective strategy to manage water arising during construction, where required. This is to be included within the final CEMP(s).	No
Soil Management Plan	To be developed by the Principal Contractor(s) to minimise the effects on soil resources during any earthworks, including materials management following foundation construction and excavation for the Proposed Development. This would include details of soil management during construction, soil restoration and aftercare of re-instated soils.	No
Materials Management Plan	To be developed by the Principal Contractor(s) at detailed design. This would set out how excavated materials are to be managed to ensure that the quality of site-won materials is maintained so that they remain suitable for re-use, do not become contaminated and ultimately do not become waste. This would be developed in accordance with the CL:AIRE Definition of Waste: Development Industry Code of	No

Control	Description	Framework version contained within the DCO application
	<p>Practice (DoW CoP) (or such equivalent which is in place at the time the plan is prepared).</p> <p>This is to be included within the final CEMP(s).</p>	
Strategic Plan for the Protection of Mineral Resources	<p>To be developed by the Principal Contractor(s) prior to the start of construction within the Proposed CO₂ Connection Corridor, the content of which would be discussed with the relevant mineral planning departments at FCC, and any other relevant parties to assist in achieving an effective management of minerals should it be determined that works are required within the Mineral Safeguarding Area (MSA).</p> <p>This is to be included within the final CEMP(s).</p>	No
Winter Service Plan	<p>Prior to the commencement of any works scheduled to take place in winter, the Principal Contractor(s) would produce a Winter Service Plan which includes freeze prevention for pipes, and snow and de-icing procedures for access roads.</p> <p>This is to be included within the final CEMP(s).</p>	No
Commissioning Plan	<p>To be developed by the Principal Contractor(s) as a pre-operational condition of the Environmental Permit, requiring approval from NRW and the Health and Safety Executive (HSE).</p>	No
Decommissioning Environmental Management Plan (DEMP)	<p>To be developed at the time of decommissioning which would consider in detail all potential environmental risks on the Proposed Development and contain guidance on how risks can be removed or mitigated.</p>	No

Control	Description	Framework version contained within the DCO application
	This would include details of how noise and vibration should be managed on the Main Development Area during decommissioning and demolition.	
Saltmarsh Method Statement	To be developed in liaison with the engineering team, addressing soil stockpiling and the suitability of using turves, and setting out the proposed approach to monitoring saltmarsh recovery.	No

4. Impact Avoidance and Mitigation Measures Implementation Plan

- 4.1.1 This section sets out the mitigation and management measures which have been identified within the **ES (EN010166/APP/6.2)** and are to be included as a minimum in the final CEMP(s). It also illustrates where additional surveys would be required, either pre-construction or during construction and sets out monitoring requirements and the responsible party identified for each mitigation / enhancement measures or monitoring requirement.
- 4.1.2 The mitigation measures outlined within this section are included as individual commitments within the **Commitments Register (EN010166/APP/6.10)**.
- 4.1.3 Individual tables are provided for each environmental topic, as summarised below:
- **Table 2** details measures related to air quality;
 - **Table 3** details measures related to noise and vibration;
 - **Table 4** details measures related to traffic and transport;
 - **Table 5** details measures related to terrestrial and aquatic ecology;
 - **Table 6** details measures related to marine ecology;
 - **Table 7** details measures related to water environment and flood risk;
 - **Table 8** details measures related to geology and ground conditions;
 - **Table 9** details measures related to landscape and visual;
 - **Table 10** details measures related to physical processes;
 - **Table 11** details measures related to terrestrial heritage;
 - **Table 12** details measures related to marine heritage;
 - **Table 13** details measures related to socio-economics, recreation and tourism;
 - **Table 14** details measures related to climate change;
 - **Table 15** details measures related to human health;
 - **Table 16** details measures related to major accidents and disasters; and
 - **Table 17** details measures related to materials and waste.

4.1 Air Quality

Table 2 Air Quality

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
<p>Impacts on amenity, human health and ecological receptors from fugitive emissions of dust and particulate matter.</p> <p>Impacts on human health and ecological receptors from traffic emissions.</p>	<p>Appropriate standard and best practice control measures would be included in the final CEMP, which may include measures detailed in Appendix 8-B: Construction Dust Risk Assessment (EN010166/APP/6.4). These measures include the measures discussed below.</p>	<p>Appendix 8-B: Construction Dust Risk Assessment (EN010166/APP/6.4) identifies the following measures are recommended in relation to monitoring:</p> <ul style="list-style-type: none"> undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the relevant planning authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100 m of the Proposed Development, with cleaning to be provided if necessary; carry out regular site inspections to monitor 	<p>To be confirmed in final CEMP.</p>
	<p>The following measures are recommended in relation to communications:</p> <ul style="list-style-type: none"> develop and implement a stakeholder communications plan that includes community engagement before work commences on-site; display the name and contact details of person(s) accountable for air quality and dust issues on the Proposed Development. This may be the environment manager/engineer or the site manager; display the head or regional office contact information; and develop and implement a Dust Management Plan (DMP), which may include measures to control 		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>other emissions, approved by the relevant planning authority. The DMP may include monitoring of dust deposition, dust flux, real-time PM₁₀ continuous monitoring and/or visual inspections.</p> <p>The following measures are recommended in relation to site management:</p> <ul style="list-style-type: none"> • record all dust and air quality complaints, identify cause(s), take appropriate measures to reduce emissions in a timely manner, and record the measures taken; • make the complaints log available to the relevant planning authority when asked; • record any exceptional incidents that cause dust and/or air emissions, either on- or offsite, and the action taken to resolve the situation in the logbook; and • hold regular liaison meetings with other high-risk construction sites within 500 m of the Proposed Development (or greater, if applicable), to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes. 	<p>compliance with the DMP, record inspection results, and make an inspection log available to the relevant planning authority when asked; and</p> <ul style="list-style-type: none"> • increase the frequency of site inspections by the person accountable for air quality and dust issues on-site when activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions. <p>Agree approach to monitoring with the relevant planning authority ahead of construction commencing. Data would be collected before any work commences on-site to provide a comparative baseline should real-time airborne particulate or dust deposition monitoring be required.</p>	

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>The following measures are recommended in relation to preparing and maintaining the site:</p> <ul style="list-style-type: none"> • plan site layout so that machinery and dust causing activities are located away from receptors, as far as is possible; • fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period where operations are within 100 m of receptors; • avoid site runoff of water or mud; • keep site fencing, barriers and scaffolding clean using wet methods; • remove materials that have a potential to produce dust from the Order limits as soon as possible, unless being re-used on-site. If they are being re-used on-site cover as described below; and • ensure all vehicles switch off engines when stationary - no idling vehicles. <p>The following measures are recommended in relation to operating vehicle/machinery and sustainable travel:</p> <ul style="list-style-type: none"> • avoid the use of diesel or petrol-powered generators and use mains electricity or battery powered equipment where practicable; • impose and signpost a maximum-speed-limit of 15 mph within the Main Development Area, C&IEA and the Access to C&IEA (if long haul routes are 	<p>Further details to be confirmed in final CEMP.</p>	

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>required these speeds may be increased with suitable additional control measures provided, subject to the approval of the undertaker and with the agreement of the relevant planning authority, where appropriate). Temporary lower speed limits could be set for higher risk areas;</p> <ul style="list-style-type: none"> • <p>The following measures are recommended in relation to operations:</p> <ul style="list-style-type: none"> • only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems; • ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate; and • ensure equipment is readily available on-site to clean any dry spillages and clean up spillages as soon as reasonably practicable after the event using wet cleaning methods. <p>The following measure is recommended in relation to waste management:</p> <ul style="list-style-type: none"> • avoid bonfires and burning of waste materials. 		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>The following measures are recommended for demolition activities:</p> <ul style="list-style-type: none"> • soft strip inside buildings before demolition (retaining walls and windows in the rest of the building where possible, to provide a screen against dust); • ensure effective water suppression is used during demolition operations. Handheld sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground; • avoid explosive blasting, using appropriate manual or mechanical alternatives; and • Bag and remove any biological debris or damp down such material before demolition. <p>The following measures are recommended for earthworks:</p> <ul style="list-style-type: none"> • re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable; 		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<ul style="list-style-type: none"> • use Hessian, mulches or tackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as practicable; and • only remove the cover in small areas during work and not all at once. <p>The following measures are recommended for construction:</p> <ul style="list-style-type: none"> • avoid scabbling (roughening of concrete surfaces) if possible; • ensure sand and other aggregates are stored in banded areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place; • ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored in silos with suitable emission control systems to prevent escape of material and overfilling during delivery; and • for smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust. <p>The following measures are recommended for trackout:</p>		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<ul style="list-style-type: none"> • use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use; • avoid dry sweeping of large areas; • ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport; • inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable; • record all inspections of haul routes and any subsequent action in a site logbook; • install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned; • implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable); • ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits; and • access gates to be located at least 10 m from receptors where possible. 		

