NORTH FALLS

Offshore Wind Farm

Outline Code of Construction Practice (CoCP) (Tracked)

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Glossary of Acronyms

AIA	Arboricultural Impact Assessment
ALO	Agricultural Liaison Officer
AMS	~~Arboricultural Method Statement~~Archaeological Mitigation Strategy
BPM	Best Practicable Means
CBS	Cement bound sand
CCS	Considerate Constructor Scheme
CDM	Construction (Design and Management)
CIRIA	Construction Industry Research and Information Association
CoCP	Code of Construction Practice
COSHH	Control of Substances Hazardous to Health
DCO	Development Consent Order
DMP	Dust Management Plan
DPF	Diesel Particulate Filters
DoWCoP	Definition of Waste Code of Practice
EEAST	East of England Ambulance Service NHS Trust
EIA	Environmental Impact Assessment
ECoW	Ecological ~~Environmental~~ Clerk of Works
EnvCoW	Environmental Clerk of Works
EMFs	Electromagnetic fields
EMS	Environmental Management System
EMP	Ecological Management Plan
ES	Environmental Statement
ETG(s)	Expert Topic Group(s)
EWC	European Waste Catalogue
HDD	Horizontal Directional Drilling
HGV	Heavy Goods Vehicle
HVAC	High voltage alternating current
IDB	Internal Drainage Board
INNS	Invasive non-native species
kV	kilovolt
LLFA	Lead Local Flood Authority
LPA	Local Planning Authority
MAFF	Ministry of Agriculture, Fisheries and Food
MLWS	Mean Low Water Springs
MMO	Marine Management Organisation
MMP	Materials Management Plan
MRA	Mineral Resource Assessment
NCN	National Cycle Network

NFOW	North Falls Offshore Windfarm
NPS	National Policy Statement
NRMM	Non-Road Mobile Machinery
NVSRs	Noise and Vibration Sensitive Receptors
OCoCP	Outline Code of Construction Practice
OCTMP	Outline Construction Traffic Management Plan
OLEMS	Outline Landscape and Ecological Management Strategy
PMoW	Precautionary Method of Working
PRoWMP	Public Rights of Way Management Plan
O&M	Operation and maintenance
OWSI	Outline Written Scheme of Investigation
PAD	Protocol for reporting archaeological discoveries
PGG	Pollution Prevention Guidelines
PIR	Passive infrared sensor
PRoW(s)	Public Rights of Way(s)
RAMS	Risk Assessments and Method Statements
RPAs	Root Protection Areas
RWE	RWE Renewables UK Swindon Limited
SMP	Soil Management Plan
SNEE ICB	Suffolk and North East Essex Integrated Care Board
SPZ	Source Protection Zone
SSER	SSE Renewables Offshore Windfarm Holdings Limited
SSSI	Site of Special Scientific Interest
SuDS	Sustainable Drainage System
SWMP	Site Waste Management Plan
TCC	Temporary Construction Compound
TPP	Tree Protection Plans
WSI	Written Scheme of Investigation

Glossary of Terminology

Bentley Road improvement works	Works involving the widening and improvement of the carriageway along Bentley Road, required to facilitate heavy goods vehicle and abnormal indivisible load access to the onshore cable route and the onshore substation.
Cable circuit (onshore)	The onshore export cables are comprised of cable 'circuits'. Each cable circuit is typically comprised of three power cables, as well as fibre cables and earth cables. It is expected that each circuit would compromise up to seven cables in total.
Cable ducts	Housing for the onshore export cables, typically comprising plastic high-density polyethylene (HDPE) pipes buried underground. Each cable circuit will potentially comprise up to seven individual ducts (i.e. one per cable).
Haul Road	The track along the onshore cable route used by construction traffic to access different sections of the onshore cable route.
Horizontal directional drill (HDD)	Trenchless technique to bring the offshore cables ashore at landfall. The technique will also be the primary trenchless technique used for installation of the onshore export cables at sensitive areas of the onshore cable route.
Jointing bays	Underground structures, constructed at regular intervals along the onshore cable route to connect the sections of cable together so that each cable is a continuous length, as well as facilitating the installation of the cables into the buried cable ducts.
Landfall	The location where the offshore export cables come ashore at Kirby Brook.
Landfall compound	Compound at landfall within which horizontal directional drill (HDD) or other trenchless technique would take place.
Link boxes	Underground chambers or above ground cabinets next to the onshore export cables housing low voltage electrical earthing links.
National Grid connection point	The grid connection location for the Project. National Grid are proposing to construct new electrical infrastructure (a new substation) to allow the Project to connect to the grid, and this new infrastructure will be located at the National Grid connection point.
National Grid substation connection works	Infrastructure required to connect the Project to the National Grid connection point.
Offshore export cables	The cables which bring electricity from the offshore substation platform(s) to the landfall, as well as auxiliary cables.
Offshore substation platform(s)	Fixed structure(s) located within the array area, containing HVAC electrical equipment to aggregate the power from the wind turbine generators and increase the voltage to a more suitable level for export to shore via offshore export cables.
Onshore cable route	Onshore route within which the onshore export cables and associated infrastructure would be located.
Onshore export cables	The cables which take the electricity from landfall to the onshore substation. These comprise High Voltage Alternative Current (HVAC) cables, buried underground.
Onshore project area	The boundary within which all onshore infrastructure required for the Project will be located (i.e. landfall; onshore cable route, accesses, construction compounds; onshore substation and cables to the National Grid substation)
Onshore Substation	A compound containing electrical equipment required to transform and stabilise electricity generated by the Project so that it can be connected to the National Grid.
Principal Contractor	The appointed contractor that will carry out the construction works associated with the onshore works.
Scour protection	Protective materials to avoid sediment being eroded away from watercourses.

Temporary construction compound	Area set aside to facilitate construction of the onshore cable route. Will be located adjacent to the onshore cable route, with access to the highway where required.
The Applicant	North Falls Offshore Wind Farm Limited (NFOW).
The Archaeological Curators	Essex County Council's Historic Environment Consultant and Historic England
The Project Or 'North Falls'	North Falls Offshore Wind Farm, including all onshore and offshore infrastructure.
Transition joint bay	Underground structures that house the joints between the offshore export cables and the onshore export cables.
Trenchless crossing	Use of a technique to install limited lengths of cable below ground without the need to excavate a trench from the surface, used in sensitive areas of the onshore cable route to prevent surface disturbance. Includes techniques such as HDD.
Trenchless crossing compound	Areas within the onshore cable route which will house trenchless crossing (e.g. HDD) entry or exit points.
Wind turbine generator (WTG)	Power generating device that is driven by the kinetic energy of the wind.

1 Outline Code of Construction Practice

1.1 Introduction

1.1.1 Background

1. North Falls Offshore Wind Farm Limited (the Applicant) is seeking a Development Consent Order (DCO) for the North Falls Offshore Wind Farm (hereafter referred to as 'the Project' or 'North Falls'). North Falls Offshore Wind Farm is a joint venture between SSE Renewables Offshore Windfarm Holdings Limited (SSER) and RWE Renewables UK Swindon Limited (RWE).

2. The North Falls Offshore Wind Farm is located in the southern North Sea, 40km from the East Anglian coast at its closest point. North Falls will be connected to the shore by offshore export cables to a landfall point at Kirby Brook, on the Essex coast. From there, onshore export cables will transport power over approximately 24km to a new high voltage alternating current (HVAC) onshore substation. The onshore substation will be constructed to accommodate the connection of North Falls to the transmission grid. A full project description is given in the Environmental Statement (ES) Chapter 5 Project Description (Document Reference: 3.1.7).

1.1.2 Purpose of this Document

3. This Outline Code of Construction Practice (OCoCP) forms part of documents that support the DCO application submitted by the Applicant for consent to construct and operate the Project.

4. This OCoCP is provided to secure mitigation identified through the Environment Impact Assessment (EIA) process for the onshore components of the Project only.

5. A final Code of Construction Practice (CoCP) will be produced prior to construction of the Project and will be in accordance with the content of this OCoCP and the final design of the Project. The CoCP is secured by a Requirement of the Draft DCO (Document Reference: 6.1).

6. The OCoCP provides a key mechanism, enforceable via the Requirement through which the relevant regulatory authorities can be assured that environmental impacts associated with the construction of the onshore infrastructure will be formally controlled and mitigated.