4.2 Noise and Vibration

Table 3: Noise and Vibration

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
Construction noise and vibration, and construction road traffic noise at nearby Noise Sensitive Receptors (NSR).	As identified in Section 2.4, core construction working hours would be 08:00 to 18:00 Monday to Friday (except Bank Holidays) and 08:00 to 13:00 on Saturdays. However, it is likely that some construction activities may need to be undertaken outside of these core working hours. Where on-site works are to be conducted outside the core hours, they would comply with any restrictions agreed with the local planning authority following further assessment of specific planning activities.	To be confirmed in final CEMP. A further noise and vibration assessment would be undertaken as required, once the Principal Contractor(s) is appointed, to identify specific mitigation measures for the Proposed Development (including construction traffic).	To be confirmed in final CEMP.
	Where construction works are proposed outside core hours, additional noise assessments would be undertaken if the construction noise and vibration thresholds within Table 9-10 of Chapter 9: Noise and Vibration (EN010166/APP/6.2.9) are likely to be exceeded. The assessment would identify the requirements for additional mitigation measures to ensure that construction noise and vibration thresholds would not be exceeded outside of core hours. The assessment would be provided to FCC for approval.	Appropriate measures would be confirmed through further detailed assessment, as necessary, once construction plant and methods and construction traffic management, have been confirmed. If necessary and agreed with the relevant planning authority, noise monitoring can be undertaken to assess the potential impacts of	
	3 m high acoustic barriers would be installed along the northern boundary and western boundary of the		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>Main Development Area and along the northern boundary of the C&IEA as shown on Figure 5-3: Construction Areas (EN010166/APP/6.3).</p> <p>Appropriate standard and best practice control measures would be implemented to minimise impacts at human and ecological receptors, particularly with respect to activities required outside of normal working hours, which may include:</p> <ul style="list-style-type: none"> • abiding by agreed construction noise thresholds at nearby NSRs; • avoidance of working in the more sensitive evening and night-times where practicable; • making sure that processes are in place to minimise noise before works begin and that Best Practical Means (BPM) are being followed throughout the construction programme; • using modern plant, complying with the latest European noise emission requirements. Selection of inherently quiet plant where practicable; • hydraulic techniques for breaking to be used in preference to percussive techniques where practical; • use of rotary bored rather than driven piling techniques (if required), where possible; • off-site pre-fabrication where practical; 	<p>construction traffic along Kelsterton Road.</p>	

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<ul style="list-style-type: none"> • all plant and equipment being used for the works to be properly maintained, silenced where appropriate, operated to prevent excessive noise and switched off when not in use; • all contractors to be made familiar with current legislation and the guidance in BS 5228-1 and BS 5228-2; • loading and unloading of vehicles, dismantling of site equipment such as scaffolding or moving equipment or materials within the Proposed Development to be conducted in such a manner as to minimise noise generation; • where practicable, locating of the noisiest items of plant at the furthest distance from the nearby NSRs. Plant known to emit noise strongly in one direction would, where practicable, be orientated so that the noise is directed away from NSRs; • shutting down of machines such as cranes that may be in intermittent use between work periods or would be throttled down to a minimum. Machines would not be left running unnecessarily; • appropriate routing of construction traffic on public roads and along access tracks; • consultation with the relevant planning authority (FCC) and local NSRs to advise of potential noisy works that are due to take place; and 		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>monitoring of noise complaints and reporting to the Principal Contractor(s) for immediate investigation.</p> <p>The following would also be developed as part of the final CEMP:</p> <ul style="list-style-type: none"> • method statements regarding construction management, traffic management and overall site management would be prepared prior to construction in accordance with best practice and relevant British Standards; and • regular communication with the local community throughout the construction period would serve to publicise the works schedule, giving notification to NSRs regarding periods when higher levels of noise may occur during specific operations, and providing lines of communication where complaints can be addressed. <p>Where significant construction effects are predicted, additional noise-control equipment such as jackets on pneumatic drills, acoustic covers on compressors, shrouds on piling rigs and cranes and potentially further refinement of construction works programme would be considered and implemented where practicable. The use of temporary barriers or screens may also provide additional mitigation.</p> <p>Potentially significant vibration effects have been identified where vibratory rollers are required for</p>		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>establishment of construction laydown areas. This is based on predictions of the use of rollers on high amplitude. Where vibratory rollers are to be used within 50 m of receptors these would be required to be used on low amplitude mode and no vibratory rollers to be used within 28 m of NSRs.</p> <p><u>Rotary bored piling techniques will be used where possible. However if driven (impact) piling is required, no driven piling shall commence until a piling method statement (detailing the type of piling to be undertaken and the methodology by which such piling will be carried out, including measures to minimise any predicted adverse effects) has been submitted and approved by FCC. Any piling must be undertaken in accordance with the terms of the approved piling method statement</u></p> <p>Following the findings of the further noise and vibration assessment, the undertaker can offer pre-condition surveys to the residential properties closest to noise /vibration generating activities.</p> <p><u>Provision of additional glazing and/or sound insulation would be offered to properties where updated road traffic noise assessments identify, as a result of the Proposed Development:</u></p>		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<ul style="list-style-type: none"> • <u>a predicted change in road traffic noise levels compared to baseline levels of greater than 5 dB;</u> • <u>total predicted free-field noise level that is above 63 dB LAeq,16hr; and</u> • <u>sound levels greater than 5 dB above the existing ambient sound levels, that would likely occur for a duration exceeding:</u> <ul style="list-style-type: none"> ○ <u>10 or more days in any 15 consecutive days; or</u> ○ <u>a total number of days exceeding 40 in any six consecutive months.</u> 		

4.3 Traffic and Transport

Table 4: Traffic and Transport

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
<p>The potential construction impacts for Traffic and Transport include:</p> <ul style="list-style-type: none"> • severance – relating to the change in traffic flows; • pedestrian amenity; • fear and intimidation; • road user and pedestrian safety; • hazardous / large loads; and • driver delay. 	<p>The Principal Contractor(s) would prepare and implement a detailed CTMP, in general accordance with the Framework CTMP (EN010166/APP/6.6).</p>	N/A	N/A
	<p>The Principal Contractor(s) would also prepare and implement a detailed Construction Worker Travel Plan (CWTP), in general accordance with the Framework CWTP (EN010166/APP/6.7).</p>		
<p>Impacts to users of Deeside Naturalists Society bird hides</p>	<p>Temporarily diverted access to the nature reserve and Site of Special Scientific Interest (SSSI) for users during the construction phase.</p>	<p>To be confirmed in final CEMP.</p>	<p>To be confirmed in final CEMP.</p>

4.4 Terrestrial and Aquatic Ecology

Table 5: Terrestrial and Aquatic Ecology

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
<p>The potential impacts experienced by habitats and Designated Sites include:</p> <ul style="list-style-type: none"> • habitat loss; • changes in air quality (i.e. dust deposition); and • alteration of local hydrology and water quality. <p>The potential impacts experienced by ornithological important ecological features (IEFs) could include:</p> <ul style="list-style-type: none"> • effects on water quality; • direct habitat loss and fragmentation; • disturbance effects from noise, lighting and human activity; and • physical interaction with Proposed Development infrastructure. <p>The potential impacts experienced by Protected Species would include:</p>	<p>Details relating to terrestrial and aquatic ecology mitigation and enhancement are detailed in the Outline LEMP (EN010166/APP/6.9).</p>	<p>See the Outline LEMP (EN010166/APP/6.9) for monitoring and additional survey requirements.</p>	<p>To be confirmed in final LEMP.</p>
	<p>The 30 m ecological safeguarding zones 2.10 would be adhered to throughout construction, as specified within in section 2.10.</p>		
	<p>As detailed in section 2.10, works to install the 3 m acoustic fence would undertaken outside of the core over-wintering period.</p>		
	<p>As detailed in section 2.10, no works would be undertaken within the Main Development Area or C&IEA during the over-wintering period in the absence of the acoustic barrier.</p>		
	<p>The ground excavated during construction of the Proposed CO₂ Connection would be reinstated after construction to its pre-existing habitat</p>		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
<ul style="list-style-type: none"> • destruction/disturbance of badger setts; • loss of bat roosts and habitat fragmentation; • foraging habitat loss and fragmentation; and • incidental mortality. <p>The potential impacts experienced by Aquatic Ecology would include:</p> <ul style="list-style-type: none"> • habitat loss; • incidental mortality; and • changes in water quality. 	<p>condition where practicable. Existing vegetation lost/disturbed would be replanted/replaced.</p> <hr/> <p>As detailed in section 2.15, works within the Water Connection Corridor all would be carried out using hand tools rather than mechanised plant and the area would be accessed on foot through the saltmarsh. Materials would be brought to the existing cooling water infrastructure in the Water Connection Corridor by barge (between April and June inclusive).</p> <hr/> <p>Additional sediment control measures would be in place around the Kelsterton Brook/Old Rockcliffe Drain culvert so construction works do not result in untreated water entering the culvert as a pathway to the River Dee.</p> <hr/> <p>There would be retention of, and appropriate stand-offs from the top of the bank of all waterbodies/courses (including the Allt-Goch Brook, Allt-Goch Tributary and Lead Brook.</p>		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>Minor works (if required) within the Electrical Connection Corridor would be carried out via existing access points or within the existing substation.</p> <p>Lighting would be restricted to focused point-use where reasonably practicable. Construction would preferably be carried out during daylight hours to avoid the use of artificial light or where this is not possible then lights would be directed away from watercourses and bodies as far as reasonably practicable so that fish migration, spawning and feeding is not disrupted.</p> <p>An ECoW would be appointed by the undertaker to provide ecological oversight, instruct and report on all site clearance and construction works with potential to affect protected species, encompassing both licensed and unlicensed activities.</p>		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>Measures to deliver compliance with industry good practice and environmental protection legislation during both construction and operation (e.g. in relation to prevention of surface and groundwater pollution, fugitive dust management, noise prevention or amelioration) would be in accordance with NPS EN-1.</p> <p>Additional measures to minimise noise would be considered, if necessary, at detailed design stage once a Principal Contractor(s) is appointed and a full list of plant is available. Such measures could include jackets on pneumatic drills, acoustic covers on compressors and shrouds on piling rigs and cranes.</p> <p>Works would be timed to avoid or reduce noise and visual disturbance impacts, particularly on SPA/Ramsar site bird species.</p> <p>A fish rescue may be required under an FR2 permit granted by NRW</p>		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>during construction where de-watering or over-pumping is required. Where any pumping is required, Eels Regulations 2009 compliant screens would be used on any pump used for drain-down or over-pumping of watercourses.</p> <p>Where there are likely to be direct impacts to watercourses or waterbodies it is advised that key migration periods are avoided wherever practicable e.g. April-June and September – November inclusively for eel.</p>		
<p>The potential impacts experienced by Protected Species would include:</p> <ul style="list-style-type: none"> • destruction/disturbance of badger setts; • loss of bat roosts and habitat fragmentation; • foraging habitat loss and fragmentation; and • incidental mortality. 	<p>Precautionary working methods would be put in place prior to and during construction for the purposes of avoiding impacts on named species and to comply with relevant legislation. These include:</p> <ul style="list-style-type: none"> • Toolbox Talk: Prior to the start of the construction works the ECoW would deliver a pre-works briefing to all site staff. This would detail the precautionary working methods to be implemented, what to do if an animal is found on site 	<p>To be confirmed in final CEMP.</p>	<p>To be confirmed in final CEMP.</p>

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>and how to identify the species that maybe present onsite;</p> <ul style="list-style-type: none"> • Nesting birds: All clearance of suitable vegetation to be done outside the breeding season (typically March to August inclusive for most species), where possible. If not possible, the ECoW would check the working area for nests before works commence. If active nests are discovered through this process, then the ECoW would advise on appropriate mitigation to ensure that these are not impacted by construction activities. All relevant works would be completed in accordance with this advice and under an ecological watching brief (in the presence of the ECoW). Birds may be dissuaded from nesting in construction/site access routes by removing vegetation from the desired area before the breeding season commences. Where this is not possible bird deterrent measures would be deployed to deter birds from 		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>nesting, followed by the completion of a pre-works survey to check for the presence of nests. In some cases a combination of measures may be required (to be advised by the ECoW) such as to prevent ground nesting species nesting on bare ground after vegetation removal. If Schedule 1¹ bird species are found breeding within the working area, or close enough to the working area that works would result in disturbance of the breeding birds, works would stop immediately and the advice of an ornithologist would be consulted to ensure that measures are put in place to avoid disturbance occurring;</p> <ul style="list-style-type: none"> • Reptiles/Amphibians/Hedgehog: Vegetation would be removed in a two-stage cut. The first cut would take vegetation down to 150 mm. Any cuttings would be removed from the works area. The second cut would be performed down to 		

¹ Goodship, N.M. and Fumess, R.W. (2022). Disturbance Distances Review: An updated literature review of disturbance distances of selected bird species. NatureScot Research Report 1283.

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>ground level at least 72 hours after the first cut to allow any animals present chance to move away from the area. Any animals found should be moved out of the works area with gloved hands and released in similar habitat to where they were found outside the area of works;</p> <ul style="list-style-type: none"> • No ground protection or track matting to be used on reptile suitable habitat prior to completion of staged vegetation clearance (two stage cut) under ECoW supervision and installation of reptile fencing to enclose the works area. • Reptiles/Amphibians: Prior to the installation of the acoustic fencing, reptile and amphibian fencing should be implemented around the safeguarding zone following displacement to prevent reptiles from being harmed by the works. Following clearance and fencing, matting may be used within the cleared and fenced construction area as required for 		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>access / ground protection, under ECoW oversight.</p> <ul style="list-style-type: none"> ● Reptiles: The ecological safeguarding zones within both the Main Development Area and the C&IEA should be managed accordingly to maintain and/or enhance suitability for reptiles. This may include implementing sufficient habitat management to these areas to prevent them from evolving into dense scrub habitat and introducing new refugia into these areas such as log piles. ● Great Crested Newt: In areas where there is a low risk of encountering great crested newts on site (arable, modified grassland and hedgerow within the Proposed CO₂ Corridor) an ECoW would be present for any vegetation removal. Vegetation would be removed in a two-stage cut. The first cut would take vegetation down to 150 mm. Any cuttings would be removed from the works area. After the first cut the ECoW would hand search the 		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>works area focusing on any suitable resting sites for great crested newt before the second cut down to ground level is performed. If a great crested newt is found then all works in the area would cease and a mitigation licence for the works would be sought from NRW;</p> <ul style="list-style-type: none"> • Badger: Any animal hole or burrow found within the construction boundary would be inspected by the ECoW who would advise on the course of action to be taken. A 30 m buffer would be maintained from any active badger sett during the works should this be discovered (to date no badger setts have been recorded). If this is not possible then a licence for full or partial closure of the sett would be required from NRW prior to commencement of the works; • Bats: Minimum buffer zone of approximately 30 m (which may be reduced subject to findings and assessment by an appropriately 		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>qualified bat licensed ecologist) from any retained trees with suitability for roosting bats, or further surveys to be carried out where there is potential for direct impacts (where applicable). Refer to Appendix 11-G: Bat Technical Appendix (EN010166/APP/6.4); and</p> <ul style="list-style-type: none"> • General animal welfare during construction, such as: <ul style="list-style-type: none"> – all excavations would be covered overnight, or where this is not practicable, a means of escape would be fitted e.g. battered soil slope or scaffold plank, to provide an escape route should any animals (e.g. reptiles, badger, otter, hedgehog) stray into the construction site and fall into an excavation. 		
Spread of invasive plant species	An Invasive Species Management Plan (ISMP) survey would be updated prior to construction to determine the current location and extent of plant INNS, and to inform	To be confirmed in final CEMP.	To be confirmed in final CEMP.

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>specification of the ISMP. If determined as necessary through this survey and after consideration of other available plant and animal INNS data, an ISMP would be prepared to accompany the final CEMP and would be discussed with relevant stakeholders. The ISMP would specify the measures and supervision necessary during construction to prevent the spread of plant and animal INNS to new locations.</p>		
<p>The potential impacts experienced by Protected Species would include:</p> <ul style="list-style-type: none"> • destruction/disturbance of badger setts; • loss of bat roosts and habitat fragmentation; • foraging habitat loss and fragmentation; and • incidental mortality. 	<p>Preconstruction update surveys: These would be carried out for protected species where relevant or necessary, for example to inform licensing or to identify potential additional features which may become established in the study area.</p> <p>Additional species-specific mitigation would be incorporated into the design (as appropriate) following analysis of results of further surveys to support with obtaining Letters of No Impediment from NRW for</p>	<p>To be confirmed in final CEMP.</p>	<p>To be confirmed in final CEMP.</p>

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	protected species (where applicable). Species present would be monitored during and post construction.		

4.5 Marine Ecology

Table 6: Marine Ecology

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
Introduction and / or spread of marine Invasive Non-Native Species (INNS)	<p>As detailed in section 2.15, works within the Water Connection Corridor all would be carried out using hand tools rather than mechanised plant and the area would be accessed on foot through the saltmarsh. Materials would be brought to the existing cooling water infrastructure in the Water Connection Corridor by barge.</p> <p>The Biosecurity Risk Assessment (Appendix 12-E: Marine Biosecurity Risk Assessment (EN010166/APP/6.4)) and Appendix 12-F: Marine Invasive Non-Native Species Outline Management Plan ((EN010166/APP/6.4)) identify measures to prevent the introduction and / or spread of marine INNS during all phases of the Proposed Development. These include the following measures:</p> <ul style="list-style-type: none"> • visual inspection of project equipment (including vessels) to ascertain the biosecurity risk from no visible fouling (Risk Rank 0) to Very heavy fouling assemblage comprising many different types of plants and/or animals (Risk Rank 5); • the GB Non-Native Species Secretariat and RAPID LIFE project have outlined important biosecurity 	To be confirmed in final CEMP.	To be confirmed in final CEMP.