7. A Schedule of Mitigation (Document Reference: 2.6) is also provided with the DCO application, which provides a summary of the mitigation and monitoring commitments identified for the Project and how that mitigation is secured. Both 'embedded' mitigation (which forms mitigation through design or through best practice, which will be undertaken regardless of the outcome of the assessment, to minimise impacts as far as practicable) and 'additional' mitigation (which has been identified following the completion of the environmental assessment described in the ES, as required to minimise the effects identified) are detailed in the Schedule of Mitigation.

8. Following the submission of the DCO application, comments have been provided by stakeholders regarding the content of the OCoCP. Table 1.1 provides a summary of the amendments that have been made in response.

Table 1.1 Summary of OCoCP Changes

OCoCP Revision Number	Summary of Changes	Relevant Section of the OCoCP
1	Additional commitment to ensure a protest response and incident management plan is in place.	Section 1.2.1
	Amendment to the text clarifying the emergency services included in the Stakeholder Communications Plan.	Section 1.2.6
	Amendment to the text on the local community liaison, detailing specific named receptors to be communicated with by the Local Community Liaison Officer.	Section 1.2.6
	Additional text to require additional training to site security in relation to identifying security concerns and risks.	Section 1.3.5
	Additional text regarding the burial depth of the cable	Section 1.6.2
	Additional text regarding construction mitigation for onshore archaeology.	Section 1.12
2	Inclusion of commitment to consult with the Environment Agency during the development of any piling risk assessment.	Section 1.4
	Additional text referring to a noise complaints procedure to been provided in the final CoCP.	Section 1.11.3
	Additional text regarding ecological and tree protection measures to be applied during construction, including cross-referencing to the Outline Landscape and Ecological Management Strategy (OLEMS) where these measures are detailed in full.	Section 1.14
3	Amendment of the definition Ecological Clerk of Works (ECoW) and Environmental Clerk of Works (EnvCoW).	Glossary
	Amendment to text regarding cable duct burial depth.	Section 1.6.2
	Additional text referring to the Archaeological Mitigation Strategy (AMS) and further details of different types of archaeological mitigation.	Section 1.12

1.1.3 Scope

9. The OCoCP sets out the management measures which the Applicant will require all personnel on site to adopt and implement for any onshore construction works for the Project. The appointed Principal Contractor and associated management team will be responsible for implementation of the CoCP provisions, and for ensuring that any subcontractors, site-based consultants and visitors are in compliance with these requirements.

10. Works and locations within the scope of this document include infrastructure construction and commissioning phases of the Project for onshore works from landfall to the grid connection and are defined to include:

- Landfall and associated transition joint bays;

- Onshore export cables housed within cable ducts and associated joint bays and link boxes;
- Onshore substation and ancillary works;
- Connection to the national grid;
- Trenchless crossing works (e.g. Horizontal Directional Drilling (HDD));
- Works to improve Bentley Road and provision of temporary non-motorised user route;
- Temporary works to facilitate construction (temporary construction compounds (TCCs), temporary means of access); and
- Operational accesses.

11. Optionality in the Project's design envelope has been retained at this stage, prior to detailed design. The main grid connection options considered in the Project's DCO application are:

    - Option 1: Onshore electrical connection at a National Grid connection point within the Tendring peninsula of Essex, with a project alone onshore cable route and onshore substation infrastructure;
    - Option 2: Onshore electrical connection at a National Grid connection point within the Tendring peninsula of Essex, sharing an onshore cable route and onshore duct installation (but with separate onshore export cables) and collocating separate onshore substation infrastructure with Five Estuaries; or
    - Option 3: Offshore electrical connection, provided by a third party.

12. The earliest that construction would commence under any scenario is 2027, with the onshore construction works likely to commence first.

13. The term 'construction' in the OCoCP includes all onshore material delivery, excavated material disposal, waste removal and all related engineering and construction activities as assessed in the ES.

14. Many of the detailed management measures to be captured in the CoCP would be captured within respective environmental management plans. Details of the management measures to be implemented within those plans are included within the relevant section of this OCoCP. A list of subsidiary management plans is detailed in Table 1.2 below.

Table 1.2 Environmental management plans that will form part of the CoCP

Name	Description
Health and Safety Plan	A valid, suitable and sufficient Health and Safety Plan as defined in the Construction (Design and Management) (CDM) Regulations 2015.
Construction Method Statements	Detailed Construction Method Statements for construction operations relevant to that phase of the works. Each Construction Method Statement will follow industry best practice guidance.
Stakeholder Communications Plan	Setting out how effective and open communication with local residents and businesses and the emergency services that may be affected by the construction works will take place.

Name	Description
Construction Fencing Plan	Detailing any temporary fencing, walls or other means of enclosure required during construction.
Environmental Emergency / Incident Response Plan	The plan will be prepared in accordance with good industry practice guidance and include a response flow chart and detail how to report and deal with an environmental incident, including the measures available to contain/clean up an incident.
Watercourse crossing scheme	A scheme and programme for each watercourse crossing, diversion and reinstatement, which will include site specific details regarding sediment management and pollution prevention measures.
Flood Warning and Evacuation Plan	Specific flood warning and evacuation plans should be produced for the construction phase of the onshore cable route, specifically related to construction works at watercourse crossing locations where personnel or materials may be located within Flood Zones 2 and 3.
Dust Management Plan	Plan setting out measures to control dust emissions for each phase of the works.
Invasive Non-Native Species Management Plan	Plan setting out measures to prevent transfer of invasive plant or animal species between watercourses.
Contaminated Land and Groundwater Scheme	Scheme detailing the approach to investigating and managing contamination sources in advance of and during construction. The scheme will set out the areas whereby the potential for a contaminant linkage exists, details of ground investigation works to determine the level of risk and bespoke mitigation requirements.
Materials Management Plan	Plan setting out the principals for the management and reuse of site won soils during the construction phase. The plan will be compliant with the CL:AIRE Definition of Waste Code of Practice (DoWCoP).
Soil Management Plan	Plan detailing measures to maintain soil sustainability during construction.
Site Waste Management Plan	Plan providing information on each waste type that is expected to be produced in NFOW with the appropriate European Waste Catalogue (EWC) code and description for each waste type. The Plan would provide an estimate of the quantity of each type of waste and the proposed waste management option for each waste produced (i.e. re-use, recycling, recovery, or disposal; on or off-site).
Construction Surface Water Drainage Plan	Plan detailing provisions to minimise water within the cable trench and other working areas and ensure ongoing drainage of surrounding land.
Workforce Management Strategy	Strategy to put in place clear standards for the conduct of the construction workforce including a Code of Behaviour/Conduct; Employee Rules; Health and Safety; Drugs, Alcohol and Substance Misuse.

15. The following plans, listed in Table 1.3 below are to be read alongside the OCoCP and are subject to Requirements within the Draft DCO (Document Reference: 6.1).

Table 1.3 Plans, schemes and strategies to be read alongside the OCoCP

Name	Description
Outline Construction Traffic Management Plan (Document Reference 7.16)	Plan detailing the control measures and monitoring procedures for managing the potential traffic and transport impacts of constructing NFOW. The plan sets out the following details: • Control of HGV trips; • Control of employee trips; • Traffic management; and • Monitoring, enforcement and action plan.
Outline Landscape and Ecological Management Strategy (Document Reference 7.14)	A framework from which to agree the detailed plans and operations for the soft landscape proposals (planting and seeding) for the onshore project area to ensure that the design and mitigation intent is realised. In addition, the plan provides an outline of the actions that are proposed to avoid or mitigate ecological impacts during the pre-construction, construction and operation phases of the Project. Such actions comprise those relating to designated sites, UK Habitats of Principal Importance (UKHPI), and protected and notable species. The strategy sets out the following details: • General responsibilities; • Pre-construction and construction mitigation measures; • Long-term ecological measures; • Biodiversity enhancements; • Monitoring and reporting; and • Indicative timetable for suitable works period.
~~Outline Onshore~~Onshore Outline Written Scheme of Investigation (OWSI) (Document Reference 7.12)	Plan detailing the proposed approaches and commitments to archaeological survey and investigation to be undertaken post-consent. The plan sets out the following details: • Legislation, policy and guidance; • Summary of the archaeological and historical baseline; • Schedule of archaeological requirements; • Survey specific Written Schemes of Investigation (WSIs); • Methodologies for further surveys, evaluation work and mitigation measures; and • Public outreach / community engagement.
Outline Public Rights of Way Management Plan (Document Reference 7.17)	Plan detailing the proposed approaches and commitments for crossing Public Rights of Way (PRoW). The plan sets out the following details: • PRoW baseline and scope of strategy; • Approach to health and safety; • List of PRoW; and • Mitigation measures.
Outline Horizontal Directional Drill Method Statement and Contingency Plan (Document Reference 7.15)	Outline HDD methodology and accompanying contingency plan in the event of 'break-out' during HDD. The plan describes the proposed construction methods for all HDDs along the cable route, as well as the mitigations and actions required in the event of a loss of containment of drilling fluid.