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>control measures for reducing the spread of INNS in the marine environment;</p> <ul style="list-style-type: none"> • additional measures related to the Proposed Development include the use of appropriate anti-fouling coatings on the new eel screen replacements. Where elements cannot receive an anti-fouling coating, they would be appropriately visually inspected, thoroughly cleaned, and dried out prior to placement within the marine environment; and • furthermore, although all vessels are expected to originate from within UK waters, and local to the Proposed Development, all vessels should adhere to the International Convention for the Control and Management of Ships' Ballast Water and Sediments with the aim of preventing the spread of marine INNS and the International Maritime Organisation (IMO) Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species (Biofouling Guidelines). 		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
<p>Permanent and temporary direct loss and physical disturbance to benthic habitats and species from works (including construction phase dredging works and berthing of vessels, such as a jack-up barge (JUB), at low tide) below MHWS within the Water Connection Corridor.</p> <p>Physical disturbance to marine ecology from temporary increase in Suspended Sediment Concentration and subsequent sediment deposition leading to increased turbidity, smothering effects and possible contaminant mobilisation.</p> <p>Effects to marine ecology from changes in marine water quality due to</p>	<p>The final CEMP(s) would include measures such as:</p> <ul style="list-style-type: none"> • control and minimise the risk of pollution to surface waters by managing construction site run-off; • measures to control storage, handling and disposal of polluting substances; • control the movement of construction site run-off; and • restriction of lighting to a focused point where reasonably practicable, during construction. Refer to Chapter 5: Construction Management and Programme (EN010166/APP/6.2.5) and the Lighting Strategy (EN010166/APP/7.22). The strategy seeks to provide safe working conditions whilst reducing light pollution and the visual impact of light on the local environment <p>A Pollution Prevention Plan, including an emergency spill plan which would be implemented during the construction phase.</p> <p>Pollution prevention would be achieved with both physical and procedural measures such as temporary sediment forebays within a designated attenuation basin during construction, suitable interceptors within the</p>	<p>To be confirmed in final CEMP.</p>	<p>To be confirmed in final CEMP.</p>

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
<p>accidental spills within the Zone of Influence (Zol).</p> <p>Underwater sound and vibration disturbance to marine ecology, particularly migratory fish, within the Zol.</p> <p>Indirect effects to marine ecology from hydromorphological changes (e.g. changes to water flow or sediment movement) within the Zol.</p>	<p>permanent and temporary surface water drainage networks and suitable storage of construction materials.</p> <p>As part of the drainage design, appropriate pollution measures would be implemented and in place within the drainage network in the form of full retention fuel interceptors, shut-off valves and fire suppression / contaminated water tanks.</p> <p>Suitable pumps, settlement tanks, and filters to filter all water being pumped / discharged from excavations into existing drains would be provided. Runoff from open excavations would not enter surrounding drainage system without being treated.</p> <p>All discharged water (rainwater and groundwater) from pumping would be treated and tested before re-infiltration. Such water would be disposed of as construction site run-off having first passed through a settlement tank or filtration system where appropriate.</p>		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
Collisions between any project vessels and marine mammals, particularly seals.	All vessels used during the construction of the Proposed Development would be required to adhere to the International Convention for the Control and Management of Ships' Ballast Water and Sediments with the aim of preventing the spread of marine INNS and the IMO Guidelines for the control and management of ships' biofouling to minimize the transfer of invasive aquatic species (Biofouling Guidelines).	To be confirmed in final CEMP.	To be confirmed in final CEMP.
Effects of Artificial Light at Night (ALAN) on migratory fish	<p>Works during the construction phase should preferably be carried out during daylight hours to avoid the need to use ALAN or where this is not possible then lights should be directed away from watercourses and bodies as far as reasonably practicable so that fish migration, spawning and feeding is not disrupted.</p> <p>Where only daylight working is not feasible, or ALAN cannot be directed entirely away from waterbodies it is advised that key migration periods are avoided.</p>	To be confirmed in final CEMP.	To be confirmed in final CEMP.

4.6 Water Environment and Flood Risk

Table 7: Water Environment and Flood Risk

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
<p>Potential impacts on surface water quality include:</p> <ul style="list-style-type: none"> • Surface water quality impacts associated with discharge containing the spillage of oils, fuels and other construction chemicals; • potential adverse effects from the mobilisation of contaminated soils; • the displacement of floodwater and changing flood flow conveyance routes; • changes in flood risk from changes in surface runoff; • temporary increase in suspended sediment concentration, sediment deposition from 	<p>Principles for managing pollution risk and relevant good practice guidance includes, but is not limited to:</p> <ul style="list-style-type: none"> • controlling and minimising the risk of pollution to surface waters and groundwater by managing construction site runoff and the risk of chemical spillage; • measures to control the storage, handling and disposal of potentially polluting substances during construction; • the management of activities within floodplains including storing materials outside of the floodplain as far as reasonably practicable, production of a Flood Risk Management Plan (FRMP) with floodplain control measures and contingency actions, and measures to safeguard safety of staff during construction from increases in flood risk on-site due to climate change; • management of water removed from excavations including the risk from groundwater flooding through appropriate working practices (during excavations) such as having adequate plans and equipment in place for de-watering to enable safe and dry working environments, but also any risk to the flow regime or quality of any relevant, nearby water feature; and • appropriate method and mitigation measures when undertaking works within, under and adjacent to water 	<p>To be confirmed in final CEMP.</p> <p>The Principal Contractor(s) would be required to continually monitor the need for measures relating to the management of construction run off depending on the nature of the works being undertaken, the weather conditions, and the performance of sustainable drainage systems installed.</p> <p><u>Ground Investigation and Dewatering</u></p> <p>An understanding of groundwater levels and flow in relevant areas of the Main Development Area would be obtained from the ground investigation and monitoring to inform the baseline conditions. Monitoring during and after construction is proposed.</p>	<p>To be confirmed in final CEMP.</p>

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
<p>potential dredging leading to increased turbidity, smothering, and mobilisation of sediment-bound contaminants;</p> <ul style="list-style-type: none"> • temporary obstruction and/or restriction of flow; • an increase in flooding to upstream and downstream receptors on the River Dee; • conveyance of fine sediment to nearby water features through uncontrolled runoff; • temporary alteration to the riverbed and banks, and also changes to the substrate; • temporary removal of riparian vegetation; • accidental leaks and spills of liquid chemical substances to infiltrate to ground during; and 	<p>features including managing any risk of physical damage to water features.</p> <p><u>Pollution Prevention</u> Good practice advice on the management of construction works to avoid, minimise and reduce environmental impacts is available in the following documents:</p> <ul style="list-style-type: none"> • Guidance for Pollution Prevention (GPP) 1: Understanding your environmental responsibilities – good environmental practices (Ref 2); • GPP 2: Above ground oil storage (Ref 3); • GPP 3: Use and design of oil separators in surface water drainage systems (Ref 4); • GPP 4: Treatment and disposal of wastewater where there is no connection to the public foul sewer (Ref 5); • GPP 5: Works and maintenance in or near water (Ref 6); • GPP 6: Working on construction and demolition sites (Ref 13-63); • GPP 8: Safe storage and disposal of used oils (Ref 7); • GPP 13: Vehicle: washing and cleaning (Ref 8); • GPP19: Vehicle: Service and Repair (Ref 9); • GPP 20: Dewatering underground duct and chambers (Ref 10); • GPP 21: Pollution Incidents Response Plans (Ref 11); • GPP 22: Dealing with spills (Ref 12); 	<p>A more detailed hydrogeological assessment would be undertaken where excavations or dewatering is required in high sensitivity groundwater environments. Groundwater levels are likely to be shallow, and therefore any excavations are likely to require dewatering. The purpose of the hydrogeological assessment would be to review excavation design alongside the permeability and groundwater levels in the strata and consider the effects of impacts or drawdown on nearby abstractions or resources.</p> <p><u>Soil and Groundwater Pollution Control Mitigation</u> A Site Waste Management Plan would be developed to manage and outline measures to control earthworks given the risk of historical contamination. This should include a pre-construction condition survey</p>	

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
<p>a reduction groundwater levels and alterations to flow direction.</p>	<ul style="list-style-type: none"> • GPP 26: Safe storage – drums and intermediate bulk containers (Ref 13); and • GPP 27: Installation, decommissioning and removal of underground storage tanks (Ref 14). <p><u>Management of Surface Water Runoff During Construction</u></p> <p>Where possible, earthworks would be undertaken during the drier months of the year. Periods of wet weather would be avoided, if possible, to minimise the risk of generating runoff contaminated with fine particulates. However, it is likely that some work during wet weather periods would be unavoidable, in which case mitigation measures would be implemented to control fine sediment laden runoff.</p> <p>A Drainage Management Strategy would be prepared, setting out temporary drainage measures to prevent runoff contaminated with fine particulates from entering surface water without treatment. In this regard, it is recommended that the Drainage Management System would incorporate Sustainable Drainage Systems (SuDS) and adopt a phased approach aligned with the construction programme. Drainage design would follow the pollution prevention hierarchy (see GPP1, Ref 2), consider sediment and erosion control measures, and have a clear inspection and maintenance regime. Training will also be given to staff (e.g. through tool box talks) on the importance of effective water management practices and methods. Further principles of drainage management</p>	<p>to establish baseline conditions of existing ground conditions, and a method statement outlining specific construction methods, restoration specifications, and processes informed by the pre-construction survey.</p> <p>A Water Management Plan (WMP) would be annexed to the final CEMP(s) which would outline the mitigation measures necessary to avoid, prevent and reduce adverse effects where possible upon the local surface water (and groundwater) environment during construction. The WMP would also include an outline of responsibilities with regard to water management, required water quality monitoring, pollution prevention measures, training requirements for construction workers with regard to the water environment, an outline of likely relevant permissions</p>	

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>during construction are set out in the good practice documents listed above.</p> <p>Mitigation measures would be implemented related to excavations, exposed ground and stockpiles to prevent uncontrolled release of sediment from the Main Development Area. Further measures to manage construction run off would include buffers around water features. The Principal Contractor(s) would continually monitor the need for these measures depending on the nature of the works being undertaken, the weather conditions, and the performance of installed SuDS.</p> <p><u>Management of Construction Chemical Spillage Risk</u> Measures would be in accordance with prevailing pollution prevention legislation in the Control of Substances Hazardous to Health Regulations 2002 (COSHH) and Control of Pollution (Oil Storage) (Wales) 2016 and follow good practice guidelines. They would include details on how fuel and other chemicals would be stored and used, equipment and plant cleaning, as well as how leaks and spillages would be prevented or remediated if required. This would also include the implementation of a Pollution Prevention and Emergency Incident Response Plan. Any site welfare facilities would be appropriately managed.</p> <p><u>Management of Flood Risk</u></p>	<p>and consents required, and a Pollution Incident and Response Plan.</p> <p><u>Water Quality Monitoring</u> The water quality monitoring programme would be developed by the Principal Contractor(s) in consultation with NRW and would also reflect any requirements of secondary environmental permits / licences for works affecting, or for temporary discharges to, watercourses within the Proposed Development Site.</p> <p><u>Ground Investigation and Dewatering</u> Monitoring during and after construction is proposed as dewatering has the potential to locally lower groundwater levels, alter flow regimes and spread existing contamination and salinity within an area of</p>	