1.2 General principles

1.2.1 Health and safety principles

16. The Applicant recognises that its decisions and activities have a direct impact on the health, safety and welfare of those working for the Applicant and on their behalf. The Applicant will set specific health and safety goals and monitor performance in relation to the construction of the proposed Project. The approved CoCP will include a Health and Safety Plan, within which the Applicant will:

- Demonstrate commitment to health and safety by their actions and behaviours;
- Ensure that health and safety issues are fully considered as an integral part of project management throughout the proposed project life; from design, through construction, operation and maintenance, and future decommissioning;
- Require all designers to consider and include the control measures necessary to minimise the risks to the health and safety of all those engaged in construction, maintenance (and demolition) of the proposed Project or to others who may be affected;
- Ensure that suitably competent employees and other designers, engineers, supervisors and construction personnel are engaged to undertake the responsibilities associated with the proposed Project;
- Ensure that all products, materials and processes used in construction, operation and maintenance present no significant risk to the health and safety of persons carrying out those duties or to others who may be affected by that activity;
- Ensure that suitable and sufficient resources, (including labour, materials, time and finances), are made available to effectively manage the health and safety requirements;
- Require that parties involved in the proposed Project have, where appropriate, a readily available, valid, suitable and sufficient Pre-Construction Information document and Health and Safety Plan as defined in the CDM Regulations 2015;
- Ensure a protest response and incident management plan is in place, which will include attendance response and management responsibilities, key points of contact, and the management of health and safety concerns;
- Ensure that upon completion of construction a suitable and sufficient Health and Safety File is completed and transferred, where appropriate, to the Applicant; and
- Ensure site access for members of the public shall be restricted during the construction phase of the project, to ensure public safety. Site access for all parties involved in construction will also be managed through a number of actions, including signing in procedures, exclusion zones and

induction certificates. The Health and Safety Plan will detail the safety measures to be imposed on site.

1.2.1.1 Electromagnetic fields

17. The Project will adopt the ICNIRP guidelines (1999, 2009, 2010) and Government voluntary Code of Practice on electromagnetic fields (EMF) public exposure (Department of Energy and Climate Change, 2012). Such considerations are inherent to the detailed engineering considerations of cable specification and routing.

18. Embedded design for EMF comprises the shielding of part of the cable which is designed to the ICNIRP guidelines (1998) 'Guidelines for limiting exposure to time-varying electric, magnetic and electromagnetic fields (up to 300 GHz)' and guidelines (2010) 'Guidelines for limiting exposure to time-varying electric and magnetic fields (1Hz – 100 kHz)'. Embedded mitigation also includes burying cables. EMF decreases rapidly with distance. Burying cables creates distance between any receptor at the surface (even directly above the cables) and the cable, resulting in a lower field than the cable itself generates.

19. Relevant public EMF exposure guideline limits are noted in National Policy Statement (NPS) EN-5 and would be complied with by the Project. These guidelines are long standing and have a high safety margin. The levels of exposure that they require would not pose a risk to public health.

20. The Project will provide clear and non-technical information about the electrical infrastructure and its compliance with UK guidance. This information will explain that potential EMF risks have been eliminated through careful design and do not pose a risk to public health.

1.2.2 Environmental Management System

21. During the construction phase, the Applicant will operate an Environmental Management System (EMS) based on the requirements of ISO 14001:2015, that describes the processes and procedures by which the Applicant identifies and manages significant risks associated with its operations and activities. The EMS is a primary mechanism by which environmental policy commitments, such as compliance with relevant legislation and standards, pollution prevention and continual improvement in environmental performance are measured, monitored and delivered.

22. Through the EMS, the Principal Contractor (and any subcontractors proposed by the Principal Contractor) undertaking work on behalf of the Applicant is screened and selected using a variety of criteria that include environmental credentials. The EMS will provide the preparation and implementation of a programme of environmental monitoring and auditing to ensure that the Applicant's environmental standards are being adhered to.

23. Prior to the commencement of construction works, a CoCP, for each phase of the works will be issued for review and approval by the relevant local authority following consultation with Essex County Council. The measures and standards identified in the CoCP will then be implemented by the appointed Principal Contractor.

1.2.3 PAS 2080:2023 Carbon Management in Buildings and Infrastructure

24. There are opportunities for reductions in construction phase Greenhouse Gas Emissions which can be captured through the implementation of a standard carbon management process. The PAS 2080:2023 Carbon Management in Buildings and Infrastructure guidance document provides requirements to demonstrate leadership and establish effective governance mechanisms for reducing whole life carbon in built environment projects. The following management measures are recommended as best practice:

- Optimise the efficiency of construction activities to reduce fuel and material consumption and promote resource efficiency e.g. inclusion of delivery and transport coordination requirements in the Construction Traffic Management Plan and adoption of waste hierarchy in construction management plans.
- Explore opportunities to reduce embodied carbon and other construction emissions by developing carbon-focused procurement criteria and incentive mechanisms for material suppliers and project partners, such as low carbon and recycled materials, circular construction methods and performance benchmarking.
- Review and include PAS 2080's key principles and requirements with respect to carbon management in the relevant project documents, such as:
    - Establish and communicate carbon management goals, roles and responsibilities, requirements and procedures to parties involved in the delivery of the Project.
    - Practise the GHG management hierarchy (IEMA, 2022) over the Project's lifetime (see Section 33.3.4.1 of ES Chapter 33 Climate Change (Document Reference: 3.1.35).
    - Promote collaboration and information sharing across the Project's value chain to encourage whole life carbon reductions and continual improvement.
    - Provide training and raise awareness among the project team and partners on key carbon emission sources and low carbon solutions.

1.2.4 Workforce Management Strategy

25. The Applicant provides clear standards for the conduct of its workforce, these include a Code of Behaviour/Conduct; Employee Rules; Health and Safety; Drugs, Alcohol and Substance Misuse. Drug and alcohol testing would be an integral part of the occupational health service. The Applicant would require Contractors to put in place similar arrangements and enforce a commensurate standard of conduct across the workforce. The Applicant would ultimately reserve the right to remove persons from the Project in the event of unacceptable conduct. Health promotion information would be available to the workforce e.g. at facilities provided for the construction workforce. Further details will be provided within a Workforce Management Strategy within the CoCP, post-consent.

1.2.5 Construction principles

26. The appointed Principal Contractor and associated management team will be responsible for implementation of the CoCP provisions, and for ensuring that any subcontractors and visitors are in compliance with these requirements. The practical implementation arrangements and responsibilities conferred to any subcontractors will be detailed in further management protocols to be developed.

27. The provisions of the OCoCP/CoCP will be incorporated into the contracts for the construction of the project and will be required to be adhered to as a requirement of the DCO. The Applicant and its appointed Principal Contractor will be required to comply fully with the terms of the CoCP.

28. Aims of the OCoCP/CoCP include mitigation of nuisance to the public and to safeguard the environment during construction. Construction activities will be monitored and policed by an Environmental Clerk of Works (EnvCoW) and Agricultural Liaison Officer (ALO) supported by other specialists as necessary (such as ecological, archaeological and auditing specialists).

29. In addition, pre- and postconstruction drainage plans will be developed by a qualified Drainage Specialist to record details of existing drainage arrangements and private water supplies. The purpose of the Construction Surface Water Drainage Plan is to ensure the existing field is kept as dry as practicable during construction and to prevent severed field drains draining into the cable trench. The purpose of the postconstruction drainage plan is to restore the soil structure and drainage status of the easement to at least the same condition as recorded prior to commencement of the construction works.