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>For areas of potential flood risk, construction flood mitigation measures would be applied to reduce the risk to construction site and workers. A Flood Risk Management Plan (FRMP) would provide the following details:</p> <ul style="list-style-type: none"> • 24-hour availability and ability to mobilise staff in the event of a flood warning; • the removal of all plant, machinery and material capable of being mobilised in a flood for the duration of any holiday close down period; • details of the evacuation and site closedown procedures; and • arrangements for removing any potentially hazardous material and anything capable of becoming entrained in floodwaters, from the temporary works area. <p>To manage activities within floodplains effectively, it is currently proposed that:</p> <ul style="list-style-type: none"> • construction materials would be stored outside of the 1 in 200 year (0.5% AEP) extent for areas at tidal flood risk and outside of the 1 in 100 year (1% AEP) extent for areas at fluvial flood risk. If areas located within Flood Zone 3 are to be utilised for the storage of construction materials, this would be done in accordance with the applicable flood risk activity regulations, if required; • the welfare facilities and staff car park would be located outside of the modelled tidal 1 in 200 year (0.5% AEP) extent plus 2074 climate change extent; 	<p>influence around dewatered excavations</p> <p><u>Proposed CO₂ Connection Corridor</u> A Pre-Works Surface Water Feature Survey would be undertaken prior to construction to investigate the location and condition of existing ditches.</p> <p><u>Main Development Area: Culverted Watercourses</u> Where diversions to existing culverted watercourses are required, water quality monitoring would be undertaken prior to, during, and following on from the construction activity to ensure any spillages or other pollution is identified.</p> <p><u>Surface Water Monitoring Programme</u> Daily observations and monitoring of upstream and</p>	

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<ul style="list-style-type: none"> connectivity would be maintained between the floodplain and the adjacent watercourses; during the construction phase, the Principal Contractor(s) would monitor the weather forecasts daily, and review the weekly and monthly weather forecasts each week, and plan works accordingly. For example, works in the channel of any watercourses would be avoided or halted were there to be a significant risk of high flows or flooding; and the construction laydown area site office and supervisor would be notified of any potential flood occurring by use of the Floodline Warning Service or equivalent service. Materials (such as earth and topsoil etc.) would be stored outside the 1 in 100-year flood extent, and permits would be obtained for storage in Flood Zone 3 if required. <p><u>Ground Investigation and Dewatering</u> Where dewatering is required, a dewatering scheme would be developed prior to construction to demonstrate that there is an effective strategy to manage water arising from the operations and, where required, sufficient proposals to treat the water prior to controlled discharge. The Dewatering Scheme would demonstrate that there is an effective strategy in which to manage water rising from construction. Sufficient proposals to treat the water may be required prior to controlled discharge.</p>	<p>downstream reaches of water features associated with the Proposed Development.</p> <p>Water quality sampling would be undertaken on a periodic as well as ad-hoc basis, dependent upon circumstances / activities onsite. Monitoring and sampling would be undertaken prior to the commencement of construction so as to allow a sufficient baseline data to be collected.</p> <p>In the event that contamination is identified within the Main Development Area, monitoring of any discharge to the River Dee or other surface water receptors should be carried out on a regular basis so that no contamination enters the estuary.</p>	

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>A groundwater abstraction licence may be required for construction activities (i.e. dewatering) depending on the abstraction volume (>20 m³/d) and duration of abstraction. The proposed discharge of any water pumped out of excavations may be subject to a separate consent under the Environmental Permitting (England and Wales) Regulations 2016. An approved environmental permit would be required for all pumping operations (before dewatering or discharges commence) if not exempt under the Water Abstraction and Impounding (Exemptions) Regulations 2017. Water would never be pumped directly to a watercourse or be allowed to directly enter a watercourse.</p> <p><u>Soil and Groundwater Pollution Control Mitigation</u> Method statements would be produced to outline specific measures for pollution prevention during piling operations, which would include techniques for avoiding the creation of flow paths between groundwater and/or contaminated soils.</p> <p><u>Water Connection Corridor: Infrastructure Refurbishment</u> A Marine Licence would be required for these works, as set out in Consents and Agreements Position Statement (EN010166/APP/3.3). A Flood Risk Activity Permit (FRAP) would be required for any permanent or temporary works in, over, under or within 16 m of a tidal main river, or within 16 m of any flood defence structure on</p>		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>that river, or within a flood plain. All relevant permits and consents would be sought from NRW where necessary.</p> <p><u>Proposed CO₂ Connection Corridor:</u> Topsoil would be removed and stored separately to the subsoil. There would be no storage of materials within 20 m of any watercourse or within any NRW Flood Mapping for Planning (FMfP) mapped surface water or fluvial floodplain.</p> <p>A Pre-Works Surface Water Feature Survey would be undertaken prior to construction to investigate the location and condition of existing ditches. If drains are identified that need to be crossed, the following embedded mitigation measures would be followed:</p> <ul style="list-style-type: none"> • any temporary access and pipeline crossings of watercourses would be undertaken in accordance with good practice guidance; • crossing locations would be selected to make the crossing as close to perpendicular to the watercourse as reasonably practicable, so that the crossing is as short as possible and for open cut / temporary access crossings reducing the risk of localised scour at the structures; and • field drainage within the Proposed CO₂ Connection Corridor would be newly installed or restored elsewhere to enable existing field drains to continue working throughout the construction period. 		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>With the exception of crossings of field ditches to convey pipelines or for access, for works to new/existing outfalls/intakes that must be undertaken close to or in a water feature, and where watercourses are culverted through the site, it is proposed that all water features would be protected by a buffer zone. No works would be permitted and no vegetation could be cleared in the buffer zone.</p> <p>For small watercourses that are less than approximately 5 m wide (bank top to bank top) the buffer zone would be 10 m from the centre line of the watercourse. For larger water features, such as the Dee Estuary, the buffer zone would be applied from the Mean High Water Line. For ponds and lakes, the buffer applies from the edge of the water at typical levels. Allt-Goch Tributary is located along the western boundary of the Proposed CO₂ Corridor. A buffer of at least 10 m from this watercourse would be maintained, with no storage of materials within the mapped floodplain.</p> <p>Along the Proposed CO₂ Connection pipeline route, the ground would be reinstated with stored topsoil and subsoil following trenching, within the same year as construction should weather conditions allow. Restoration activities would include reseedling of pastureland and reinstatement of field boundaries.</p>		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>All relevant permits and consents would be sought from NRW, SuDS Approval Body (SAB) and the Lead Local Flood Authority (LLFA), where necessary.</p> <p><u>Main Development Area Surface Water Outfall:</u> Any works associated with the outfall would incorporate good practice construction guidance. Furthermore, the location, position and orientation of a new drainage outfall would be carefully determined and informed by a hydromorphological survey to minimise any adverse local impacts on river processes. Appropriate micro-siting of the outfall would minimise loss of bank habitat, the need for bed scour or hard bank protection and minimise localised flow disturbance or disruption to sediment transport processes. Prefabricated headwalls would be used for all outfalls where possible to avoid the need for potentially polluting activities adjacent to watercourses (e.g. pouring wet concrete close to the watercourse).</p> <p><u>Main Development Area: Culverted Watercourses</u> Where diversions are required to existing culverted watercourse, flow would be maintained by damming and over pumping to create a dry working area and minimise the risk of polluting the flow. Works should therefore be carried out in the drier months of the year where possible. Once the watercourse is reinstated, silt fences, geotextile matting, or straw bales should be used initially to capture mobilised sediments until the watercourse has returned to</p>		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>a settled state and thereby reduce risks of downstream water quality impacts.</p> <p>All culverts to convey watercourses would be set 150 mm below bed level to allow sedimentation and a naturalised bed to form, which would maintain longitudinal connectivity for fish and other aquatic fauna should they be present.</p> <p><u>Laydown Areas / Construction Compounds</u> Temporary drainage systems would be designed to provide suitable protection measures for watercourses including a suitable stand-off distance. New areas of hardstanding associated with all the compounds would require regular inspections of the drainage system associated with the new facilities (as well as before and after storm events) so that site runoff is adequately managed.</p> <p>Storage areas for hazardous or potentially polluting materials would be located in a separate secure, and where appropriate bunded, area. Material data sheets would be available for all these materials and the COSHH assessments kept within the relevant risk assessment for the task.</p> <p><u>Validation of Water Levels</u> It is recommended that water level data (15 mins data) should be obtained for a minimum of 35 days at Connah</p>		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>Quay a year to check the hydraulic model against real time data and make sure it is calibrated sufficiently. This should take the form of monitoring at consistent set locations to be agreed with NRW.</p>		

4.7 Geology and Ground Conditions

Table 8: Geology and Ground Conditions

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
<p>Impacts on Geology and Ground Conditions features during construction of the Proposed Development are likely to include:</p> <ul style="list-style-type: none"> • temporary sterilisation of mineral resources where construction compounds are proposed within the Mineral Safeguard Area (MSA); • mobilising existing contamination in soil and groundwater; • increasing the potential for contaminants in unsaturated soils to leach to groundwater in open excavations; • increasing the potential for contaminated surface run-off to migrate to surface water; • introducing new sources of contamination, such as fuels and oils; 	<p>Further ground investigations to be undertaken before commencement of construction. Where ground investigations identify risks deemed to be unacceptable, further detailed quantitative risk assessment, and if required, detailed remediation strategies would be developed accordingly.</p> <p>Where dewatering is required, a dewatering scheme would be developed prior to construction to demonstrate that there is an effective strategy to manage water arising from the operations and, where required, sufficient proposals to treat the water prior to controlled discharge. Any such assessment would consider the effects of any drawdown or impacts on nearby abstractions or resources.</p> <p>A strategic plan would be prepared in advance of the construction works within the Proposed CO₂ Connection Corridor, in consultation with the relevant mineral planning departments at FCC, and any other relevant parties to assist in achieving an effective management of minerals</p>	<p>To be confirmed in final CEMP.</p> <p>Ground-investigations (geo-environmental and geotechnical) would be undertaken prior to construction.</p> <p>Ground investigation will also validate the findings of the CMRA and inform any required mitigation or remedial solution which will be incorporated into the Proposed Development design. Ground stability and geotechnical issues (including coal mining risks) will be assessed in the detailed design phase through an interpretive Ground Investigation Report (GIR) and, as the design develops, then a Geotechnical Design Report (GDR), or equivalent. Any future detailed site investigations and/or remedial works will be undertaken</p>	<p>To be confirmed in final CEMP.</p>

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
<ul style="list-style-type: none"> • creating preferential pathways for the migration of soil contamination and gases, for example, along new below ground service routes, service ducts; • introducing new human health receptors such as site staff; and • temporary removal of soils from agriculture represents. 	<p>should it be confirmed that works be required within the MSA.</p> <p>Good site practice and management measures would be implemented, including:</p> <ul style="list-style-type: none"> • methods for materials to be excavated, segregated, and stockpiled; and • procedures for dealing with unexpected soil or groundwater contamination that may be encountered. <p>Any works that may affect or enter Mining Remediation Authority assets would require Mining Remediation Authority permits and associated mitigation. A Coal Mining Risk Assessment (CMRA) will be undertaken where not covered by previous investigations of the site, which will be based on the Mining Remediation Authority Consultant's Mining Report and available records / mine plans. The CMRA will determine the location and depth of underground workings (if present) and the presence of mine shafts / adits.</p> <p><u>Soil and Groundwater Pollution Control Mitigation</u> In addition to pollution prevention measures outlined in Table 7 the following would be applied:</p>	<p>subject to obtaining any required Mining Remediation Authority permit(s).</p> <p>As part of further ground investigation, ground gas monitoring would be undertaken, as there is the potential for ground and mine gas to be displaced and accumulate within future buildings (based on landfills / Made Ground / coal measures (including potentially from recorded workings to the west of the Main Development Area) anticipated within the Order limits).</p> <p>A detailed hydrogeological assessment would be undertaken where excavations or dewatering is required in high sensitivity groundwater environments.</p>	

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>All bulk fuel and COSHH items would be stored in accordance with the relevant Guidance for Pollution Prevention (GPP) or where GPP are yet to be published, Pollution Prevention Guidance (PPG) notes (withdrawn but widely considered good practice) and storage regulations. Tanks and dispensing pumps would be locked when not in use to prevent unauthorised access.</p> <p>Any hazardous materials would be stored in designated locations with specific measures to prevent leakage and the release of their contents. This would include a requirement for storage areas to be set back an appropriate distance from surface water features / drains to prevent any uncontrolled discharge (and take into consideration the positions of any groundwater abstraction wells), on an impermeable base with an impermeable bund that has no outflow and is of adequate capacity to contain at least 110% of the contents. Valves and trigger guns would be protected from vandalism and kept locked when not in use.</p> <p>Only well-maintained plant would be used during construction to minimise the potential for accidental pollution from leaking machinery or damaged equipment. Static machinery and plant</p>		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>are expected to be stored in hardstanding areas when not in use and, where necessary, to make use of drip trays beneath oil tanks / engines / gearboxes / hydraulics. Spill response kits containing equipment that is appropriate to the types and quantities of materials being used and stored during construction would be maintained within the Order limits for the duration of the works.</p> <p>A Drainage Management Strategy would be developed and provided in the final CEMP(s).</p> <p><u>Contamination</u></p> <p>Potential impacts specific to construction workers during site preparation and construction / decommissioning works would be controlled and mitigated by the following measures and through working in accordance with CIRIA C811:</p> <ul style="list-style-type: none"> • measures to minimise dust generation; • provision of Personal Protective Equipment (PPE), such as gloves, barrier cream, overalls etc. to minimise direct contact with soils; • provision of adequate hygiene facilities and clean welfare facilities for all construction site workers; • monitoring of confined spaces for potential ground gas accumulations, restricting access 		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>to confined spaces, i.e., to suitably trained personnel only, and use of specialist PPE, where necessary; and</p> <ul style="list-style-type: none"> • preparation and adoption of a site and task specific health and safety plan as is required under health and safety legislation. <p>If unexpected soil or groundwater contamination is found, affected works would stop to enable appropriate people to be notified, and further characterization and risk assessment would be undertaken before remediation or mitigation proposals are agreed. In the event that unacceptable risks are identified, or encountered during construction, and routing through these areas is unavoidable, specific mitigation measures may be required in the form of treating / remediating contamination.</p> <p>There is potential for asbestos to be present in any Made Ground within the Order limits. Any Made Ground found to be contaminated with asbestos would require suitable management if it is to be retained on-site or removed (in line with the CL:AIRE, CAR-SOIL 2012.</p> <p><u>Excavated Materials and Waste Management</u></p>		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>Re-use of excavated materials during construction and decommissioning of the Proposed Development would be governed by either a Materials Management Plan (MMP) developed in accordance with the CL:AIRE Definition of Waste: Development Industry Code of Practice (DoW CoP), 2011, an environmental permit or a relevant exemption.</p> <p>In order to manage and monitor waste, including any spoil generated on-site, a Framework Site Waste Management Plan (SWMP) has been developed (Appendix B).</p> <p>Where there is a requirement to dispose of surplus excavated materials off-site as waste, the material would be characterised to determine firstly whether it is Hazardous or Non-Hazardous waste in accordance with the Technical Guidance WM3 and then once this is established, the appropriate disposal facility would be determined and Waste Acceptance Criteria (WAC) analysis undertaken, if required.</p> <p>To minimise the effects on soil resources during any earthworks, high standards of soil handling and management would be employed with a view to minimising where possible the double handling</p>		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>of soils and the extent to which exposed soils would be left vulnerable to erosional processes.</p> <p><u>Soil Management</u> To minimise the effects on soil resources during any earthworks, including materials management following foundation construction and excavation for the Proposed Development, high standards of soil handling and management would be employed with a view to minimising where possible the double handling of soils and the extent to which exposed soils would be left vulnerable to erosional processes. Guidelines are published in documents such as DEFRA's Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (2009) (Ref 16) and Good Practice Guide for Handling Soils in Mineral Workings (Ref 17). Impacts relating to the handling, movement and temporary storage of soils, would be controlled through Soil Management Plan(s) (SMP(s)) to be included within the final CEMP(s). The SMP(s) would provide final details on the following:</p> <p>Soil management during construction, including:</p> <ul style="list-style-type: none"> • Soil moisture conditions for handling, in accordance with sheets A to D of the Institute 		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>of Quarrying Good Practice Guide for Handling Soils in Mineral Workings (Ref 17);</p> <ul style="list-style-type: none"> • Soil stripping; • Soil storage, in accordance with guidance given in sheets B and C of the Institute of Quarrying Good Practice Guide for Handling Soils in Mineral Workings (Ref 17); • Stockpile locations; • Forming the stockpiles; and • Maintenance of stockpiles during storage. <p>Soil Restoration, including:</p> <ul style="list-style-type: none"> • Excavation of soil stockpiles; • Preparation of the base layer; and • Soil reinstatement. <p>Aftercare of re-instated soils, including:</p> <ul style="list-style-type: none"> • Aftercare plan including periodic assessment to determine soil use and function meets landowner requirements. <p>The SMP(s) should also consider the measures prescribed in the Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Ref 17) and identify the requirement for</p>		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	regular inspections of activities by a suitably experienced soil scientist.		
	<p><u>Unexploded Ordnance (UXO)</u> A detailed desk study will be undertaken <u>prior to the start of any site enabling works</u> to confirm the final mitigation measures required to mitigate the risks posed by UXO during construction. These measures would <u>also</u> be included within the final CEMP(s) to be prepared by the Principal Contractor(s).</p>	<p>A detailed desk study will be undertaken which might identify further monitoring or additional survey requirements.</p>	<p>To be confirmed in final CEMP <u>The Undertaker.</u></p>

4.8 Landscape and Visual

Table 9: Landscape and Visual Amenity

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
<p>Permanent removal of areas of grassland.</p> <p>Removal of areas of vegetative scrub for construction laydown activities.</p>	<p>The Outline LEMP (EN010166/APP/6.9) provides details of retained and enhanced vegetation within the Order limits.</p>	N/A	To be confirmed in final CEMP.
<p>Direct impact of the Proposed Development to trees</p>	<p>No veteran trees, ancient trees or ancient woodland are to be removed during construction.</p> <p>No tree features of high quality (Category A) would be removed to facilitate the Proposed Development within the Construction and Operation Area.</p> <p>All tree work is to follow the principles of BS3998: 2010 Treework – Recommendations (Ref 19) and must be carried out by suitably qualified contractors. The Arboricultural Association provides a list of contractors who meet these requirements.</p> <p>An arboricultural method statement (including Tree Protection Plan) would be prepared to detail final measures in general accordance with Annex E of</p>	To be confirmed in final CEMP.	To be confirmed in final CEMP.