30. In addition to the arrangements under this OCoCP, the appointed Principal Contractor will be encouraged to register with the Considerate Constructors Scheme (CCS) which is a voluntary code of practice that seeks to:

- Enhance the appearance of the site;
- Secure everyone's safety;
- Respect the community;
- Care for the workforce; and
- Protect the environment.

31. The Scheme requires contractors to adhere to the Scheme's Code of Considerate Practice.

32. All design of the Project's temporary and permanent works will be undertaken in compliance with the relevant design and construction standards during detailed design.

1.2.5.1 Construction Method Statements

33. Detailed Construction Method Statements will be developed by the Principal Contractor for relevant construction operations. Relevant Construction Method Statements will be included as part of the CoCP for each phase of the works.

34. Each Construction Method Statement will follow construction industry good practice guidance and adhere to the following:

- Pollution Prevention Guidelines (PPG)01[1] – Understanding your Environmental Responsibilities – Good Environmental Practises;
- PPG05 – Works or maintenance on or near water;
- PPG06 – Working at construction and demolition sites;
- PPG08 – Safe storage and disposal of used oils;
- PPG11 – Preventing pollution at industrial sites;
- PPG20 – Dewatering of underground ducts and chambers;
- PPG 21 – Pollution incident response planning;
- The Sustainable Drainage System (SuDS) Manual, C753F, CIRIA (2015);
- Site Handbook for the Construction of SuDS, C698, CIRIA (2007);
- CIRIA Handbook C741 Environmental Good Practice on Site;
- CIRIA Report C532 Control of Water Pollution from Construction Sites;
- CIRIA Report C648 Control of Pollution from Linear Construction Project Technical Guidance;
- Defra Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (2009);
- Environment Agency's Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention (2001);
- Bat Conservation Trust and Institute of Lighting Professionals Bats and Artificial Lighting at Night guidance (2023);
- British Standard [BS] 5228 BS 5228-1:2009+A1:2014 Code of practice for noise and vibration control on construction and open sites; and
- BS 5837 (2012) – Trees in Relation to Design, Demolition and Construction - Recommendations.

1.2.6 Local community liaison

35. A Stakeholder Communications Plan will be developed as part of the CoCP. The Applicant will ensure effective and open communication with local residents, businesses, the local community and the healthcare and emergency services that may be affected by the construction works.

36. Communications will be co-ordinated on site by a designated member of the construction management team.

[1] The Pollution Prevention Guidelines are no longer the current documents used by the Environmental Agency. However, the mitigation presented in the Pollution Prevention Guidelines is still appropriate for managing pollution prevention on construction sites and have therefore been considered.

37. Community engagement will be maintained, keeping local residents informed of the type and timing of works involved, paying particular attention to activities which may occur in close proximity to receptors. Communication with landowners will be carried out keeping them up to date in respect of programme / timescales for commencement of construction and final construction areas following detailed design. In addition, landowners will be notified of the chosen development scenario at the same time or shortly after the relevant planning authorities are notified in accordance with the relevant Requirement of the Draft DCO (Document Reference: 6.1). A combination of communication channels, for example information boards and parish council meetings, will be employed to keep local residents informed.

38. A designated point of contact for the Project will manage communications with emergency services including the East of England Ambulance Service (EEAST), Suffolk and North East Essex Integrated Care Board (SNEE ICB), Essex County Fire and Rescue Service and Essex Police. The individual will establish a line of communication with EEAST, SNEE ICB, Essex County Fire and Rescue Service and Essex Police, and provide updates and detail to EEAST, SNEE ICB, Essex County Fire and Rescue Service and Essex Police as required. This would include, but not be limited to the following:

- The location of compounds and accesses;
- Planned road works and road closures, including details of any diversion routes;
- The timing and routeing of any abnormal load movements;
- Locations where works are within 10m of water; and
- Circulation of any available information about offshore transport, such as helicopters, boats and their accommodation.

39. A designated Local Community Liaison Officer will respond to any public concerns, queries or complaints in a professional and diligent manner as set out by a project community and public relations procedure which will be submitted for comment to the relevant local authority.

40. Parish Councils in the relevant area will be contacted in advance of the proposed works and ahead of key milestones. This information will include indicative details for timetable of works, a schedule of working hours, the extent of the works, and a contact name, address and telephone number in case of complaint or query. Enquiries will be dealt with in an expedient and courteous manner. Any complaints will be logged, investigated and, where appropriate, rectifying action will be taken.

41. Additional specific receptors have been identified through the EqIA **[REP1-049]** as requiring specific attention by the Local Community Liaison Officer. These are:

- Community (Tendring 014A), along Link 24;
- Community (Frinton Road, Holland-on-Sea), along Link 25;
- ACEs performance academy;
- Tendring Primary School;

- Churches (Great Holland Church, All Saints Church, St Mary's Church);
- Care facilities (The First Care Services, Tendring Meadows Care Home, Springbank Care Home);
- Tendring Green Allotments.

1.2.7 Embedded mitigation measures

42. During the pre-application phase, the Applicant has made a decision on a number of techniques and inherent engineering designs/modifications as part of the project in order to avoid a number of impacts or reduce impacts as far as practicable. Embedding mitigation into the project design is a type of primary mitigation and is an inherent aspect of the EIA process as detailed within ES Chapter 6 EIA Methodology (Document Reference: 3.1.8).

43. Details of design decisions made to minimise likely significant effects as far as practicable are contained in ES Chapter 4 Site Selection and Assessment of Alternatives (Document Reference: 3.1.6) and ES Chapter 5 Project Description (Document Reference: 3.1.7).

44. North Falls has undergone an extensive site selection process which has involved incorporating environmental considerations in collaboration with the engineering design requirements, avoiding where practicable:

- Key constraints e.g. height or weight restrictions on the highway network;
- Environmental constraints;
- Populated areas;
- Proximity to residential dwellings;
- Minimising impacts to local residents in relation to avoiding disruption to emergency and routine health care, as well as general access to employment, amenities, services and goods and access to services and rail and road usage, including road and footpath closures; and
- Historic and nature conservation designated sites.

45. Land take has been minimised where practicable, reducing severed land parcels and aligning with field boundaries.

46. Design decisions relating to cable routing (including watercourse, woodland and hedgerow crossings), access strategy and TCCs locations have been considered and incorporated into the EIA, ensuring their delivery is secured via the management plans, schemes and strategies listed in Table 1.2 and Table 1.3.

1.2.7.1 Crossings

47. As part of the Project's design, NFOW has committed to using trenchless techniques at certain obstacles crossings along the onshore cable route during construction, in order to mitigate ecological, water resource and traffic and transport effects and well as effects on other assets during construction. A list of those crossings where trenchless techniques have been committed to is provided in Table 1.4 below. A full list of the proposals for each obstacle

crossing is provided in Appendix 5.1 Crossing Schedule (Document Reference: 3.3.2).

Table 1.4 Trenchless crossings

Crossing reference	Eastings / Northings[2] *(ordered from landfall to onshore substation)*	Obstacle
TX-01B (Landfall)	E: 622678.9, N: 218178.9	Sea defences Holland Haven Marshes Site of Special Scientific Interest (SSSI) and Local Nature Reserve (LNR) Frinton Golf Club Holland Brook (Main River)
TX-02B	E: 622226.0, N: 218402.6	Ordinary watercourse Hedgerow[3]
TX-03	E: 621330.1, N: 218890.4	Hedgerow
TX-04	E: 621004.4, N: 218865.0	B1032 Clacton Road
TX-05	E: 620484.3, N: 219040.7	Little Clacton Road
TX-07	E: 620460.5, N: 219398.1	Hedgerow
TX-08	E: 620377.4, N: 219723.6	Hedgerow
TX-10	E: 620154.6, N: 220089.0	Hedgerow
TX-12	E: 619946.1, N: 220497.2	Railway line Woodland Hedgerow
TX-14	E: 619880.0, E: 221003.7	Woodland
TX-15	E: 620018.7, E: 221375.7	B1033 Thorpe Road
TX-16	E: 620051.6, E: 221855.2	B1034 Sneating Hall Lane
TX-17B	E: 619431.3, N: 222318.8	Hedgerow
TX-18	E: 619137.1, N: 222635.9	Hedgerow
TX-20	E: 618636.0, N: 222917.7	B1414 Landermere Road Hedgerow
TX-21	E: 617766.0, N: 223366.2	Hedgerow Golden Lane
TX-22	E: 617396.0, N: 223543.5	Hedgerow
TX-23	E: 616477.9, N: 224064.1	Woodland

[2] Co-ordinates for centre point of constraint(s) provided. Exact crossing start / end points will be identified during detailed design.
[3] Hedgerows of particular ecological value have been avoided using trenchless techniques where possible. Further details on the ecological value of the hedgerows referenced here can be found in Appendix 5.1 Crossing Schedule (Document Reference: 3.3.2) and ES Chapter 23 Onshore Ecology (Document Reference: 3.1.25).

Crossing reference	Eastings / Northings[2] *(ordered from landfall to onshore substation)*	Obstacle
		Hedgerow Swan Lane Ordinary watercourse
TX-25	E: 615805.2, N: 224658.4	Hedgerow
TX-26	E: 615310.9, N: 224964.5	Tendring Brook (Main River) Hedgerow
TX-28	E: 614604.3, N: 226018.8	Hedgerow / Mature trees
TX-29	E: 614414.2, N: 226206.5	Hedgerow Wolves Hall Lane
TX-30	E: 613866.0, N: 226716.7	Hedgerow Stones Green Road
TX-31	E: 613110.8, N: 227542.2	A120 Hedgerow
TX-33	E: 612083.9, N: 227957.5	B1035 Clacton Road Hedgerow
TX-34	E: 611679.5, N: 227752.2	Ordinary watercourse Hedgerow
TX-36	E: 610542.7, N: 227454.7	Bentley Road Mature trees
TX-40A	E: 608371.8, N: 228479.5	Ordinary watercourse Ardleigh Road

1.3 General site operations

1.3.1 Working hours and timing of works

48. Construction work for the onshore works must only take place between 0700 hours and 1900 hours Monday to Saturdays, with no activity on Sundays and bank holidays, except as specified below.

49. Between 1300 – 1900 on Saturdays no 'high impact' activities (e.g. piling/breaking out) shall take place, unless required by the circumstances set out below.

50. No activity where noise is audible beyond the Order limits will take place outside of these hours including Sundays, public holidays or bank holidays apart from under the following circumstances:

- Continuous periods of operation that are required as assessed in the environmental statement, such as concrete pouring, drilling, dewatering, cable jointing and pulling cables (including fibre optic cables) through ducts;

- Delivery to the onshore works of abnormal loads that may otherwise cause congestion on the local road network, where the relevant highway authority has been notified prior to such works 72 hours in advance;
- Works required that may necessitate the temporary closure of roads;
- Onshore works requiring trenchless installation techniques;
- Onshore works at the landfall, including where works are being carried out in the marine environment and maybe tidally restricted;
- Commissioning or outage works associated with the National Grid substation connection works;
- Electrical installation, testing and commissioning;
- Activity necessary in the instance of an emergency where there is a risk to persons, the environment, delivery of electricity or property, as otherwise agreed in writing with the local authority;
- Security monitoring;
- Fitting out works associated with the onshore substation; and
- Daily start up or shut down.

51. Save for emergency works, full details, including but not limited to type of activity, vehicle movements and type, timing and duration and any proposed mitigation, of all essential construction activities undertaken outside of the consented construction hours must be agreed with the relevant local authority in writing in advance, and must be carried out within the agreed time.

52. Perimeter and site lighting would be required during working hours and a lower level of lighting would remain overnight for security purposes. This lighting would be kept to a minimum and adhere to the Bats and Artificial Lighting guidance (Bat Conservation Trust and Institute of Lighting Professionals, 2023). Further details on light emissions are set out within Section 1.3.9.

53. The relevant local planning authorities will be advised of the likely timetable of works. This timetable will also be shared with affected communities through the Local Community Liaison Officer.

1.3.2 Construction site layout and housekeeping

54. The CoCP will include a site layout showing the location of construction compounds, trenchless crossing (e.g. HDD) compounds (including the Landfall compound), onshore substation construction compound, and main features of these sites. Ahead of construction, further site investigations will be required for the Project. Prior to any intrusive investigation or construction work, all existing service plans would be consulted, and a comprehensive service line location survey carried out in order to ensure the existing services are not disrupted. This would include radio detection, ground penetration radar and vacuum excavation where necessary.

55. A good housekeeping policy will be applied across all construction areas throughout the construction period. This will include the following requirements:

- All working areas will be kept in a clean and tidy condition;
- All site compound areas will be non-smoking / non-vaping. Specific areas within the worksites will be designated as smoking / vaping areas and will be equipped with containers for smoking waste. These will not be located at the boundary of working areas or adjacent to areas deemed sensitive to local residents, construction personnel or visitors;
- Open fires and burning of rubbish are prohibited at all times;
- Music shall not be played through speakers on any worksite;
- Site waste susceptible to spreading by wind or liable to cause litter will be stored in enclosed suitable containers and waste will be removed at frequent intervals and the site kept clean and tidy;
- Static plant will have suitable drip tray protection;
- Oils and chemicals will be clearly labelled, and the site should retain an up-to-date Control of Substances Hazardous to Health (COSHH) inventory;
- Hoardings and boundary fences will be frequently inspected, repaired and repainted as necessary; and
- Adequate welfare facilities will be provided for all site staff and visitors.

56. Further measures relating to pollution prevention and response with respect to flooding and hazardous materials are provided in Sections 1.3.10 and 1.8.

1.3.3 Fencing

57. Details of temporary fencing, walls and other means of enclosure will be submitted to the relevant planning authorities for approval before the relevant stage of connection works can commence. A Construction Fencing Plan will be included within the CoCP based on the following:

- All HDD temporary construction compounds will be securely fenced;
- During construction of the onshore cable route, fencing or other means of enclosure will be installed to demarcate the working area. Stock fencing will be used where necessary; post and wire or similar will be used otherwise;
- The onshore substation will be enclosed by a temporary perimeter fence for the duration of the construction period with a permanent fence installed as part of the construction works; and
- Some fenced areas may include security gates to control access and egress.

1.3.4 Site induction

58. The construction of the Project will require all personnel working on site to have a site induction that includes an environmental protection and good practice component. Prior to commencing work on site, personnel must attend the site induction. Site inductions will include reference to compliance with relevant

DCO Requirements (including the CoCP), client environmental requirements, environmental management structure and contacts, site specific environmental sensitivities, waste management arrangements, water and wastewater management, hazardous material management, fuel, oil and chemical management, spill contingency and environmental emergency response, reporting of incidents and complaints. More specific information will be provided to personnel according to their role.

1.3.5 Site security

59. Adequate security will be provided by the Principal Contractor working on behalf of the Applicant to protect the public and personnel, prevent theft from or damage to the works, and prevent unauthorised entry to or exit from the site. In addition to the site induction required for all personnel, specific training will be provided in relation to staff vigilance for identifying security concerns and risks. Site gates will be closed and locked when there is no site activity and appropriate security measures shall be implemented. Further details on site security measures will be provided in the CoCP.

1.3.6 Welfare

60. The construction areas will be serviced by temporary construction offices and necessary welfare facilities, including mess rooms, locker rooms, showers and toilet facilities, plus facilities for mobile construction teams. These will be in compliance with relevant legislation and codes of practice and will be sited at the mobilisation areas.

1.3.7 Extreme weather events

61. There is uncertainty as to the degree that climate change would lead to more extreme weather events but recent evidence suggests this is becoming more prominent which could cause disruption, flooding and damage during the construction phase of the Project.

62. The application of the CoCP will prioritise workers' safety by considering the impact of extreme weather events, including heatwaves and storm events (high winds and flooding). The CoCP will include mitigation measures such as monitoring on-site weather conditions, incorporating a severe weather protocol into construction management plans, and scheduling activities based on information from weather forecasts. Construction site workers will be required to consider provisions specific to prevailing weather conditions, such as additional rest breaks during heatwaves. By implementing these measures, construction sites can minimise the risks associated with heatwaves and storm events to the construction workers and impact on construction activities.

1.3.8 Clearance of site on completion

63. TCCs and accesses will be cleared when they are no longer required to support the construction[4]. On completion of construction work all plant, temporary buildings or vehicles will be removed. Following completion of works in a particular area, the area will be reinstated, including any habitat reinstatement measures as set out within the OLEMS.