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>Appendix 15-G Arboricultural Impact Assessment (EN01066/APP/6.4):</p> <ul style="list-style-type: none"> • tree protection measures (such as construction exclusion zones); • ground protection as set out in section 6.2.3.3 of BS5837:2012; • guidance for the management of exposed roots; and • storage, use and mixing of materials. <p>Should the requirement for additional tree works be identified following the completion of the arboricultural method statement, this would be discussed with the Project Arboriculturist and no works would be undertaken without the consent of FCC.</p>		
<p>Indirect impacts to trees through the routing of new services near trees / or undertaking construction works in proximity of trees.</p>	<p>All services are to be routed outside of the root protection area (RPA) of retained trees. Excavation to install services has the potential to result in unacceptable root severance which could result in instability, dysfunction or the death of trees. Repeated incursions are particularly damaging and must be avoided by bundling services wherever possible.</p>	<p>To be confirmed in final CEMP.</p>	<p>To be confirmed in final CEMP.</p>

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>Where it is not possible, and services must be routed within the RPA of a retained tree, this would be subject to a detailed method statement with approval from FCC. The principles of the National Joint Utilities Group (NJUG) Volume 4 (Ref 18) guidance must be adhered to.</p> <p>Where existing services become redundant within the RPA of a retained tree, the default position must be (and is) that they would be decommissioned and left in situ. Where this is not feasible one of the following techniques would be utilised:</p> <ul style="list-style-type: none"> • Existing services to be removed by winching out from an access/inspection chamber located outside of an RPA; • Fill redundant pipe work with an inert material where acceptable; or • Undertake pipe bursting where necessary within the RPA of retained trees. 		
<p>Construction of construction site facilities in proximity to trees</p>	<p>All construction site facilities, including site huts, staff and contractor parking and areas for storage, would be located outside of the RPA or crown spread of retained trees. The construction exclusion zones identified on the TPP would be fully respected and their location and significance is to</p>	<p>To be confirmed in final CEMP.</p>	<p>To be confirmed in final CEMP.</p>

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	be highlighted to all site staff and contractors during the formal site briefing.		

4.9 Physical Processes

Table 10: Physical Processes

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
<p>Increased water column turbidity / increased Suspended Sediment Concentration.</p> <p>Potential release of sediment-bound contaminants into the water column due to river / estuary bed disturbance.</p> <p>Changes to river / estuary bed morphology, due to: scour of the river / estuary bed around the cofferdam; change or disruption to existing sediment transport and deposition patterns caused by the presence of the cofferdam and jack-up barge (subject to confirmation of location and leg dimensions) within the waterway; and change or disruption to existing sediment transport and</p>	<p>As detailed in section 2.15, works within the Water Connection Corridor all would be carried out using hand tools rather than mechanised plant and the area would be accessed on foot through the saltmarsh. Materials would be brought to the existing cooling water infrastructure in the Water Connection Corridor by barge.</p> <p>Construction phase impacts would be mitigated through the implementation of standard construction techniques and mitigation measures as detailed in Table 7 and Table 8.</p>	<p>To be confirmed in final CEMP.</p>	<p>To be confirmed in final CEMP.</p>

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
deposition patterns caused by newly built intake and outfall structures elsewhere within the water connection corridor.			

4.10 Terrestrial Heritage

Table 11: Terrestrial Heritage

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
<p>Temporary short-term or long-term impacts to assets as a result of change to their setting.</p> <p>Permanent physical impacts to below ground archaeological remains.</p>	<p>Mitigation measures relevant to terrestrial heritage are also detailed in Table 2 (Noise and Vibration) and Table 3 (Air Quality)</p> <p>A protocol for unexpected archaeological discoveries has also been agreed. The scope of these mitigation measures is set out within the Overarching Written Scheme of Investigation for Terrestrial and Marine Heritage Mitigation (EN010166/APP/6.8) which has been agreed with CPAT (Heneb) and the RCAHMW and is secured by requirement 9 of the Draft DCO (EN010166/APP/3.1).</p>	N/A	To be confirmed in final CEMP.

4.11 Marine Heritage

Table 12: Marine Heritage

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
<p>Direct physical impacts on potential Marine Heritage assets.</p> <p>Permanent, irreversible damage or destruction, truncation, compaction or loss of previously unknown potential archaeological remains and deposits.</p> <p>Indirect impacts on potential Marine Heritage assets.</p>	<p>As detailed in section 2.15, all works within the Water Connection Corridor would be carried out using hand tools rather than mechanised plant and the area would be accessed on foot through the saltmarsh. Materials would be brought to the existing cooling water infrastructure in the Water Connection Corridor by barge.</p> <p>As detailed in section 2.15, the works in the Water Connection Corridor would be carried out at low tide, when the existing intake structures are exposed and accessible by foot. For some works there may need to be a barge positioned alongside the intake infrastructure, which would remain floating at all times (i.e. no jack-up barge would be involved in any aspect of eel screen replacement). There would be no interaction with the riverbed during the construction works.</p> <p>As detailed in section 2.13 works within the Surface Water Outfall Area would be minimised as far as practicable.</p>	<p>To be confirmed in final CEMP.</p>	<p>To be confirmed in final CEMP.</p>

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>A protocol for unexpected archaeological discoveries has also been agreed. The scope of these mitigation measures is set out within the Overarching Written Scheme of Investigation for Terrestrial and Marine Heritage Mitigation (EN010166/APP/6.8) which has been agreed with CPAT (Heneb) and the RCAHMW and is secured by requirement 9 of the Draft DCO (EN010166/APP/3.1).</p>		

4.12 Socio-economics, Recreation and Tourism

Table 13: Socio-economics, Recreation and Tourism

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
<p>Potential Socio-economics, Recreation and Tourism impacts could include:</p> <ul style="list-style-type: none"> increased demand for local accommodation facilities during construction and decommissioning; the closure and diversion of Public Rights of Ways (PRoW) during construction and decommissioning; increased traffic demand on the strategic road network and Kelsterton Road during construction and decommissioning; the temporary loss of agricultural land during construction and decommissioning; and adverse impacts on the amenity of residents, businesses, users of 	<p>Control measures for earthworks, noise and vibration, dust generation and waste generation are detailed in Table 2, Table 3, Table 8 and Table 17.</p>	<p>To be confirmed in final CEMP.</p>	<p>To be confirmed in final CEMP.</p>
	<p>Soil Management measures are detailed in Table 8.</p>		
	<p>The Framework CTMP (EN010166/APP/6.6) provides an overview of proposed construction (including AIL) traffic routes and associated management measures, including parking and access requirements, and proposals for management of any affected PRoW.</p>		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
community facilities and visitor attractions due to noise, air quality, visual and traffic effects during construction and decommissioning.			

4.13 Climate Change

Table 14: Climate Change

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
Greenhouse Gas (GHG) emissions from the construction of the Proposed Development on the climate.	<p>Construction activities would be controlled through relevant regulations, industry good practice, and standard good practice to reduce GHG emissions as detailed in Table 2, Table 3 and Table 7.</p> <p>The use of construction materials with lower embodied carbon emissions (i.e. higher recycled content) would be encouraged.</p>	To be confirmed in final CEMP.	To be confirmed in final CEMP.
<p>Vulnerability of the Proposed Development to the impacts of future climate change.</p> <p>Combined impacts of climate change and the Proposed Development on surrounding receptors.</p>	<p>Controls to increase the resilience of the Proposed Development to climate change include:</p> <ul style="list-style-type: none"> • monitoring of weather forecasts and plan works accordingly, protecting workers and resources from extreme weather conditions; and • implementation of standard construction techniques and mitigation measures, as are described in a wide range of good practice publications (e.g. C811 Environmental Good Practice on site (fifth edition) (Ref 20). 	To be confirmed in final CEMP.	To be confirmed in final CEMP.

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>Embedded controls (measures already included in the design of the Proposed Development) include:</p> <ul style="list-style-type: none"> • construction equipment used would be suitable to operate in the temperatures expected in North Wales; • the Principal Contractor(s) would monitor weather forecasts and plan works accordingly, protecting workers and resources from any extreme weather conditions. This would include receiving Cyfoeth Naturiol Cymru (Natural Resources Wales) flood alerts and the works would be planned accordingly to protect workers and resources from any extreme weather conditions such as storms and flooding; • management of surface water run-off from the Proposed Development during construction would be managed in accordance with the Outline Surface Water Drainage Strategy in Appendix 13-D (EN010166/APP/6.4); and • construction phase impacts would be mitigated through the implementation of standard construction techniques and mitigation measures, as are described in a wide range of good practice publications (e.g. C811 Environmental Good Practice on site (fifth edition). This involves flood consultations with local flood authorities, in particular in the approach to existing defenses. 		

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<p>Adaption measures to increase the resilience of the Proposed Development to climate change include:</p> <ul style="list-style-type: none"> • development of a fire management plan and an early warning detection system; • a Winter Service Plan would be developed which includes freeze prevention for pipes, and snow and de-icing procedures for access roads; • installation of a water pump for areas with critical infrastructure; • raise critical infrastructure to be above Probable Maximum Flood level; • installation of additional attenuation features at key locations or identified flood risk areas; and • regular monitoring of trees and vegetation, pruning as necessary. 		

4.14 Human Health

Table 15: Human Health

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
<p>An increase in demand on local health care services.</p> <p>Increased traffic flows and severance effects inhibiting the ability of local residents to access these facilities.</p> <p>A reduction in air quality due to construction dust or increased NO₂ and particulate matter concentrations, which could lead to adverse health effects on residents.</p> <p>Increases in noise and vibration, which could lead to adverse health and wellbeing effects in terms of annoyance and/or disrupt local amenities.</p> <p>Construction activities of the Proposed Development may</p>	<p>Measures as set out in Table 2, Table 3, Table 4 and Table 9.</p>	<p>To be confirmed in final CEMP.</p>	<p>To be confirmed in final CEMP.</p>

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
<p>intersect, or otherwise impact upon, the accessibility of open space and PRow in the study area, which could impact the health and wellbeing of local residents.</p> <p>Adverse impacts on water quality due to deposition or spillage of soils, sediment, oils, fuels, or other construction chemicals.</p>			

4.15 Major Accidents and Disasters

Table 16: Major Accidents and Disasters

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
<p>Release of hazardous substances</p> <p>Construction works have potential to cause ground instability / collapse and / or utility / pipeline / UXO strike.</p> <p>Major Accidents and Disasters scenarios</p>	<p>All works would be undertaken in compliance with accredited health and safety and environmental management systems, relevant legislation and environmental permits, consents and licenses.</p> <p>The use of suitably experienced contractors, risk assessments, working method statements, operating procedures and personnel training would minimise the risk of accidental scenarios occurring during the Proposed Development construction. Atypical activities, which would be undertaken during construction, but not in normal operation, would be assessed as part of the risk assessment and mitigation processes.</p> <p>Commissioning of the facility would be undertaken in accordance with a commissioning plan. It is expected that the commissioning plan would be a pre-operational condition of the Environmental Permit, and it would also be supplied to the HSE for approval as part of the COMAH pre-construction notification process. Aspects of the commissioning would also form part of</p>	<p>To be confirmed in final CEMP.</p> <p>Prior to the final design and construction of the Proposed Development, confirmatory Ground Investigations (GI) would be undertaken to assist the structural and civil design of the Proposed Development. In addition, the GI would inform the soil and groundwater contamination baseline, as required for Environmental Permitting.</p>	<p>To be confirmed in final CEMP.</p>

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	construction phase plan required under the CDM Regulations 2015.		

4.16 Materials and Waste

Table 17: Materials and Waste

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
<p>Potential waste impacts could arise from the type and quantities of key construction materials used and the type and quantities of waste generated.</p>	<p>To reduce the potential impacts from materials and waste, and to achieve high levels of sustainability in the Proposed Development as a whole, the Principal Contractor(s) would apply the principles of the waste hierarchy.</p> <p>The following construction practices would also be applied during construction:</p> <ul style="list-style-type: none"> • agreements with material suppliers to reduce the amount of packaging or to participate in a packaging take-back scheme; • implementation of a 'just-in-time' material delivery system to avoid materials being stockpiled where possible, which increases the risk of their damage and subsequent disposal as waste; • attention to material quantity requirements to avoid over-ordering and generation of waste materials due to surplus; • reuse of materials on-site wherever feasible, e.g. reuse of excavated soil for landscaping, recycling of demolition materials into aggregates; • off-site prefabrication, where practical, including the use of prefabricated structural elements; and 	<p>To be confirmed in final CEMP.</p>	<p>To be confirmed in final CEMP.</p>

Potential Impact	Mitigation/ Enhancement Measure	Monitoring/ Additional Survey Requirements	Responsibility
	<ul style="list-style-type: none"> • segregation of waste at source, where practical, to facilitate a high proportion and high-quality recycling; and • off-site reuse, recycling and recovery of materials and waste where reuse on-site is not practical, e.g. through use of an off-site waste segregation or treatment facility or for direct reuse or reprocessing off-site. <p>To manage and monitor waste generated on the Order limits during the construction of the Proposed Development, a Framework SWMP has been developed (Appendix B) which would allow for waste streams to be estimated and monitored.</p>		

5. Implementation and Operation

5.1 Implementation

- 5.1.1 The final CEMP(s) would set out all roles, responsibilities and actions required in respect of implementation of the measures described in this Framework CEMP, including:
- an organogram showing team roles, names and responsibilities;
 - training requirements for relevant personnel on environmental topics;
 - information on site briefings and toolbox talks that would be used to equip relevant staff with the necessary level of knowledge to follow environmental control procedures;
 - measures to advise employees of changing circumstances as work progresses;
 - communication methods (e.g. updates via the undertaker's website);
 - document control;
 - environmental emergency procedures; and
 - monitoring, inspection and audits of site operations.
- 5.1.2 In accordance with sub-paragraph (3) of Requirement 4 in the **Draft DCO (EN010166/APP/3.1)**, each stage of the authorised development must be carried out in accordance with the approved CEMP for that stage unless otherwise agreed with the relevant planning authority.

5.2 Roles and Responsibilities

- 5.2.1 Key roles and responsibilities during the construction phase in managing environmental impacts would likely include, but are not limited to:
- **The undertaker** – Ultimate responsibility for ensuring requirements are discharged in accordance with the **Draft DCO (EN010166/APP/3.1)** and that the roles identified below are fulfilled during construction;
 - **Principal Contractor(s)** – appointed by the undertaker to construct the Proposed Development and responsible for the production of, and compliance with, the final CEMP(s);
 - **Site Manager** – appointed by the undertaker to have overall responsibility for activity on-site and would be based on-site full time;
 - **Construction Project Manager** – appointed by the undertaken to have overall responsibility for ensuring all elements in the DCO, final CEMP(s) and all environmental legal and other requirements are implemented, and appropriately resourced, managed, reviewed and reported;
 - **Environment Manager(s)** – appointed by the undertaker to be responsible for the overall management of environmental aspects on-site, ensuring environmental legislation and best practices are complied with, and environmental mitigation and monitoring measures identified

are implemented. The Environment Manager would oversee environmental monitoring on-site and carry out regular environmental site inspections, reporting and responding to any incidents or non-compliance. The Environment Manager(s) would liaise with relevant environmental bodies and other third parties as appropriate;

- **Environmental Site Supervisor(s)** (if required) – appointed by the undertaker to be responsible for overseeing the management of and providing advice about environmental risks during construction including, for example, management of protected species, surface water management, pollution, air quality and noise. This role may be merged with Environment Manager;
- **Ecological Clerks of Works (ECoWs)** – appointed by the undertaker to manage the risks to ecology during construction, advising on protecting valued biodiversity features and providing practical solutions. The appointed ECoW(s) would be appropriately qualified and a member of the Chartered Institute of Ecology and Environmental Management (CIEEM);
- **Health and Safety Manager** – appointed by the undertaker to be responsible for the monitoring and controlling of health and safety compliance and related rules and regulations on-site;
- **Archaeological Contractor** – The works specified in **Overarching Written Scheme of Investigation for Terrestrial and Marine Heritage Mitigation (EN010166/APP/6.8)** would be undertaken on behalf of the undertaker by a competent and suitably qualified Archaeological Contractor who is a Registered Organisation with the Chartered Institute for Archaeologists (CIfA), or with equivalent demonstrable experience; and
- **Community Liaison Officer** – a Community Liaison Group would be set up prior to construction and would continue until final commissioning of the Proposed Development as a formal forum for local issues to be raised. A Community Liaison Officer would be appointed to lead discussions with local communities, and also act as the primary point of contact should there be any queries or complaints.

5.2.2 These roles and responsibilities are indicative and would be confirmed in the final CEMP(s).

6. Checking and Corrective Action

- 6.1.1 To ensure that the mitigation provisions set out in the final CEMP(s) are operating effectively and as intended, environmental monitoring of the Proposed Development and its impacts would be undertaken throughout the construction phase.
- 6.1.2 As part of the monitoring process, the Principal Contractor would allocate a designated Environmental Manager(s), who would be present on-site throughout the construction, notably when new activities are commencing. The Environmental Manager(s)/ Environmental Site Supervisor(s) would observe site activities and report any deviations from the final CEMP(s) in a log book, along with the corrective action taken and general conditions at the time. The undertaker would be informed of any deviations from the final CEMP(s) as soon as possible following identification of such issues. The Environmental Manager would also assist the undertaker with day-to-day contact with Flintshire County Council, and other regulatory agencies such as Natural Resources Wales, as required.
- 6.1.3 During construction, the Environmental Manager would conduct regular walkover surveys to ensure all requirements of the final CEMP(s) are being met and complied with. Actions from these surveys would be documented on an Environmental Action Schedule, discussed with the Site Manager for programming requirements and issued weekly for actioning.

7. Records

7.1 Record of action

7.1.1 The Environmental Manager would retain records of environmental monitoring as part of, and implementation of, the final CEMP(s). This would provide evidence that the final CEMP(s) are being implemented effectively and in accordance with Requirement 4 of the **Draft DCO (EN010166/APP/3.1)**. These records would include:

- an Environmental Action Schedule;
- records of licences, permits and approvals;
- results of inspections;
- other environmental surveys and investigations; and
- environmental equipment test records.

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Appendix A: Figures

Appendix B: Framework Site Waste Management Plan