1.3.9 Artificial light emissions

64. Mitigation measures to be taken to manage emissions from artificial light during construction will be in accordance with Bats and Artificial Lighting at Night guidance (Bat Conservation Trust and Institute of Lighting Engineers, 2023), and will include the use of directional beams, non-reflective surfaces and barriers and screens, to avoid light nuisance whilst maintaining safety and security obligations.

65. Site lighting will be positioned and directed to minimise nuisance to footpath users and residents, to minimise distractions to passing drivers on adjoining public highways and to minimise skyglow, so far as reasonably practicable. Light spillage will also be mitigated to avoid or minimise impacts on ecological resources, including nocturnal species and their associated habitats.

66. Low energy LED type bulbs will be used which can be automatically switched, i.e. via dawn to dusk sensor, timer or passive infrared sensor (PIR).

67. So far as is practicable, all power to temporary lighting will be taken from mains supplies rather than from portable generators. Where portable generators are used, industry practice will be followed to minimise noise and pollution from such generators.

1.3.10 Pollution prevention and response

68. As part of the CoCP for each phase of the onshore construction works, an Environmental Emergency / Incident Response Plan will be prepared in accordance with good industry practice guidance (refer to Section 1.16). The plan will include a response flow chart and detail how to report and deal with an environmental incident, including the measures available to contain/clean up an incident (e.g. spill kits, waste reception facilities). A contact list for notifying relevant stakeholders will be appended to the plan.

69. Personnel working on site, including any subcontractors and visitors, will be trained in the proposed environmental emergency response procedures so that they are prepared and able to respond to an incident promptly and effectively.

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[4] When developing a co-ordinated design onshore, North Falls and Five Estuaries have developed three possible build-out scenarios for the projects. ES Chapter 5 Project Description, Section 5.3.2 (Document Reference: 3.1.7) describes three build out scenarios. It is noted that build out Scenario 3, if delivered, would mean that TCCs are reinstated prior to the second project proceeding given the significantly different programmes.

70. The main objectives with regard to managing potential hazardous materials are:

- Ensuring that appropriate measures are in place to prevent hazardous materials being released into the environment; and
- Complying with relevant legislation and good practice associated with the storage and use of hazardous materials.

71. The CoCP will consider outline controls associated with the delivery, storage, and handling of hazardous materials and in particular oils and fuels taking into account the requirements of the Control of Pollution (Oil Storage) (England) Regulations 2001 and good industry practice guidelines (such as Pollution Prevention for Business).

1.3.10.1 Control measures

72. The following requirements of the Control of Pollution (Oil Storage) (England) Regulations 2001 and good industry practice guidelines will be implemented:

- Oil and fuel will be stored in a bunded compound, the volume of which shall be at least equivalent to the capacity of the tank or tanks plus 10% and be located in designated areas taking into account security, the location of sensitive receptors and pathways such as boreholes, wells, drains and watercourses, rising water and safe access and egress for plant and manual handling. The walls will be of sufficient height and structural soundness to withstand flood water ingress. Spill response materials will be provided nearby and be readily accessible, with personnel trained in spill response;
- Oils and chemicals will be clearly labelled, and the site should retain an up to date COSHH (Control of Substances Hazardous to Health) inventory. Activities involving the handling of large quantities of hazardous materials, such as deliveries and refuelling, will be undertaken by designated and trained personnel in-line with specific procedures for bulk deliveries with delivery points and vehicle routes clearly marked;
- Oil, fuel and chemical storage areas will be inspected, at least weekly for signs of spillage, leaks and damage in line with the requirements of the EMS. Rainwater, materials and general debris will be stored in bunds and drip trays that compromise contingency storage shall be removed as part of the maintenance programme and in accordance with regulatory protocols;
- Use of portable bowsers with built-in bunds for any refuelling activities required in the active working area, with the return of bowsers to a construction compound overnight. Refuelling would take place in a dedicated impermeable area, located at least 10m away from the nearest water body;
- Biodegradable oils to be used where practicable;
- Locating concrete and cement mixing and washing areas at least 10m away from the nearest water body. These areas will incorporate settlement and recirculation systems to allow water to be re-used. All

washing out of equipment would take place in a contained area and the water collected for disposal off-site.

- Inspection of all construction plant for fuel leaks before being delivered to the working area;
- Ensuring that spill kits are available on site at all times as well as sandbags and stop logs for deployment on the outlets from the site drainage system in case of emergency spillages;
- Facilities storing oils and fuels will be locked and made secure when not in use; and
- Small plant will be provided with drip trays or commercial 'plant nappies'.

73. In addition, where working areas are within Flood Zone 2 or 3 additional measures will be taken to minimise pollution risk during periods of extreme weather (i.e. flooding) by including:

- Staff toolbox talks on pollution prevention and spill procedures;
- Refuelling activities will be undertaken away from watercourses and from rising water;
- Debris will be safely contained, reducing the risk of large items entering the flood flow;
- Weekly monitoring of construction drainage sediment traps (visual inspection) with increased monitoring during inclement weather. If required these traps can be pumped via settling tanks to remove sediment, based on a pre-defined level / depth of sediment; and
- Machinery will be stored or returned to areas of hardstanding, preferably remote from flood waters, or where this is not practicable, sufficiently constrained so as not to wash away.

74. Where working areas are adjacent to watercourses or cross Flood Zone 2 or 3, the following measures will be implemented:

- Spoil will not be stored in the functional floodplain (Flood Zone 3b), except at the landfall compound, where spoil will be stored appropriately;
- There shall be no storage of spoil directly on watercourse banks. Where practicable, spoil will be set back from watercourses by 10m. This will prevent excessive loading on the watercourse banks and minimise the risk of stored material entering the watercourses; and
- In addition, spoil will be stored with gaps in between to enable flow conveyance.

75. Further information on pollution prevention and response can be found in Section 1.8. Specifically, Section 1.8.2 provides details relating to a Flood Warning and Evacuation Plan.

1.4 Contaminated land and groundwater

76. ES Chapter 19 Ground Conditions and Contamination (Document Reference: 3.1.21) identifies sensitive receptors to ground condition impact (including

groundwater) and management and mitigation measures proposed to reduce impacts. The control measures set out below are to be applied in order to ensure that any potential effects upon these receptors are adequately mitigated.

1.4.1 Control measures

77. For each phase of the onshore works a scheme to deal with the contamination of any land (including groundwater) within the Order limits will form part of the CoCP, which will be submitted to and approved by the relevant local authority.

78. Each scheme must include an investigation and assessment report, prepared by a specialist consultant to identify the extent of any contamination and the remedial measures to be taken for that phase to render the land fit for its intended purpose, together with a management plan which sets out long-term measures with respect to any contaminants remaining on the site.

79. Each scheme must include consideration of the potential creation of pathways which have the risk of creating a contaminant linkage to an off-site location which was not previously at risk.

80. For each stage of the onshore works a Materials Management Plan (MMP) utilising the CL:AIRE DoWCoP will be drafted for the re-use of site won soils and approval for its use will be sought from the Environment Agency and the relevant local authority. The MMP will be approved by a Qualified Person and the declaration submitted to CL:AIRE.

81. Good environmental practice shall be followed during the construction phase of the proposed North Falls project, in accordance with the Environment Agency's now revoked PPG (PPG1, PPG5, PPG6, PPG8, PPG21 and PPG22) and current good industry practice guidelines. In addition, the following management measures shall be employed during the construction:

- All works/operations to be carried out by appropriately trained personnel;
- Appropriate PPE and working practices to be adopted by all personnel, including subcontractors and visitors, and health and safety measures to be undertaken to mitigate any short-term risk during construction. A CDM Regulations site specific risk assessment will be developed;
- Where trenchless crossings are proposed within any Source Protection Zones, a detailed hydrogeological risk assessment meeting the requirements of Groundwater Protection Guides Covering: Requirements, Permissions, Risk Assessments and Controls (Environment Agency 2017), and in agreement with the Environment Agency would be undertaken;
- Where practicable, construction activities will avoid being located in close proximity to existing infrastructure (commercial buildings, residential properties, schools etc). Where it is not practicable to locate construction works away from existing infrastructure, measures outlined in this document will be applicable;

- Adherence to an environmental emergency / incident response plan (or similar) which will be drafted in advance of any construction works (refer to Section 1.16);
- Mitigation measures relating specifically to impacts to groundwater may include the development of a hydrogeological risk assessment where earthworks/excavations are within 50m (or 250m dependent upon volume abstracted) of private potable groundwater abstractions (see Section 1.8.1.6). The risk assessment will meet the requirements of Environment Agency's Approach to Groundwater Protection 2018 Framework. Furthermore, a piling risk assessment would be undertaken where piles are to be used (e.g., the onshore substation area) in areas of potential contamination, in line with the Environment Agency's Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention (Environment Agency, 2001). The Environment Agency will be consulted during the development of any piling risk assessment;
- Validation of materials imported to site in line with pre-agreed assessment criteria to ensure they are suitable for proposed end use;
- A Soil Management Plan (SMP) as well as a Site Waste Management Plan (SWMP) for North Falls will be developed as part of the CoCP; and
- Where practicable, avoidance of construction in areas of historic development.

82. Stockpiling of excavated materials during earthworks will be temporary in nature and will only be permitted in designated areas. These designated stockpiling areas will be located a minimum of 10m from any open watercourses where practicable.

83. In the event that unexpected contamination is encountered, work in the area will cease on instruction by the Principal Contractor or delegate and be contained and made as safe as reasonably practical pending assessment by a suitably qualified environmental specialist. Consultation with the relevant local authority and the Environment Agency will be undertaken and agreement reached on plans for further investigation and remediation measures where necessary. Remedial works would be undertaken should the area be considered to pose an unacceptable risk to human health. These remedial works would be undertaken prior to the operation of North Falls.

84. The EnvCoW will visit the site, if necessary, and determine what action is required to allow construction to recommence. It may be necessary to collect soil or water samples for laboratory analysis. Some types of contamination may need to be removed to ensure the safety of construction workers; in which case this will be advised by the environmental specialist.

85. Where necessary, laboratory analysis will be completed allowing conclusions to be reached as to whether material needs to be removed from the construction area and disposed of in a suitable specialist waste facility.

86. In relation to mineral sterilisation, following consultation with the local authority it will be determined if a Mineral Resource Assessment (MRA) would be undertaken, building on the MRA undertaken prior to DCO application

(Appendix 19.2 Minerals Resource Assessment, Document Reference: 3.3.21), to provide an indication of the likely quality and extent of the mineral resource, the commercial viability of extraction and environmental impact.

87. Following the completion of construction works, the O&M manual for North Falls will be handed to the Applicant by the Principal Contractor. The folder will include information in relation to the contamination residual risks present within the onshore project area.

88. Maintenance workers that are required to undertake ground excavations during the operation of North Falls would be provided with the information contained within the O&M manual regarding the nature of ground conditions within each area so that they can develop site and task specific risk assessments and method statements (RAMS) with their recommendations being implemented.

1.5 Waste management

89. ES Appendix 19.3 Waste Assessment (Document Reference: 3.3.22) assesses the impacts of the onshore project area in terms of waste generation during the construction, operation and decommissioning phases, taking into account the proposed options for recycling, recovery or disposal of waste, and the capability of the existing local or regional waste management facilities to manage the waste.

1.5.1 Control measures

90. A SWMP will be prepared prior to construction to record any decisions given to materials resource efficiency when designing and planning the works. Any assumptions on the nature of the Project; its design; the construction method or materials employed, in order to minimise the quantity of waste produced on site; or maximise the amount of waste reused, recycled or recovered, will be captured within the SWMP.

91. The SWMP will provide information on each waste type that is expected to be produced by the project with the appropriate EWC code and description for each waste type. It will provide an estimate of the quantity of each type of waste and the proposed waste management option for each waste produced (i.e. re-use, recycling, recovery or disposal; on or off-site).

92. There are certain principles of waste management that can be applied to the majority of wastes that would be created during the construction phase. These are:

- Adhere to waste legislation for storage and handling on-site; and also ensure that the relevant regulatory controls have been applied to the reuse, recycling or recovery of waste on-site.
- No waste from the project shall be deposited outside the boundary of the site, unless it is at a facility that holds a valid environmental permit or suitable authorised exemption. Off-site waste management facilities are legally obliged to operate under an environmental permit (or an authorised exemption), which is in place to ensure that the site is

operated in a manner to prevent emissions causing harm to human health or the environment.

- Ensure that those who remove waste from site have the appropriate authorisation (i.e. are registered waste carriers); and those facilities that receive waste from the site hold a valid environmental permit or authorised exemption.
- Allocate space on site for the storage of waste materials and ensure that storage areas and containers are clearly labelled (appropriate signage) so site workers know which wastes should be put there. Paved areas/impermeable surfaces may be required, as considered necessary, to prevent direct contact with the ground.
- Hazardous waste must be stored separately from non-hazardous wastes to avoid contamination. The Hazardous Waste Regulations make it illegal to mix hazardous waste with non-hazardous waste.
- Provide separate containers for dry recyclables, such as paper and cardboard, plastic, glass, wood and metal at welfare facilities within contractor compounds. This would encourage recycling and increase the potential value of the recyclable items by avoiding contamination.
- Monitor the actual quantities of wastes produced during construction and update the SWMP to allow comparison with waste arisings estimated prior to construction. Record the proposed waste management option (e.g. reuse on site, recycle off-site, or dispose off-site) for each waste produced.
- All wastes that are removed off site would be described on a waste transfer note or hazardous waste consignment note (as appropriate) that tracks the movement of the waste to the specified disposal or recovery facility.
- The appointed contractors should identify appropriate staff that are responsible for waste management; and ensure that all contractor staff are aware of the appropriate reuse, recovery or disposal routes for each waste.

1.6 Soil management

93. ES Chapter 22 Land use and Agriculture (Document Reference: 3.1.24) identifies the soil resource potentially affected by NFOW. There is the potential for soil compaction and erosion as well as changes to soil drainage during the construction process. Measures will be implemented on site to minimise any effects. An SMP will be produced as part of the CoCP, which will define the site-specific mitigation measures and good industry practice techniques required to be followed by all to protect soil resources.

94. Good industry practice guidance and latest industry standards will be followed to manage the thermal resistivity of the soil.

1.6.1 Control measures

95. Measures set out in the Ministry of Agriculture, Fisheries and Food (MAFF) (2000) Good Practice Guide for Handling Soils and Defra (2009) Construction Code of Practice for the Sustainable Use of Soils on Construction Sites will be adopted, including:

- Considering the weather conditions where it is appropriate to work for each soil type;
- Storing soil appropriately;
- Ensuring effective drainage systems are used during construction;
- Reinstating drainage systems following construction;
- Reinstating and planting vegetation following completion of the construction works;
- Using a competent contractor for soil handling, storage and reinstatement under Defra (2009) Construction code of practice for the Sustainable Use of Soils on Construction Sites;
- Storing topsoil adjacent to where it is stripped, where practicable;
- Seeding of topsoil bund with legume to fix nutrients and keep the soil live, therefore limiting soil loss and requirement for significant inputs when reinstated;
- Storage of the excavated subsoil separately from the topsoil, with sufficient separation to ensure segregation;
- Handling of soils according to their characteristics;
- Limiting mechanised soil handling in areas where soils are highly vulnerable to compaction during wet weather;
- Restricting movement of heavy plant and vehicles to specified routes; and
- Minimising the excavation footprint as much as reasonably practicable.

96. An SMP, including a Construction Method Statement for soil handling, will be completed in advance of construction by a suitable and competent soil specialist, who will have experience of working in the Essex region if reasonably practicable, and agreed with the relevant local authority in advance of the works.

97. The pre-construction soil condition survey will be undertaken by the competent soil specialist to identify the physical characteristics of the soils to support land reinstatement. The survey will be undertaken at a standard density of 100m intervals. Soil pits will also be examined at appropriate locations to provide additional detail on soil structure and stoniness. The surveys will provide information on soil physical characteristics, including:

- Soil depths for topsoil and subsoil horizons;
- Soil textures of all horizons;
- Soil colour;

- Soil analysis to BS3882 identifying current soil nutrients and contaminants;
- Levels of compaction; and
- Stone contents, estimated from augering, confirmed by soil pit excavation and / or sample analysis.

98. The Principal Contractor would be required to comply with the SMP. The SMP will typically include the following measures:

- Soils handling, storage and reinstatement by competent construction personnel under Defra (2009) Construction code of practice for the Sustainable Use of Soils on Construction Sites;
- Storing topsoil adjacent to where it is stripped, where practicable;
- Seeding of topsoil bund with clover mix to fix nutrients and keep the soil live, therefore limiting soil loss and requirement for significant inputs when reinstated;
- Storage of the excavated subsoil separately from the topsoil, with sufficient separation to ensure segregation;
- Handling of soils according to their characteristics, for example, within wooded areas it is unlikely that topsoil resources of any quality could be separated and preserved for reuse. If current wooded areas are to be used for storage it would not be necessary to undertake topsoil stripping. Topsoil from agricultural land may be treated as a single resource for stockpiling and reuse;
- Loosening of subsoils is proposed when dry to improve permeability before the topsoil is replaced;
- For most after-uses, subsoils may be treated as a single resource for stockpiling;
- During wet periods, limiting mechanised soil handling in areas where soils are highly vulnerable to compaction;
- Restricting movement of heavy plant and vehicles to specified routes and avoidance of trafficking of construction vehicles in areas of the site which are not subject to construction phase earthworks;
- Minimising the excavation footprint as much as reasonably practicable;
- In circumstances where construction has resulted in soil compaction, further remediation may be provided, through an agreed remediation strategy; and
- Weed control on topsoil and subsoil bunds.

1.6.2 Soil reinstatement

99. It is anticipated that the cable duct installation will be broken down into the following activities:

- Excavation team cutting the profile of the trench for pre-duct installation;

- Duct Installation Team: Installing ducts; and
- Reinstatement Team: Backfilling and compacting subsoil.

100. ~~In line with requirements from UK energy network operators (e.g. UK Power Networks and National Grid),~~ Cable ducts will be installed so that no infrastructure will be installed shallower than ~~to a minimum depth of~~ 0.9m, in line with requirements from UK energy network operators (e.g. UK Power Networks and National Grid) for crossing arable farmland. ~~(from top of protection tiles to surface)~~ ~~but with~~ A~~a~~ target depth of 1.2m where practicable to the top of ducts will aim to be achieved. Installation to this depth is designed to minimise any restrictions on typical agricultural operations, such as cultivation or drainage maintenance, that may be required to protect the cables from accidental exposure and damage. The decision on the final burial depth in each area will be contingent on local geology and soil conditions as identified during pre-construction ground investigations, agricultural practices and existing field drainage, and will be determined in consultation with local landowners.

101. Depending on the thermal resistivity of the soil and the height of the water table an engineered fill such as cement bound sand (CBS) could be required to encase the cable ducts. This is commonly used to ensure that the thermal conductivity of the material around the cables is of a known consistent value for the length of the installation. CBS has a low thermal resistance to conduct the heat produced during electricity transmission.

102. Cable duct installation activities will continually move as the soils at the back of the work area are being backfilled. This would minimise the amount of land being worked on at any one time. However, the haul road, and associated construction drainage, would need to be retained throughout much of the cable route to maintain access to each area of duct installation activity.

103. Long-term storage of topsoil in bunds or heaps will be avoided where practicable. However, some topsoil will have to be reserved for re-covering the final area when the haul road is removed at the end of the construction phase.

104. Any surplus soils from the onshore substation works may be re-used for landscaping, offered to landowners or disposed of in an appropriate manner off-site.

105. Specific replanting measures are set out within the Outline Landscape and Ecological Management Strategy, which is secured via a Requirement of the Draft DCO (Document Reference: 6.1). Where appropriate, a cover crop may be used to aid reinstatement.

106. In addition to the above mitigation measures, where practicable during detailed project design, the project will seek to avoid mature trees within hedgerows through the micro-siting of individual cables, in order to retain as many additional mature trees as practicable.

1.7 Agricultural Land Management

107. A pre-construction land survey would be undertaken by an ALO to record details of crop regimes, position and condition of field boundaries, existing drainage and access arrangements, and private water supplies. Land would

be reinstated to its pre-construction condition as soon as reasonably practicable following onshore cable installation.

108. The ALO will be appointed by the Applicant prior to the commencement of the construction works and will be the primary contact for ongoing engagement with owners, their agents and occupiers of land about practical agricultural matters before and during the construction process. There may be more than one ALO if required.

109. A 24-hour contact number will be in use during the construction phase for use by landowners, occupiers and their agents in the event of emergency.

110. Post-construction the ALO will remain appointed for up to one year in order to manage remediation issues.

111. The scope of works for the ALO will include but are not limited to:

- Coordinating drainage surveys and assisting in sharing pre and post construction drainage schemes with landowners, occupiers and their agents in advance for their consideration.
- Undertaking and preparing the Record of Condition capturing the condition of land prior to entry being taken prior to commencement of the construction works (and prior to commencement of intrusive surveys or pre-construction works as necessary).
- Advising the Project on risks relating to the translocation of soil diseases, where necessary, and assisting in ensuring appropriate protective provisions are implemented.
- Arranging quarterly meetings with the landowners, occupiers and their agents were considered necessary.
- Undertaking pre-construction liaison with landowners, occupiers and their agents to minimise disruption, where practicable, to existing farming regimes and timings of activities.
- Undertaking site inspections during construction to monitor working practices including implementation of soil handling methodologies.
- Discussing and agreeing reinstatement measures between the Applicant and land interests following completion of the construction works.
- Ensuring landowners, occupiers and their agents are consulted in respect of requirements to field entrances and crossing points across the Works Corridor, in particular to severed land parcels.
- Discussing the location, grouping, and marking of inspection chambers with landowners, occupiers and their agents.

1.8 Surface water, groundwater and drainage management

112. ES Chapter 21 Water Resources and Flood Risk (Document Reference: 3.1.23) includes applicable mitigation measures for the construction and operational phases of the Project. The measures have been provided to reduce the impact of the Project on the surface and groundwater resources. In

particular, the control measures are designed to manage flood risk and sediment management.

113. The Applicant has committed to develop a scheme and programme for each watercourse crossing, diversion and reinstatement, which will include site-specific details regarding sediment management and pollution prevention measures. The Watercourse Crossing Scheme (see Table 1.2) will be submitted, as part of the CoCP, to the relevant local authority.

114. A full walkover of the onshore cable route will be carried out to identify all ordinary watercourses which will help to confirm the number, location and design of watercourse crossings. This will be undertaken during detailed design stage in support of the Watercourse Crossing Scheme and to inform any applications that seek to Lead Local Flood Authority (LLFA) approval for the crossing of ordinary watercourses.

1.8.1 Control measures

1.8.1.1 Sediment management – all onshore areas

115. To minimise potential impacts from the construction phase on land, surface water or groundwater receptors, the Applicant has committed to the following measures (in addition to those set out in Section 1.6):

- Temporary works areas (e.g. construction compounds and trenchless crossing areas) within the onshore project area may comprise hardstanding of permeable material, such as gravel aggregate or alternatively matting/timber of similar, underlain by geotextile or another suitable material to a minimum of 50% of the exposed area. This would minimise the area of open ground.
- Changes in surface water runoff resulting from the increase in impermeable area from the construction of the onshore cable route and particularly the onshore substation will be attenuated and discharged at a controlled rate, in consultation with the LLFA (Essex County Council) and the Environment Agency, and potentially Affinity Water (if a connection to their drainage infrastructure is required during construction of the onshore substation). An Outline Operational Drainage Strategy (Document Reference: 7.19) has been submitted with the DCO Application. An Operational Drainage Plan, secured by DCO Requirement, will be developed in consultation with the relevant regulators and approved by the relevant local authority. This controlled runoff rate will would be equivalent to the greenfield runoff rate.
- Limiting extent of open excavations along the onshore cable route to short sections at any one time (work fronts). Topsoil would be stripped from the entire width of the onshore cable route for the length of the work front and stored and capped to minimise wind and water erosion within the onshore cable route.
- Once all the trenching is completed and backfilled, the stored topsoil will be re-distributed over the area of the excavation, with the exception of the running track and any associated drainage.

- Temporary works areas (e.g. TCCs and trenchless crossing areas) within the onshore project area may comprise hardstanding of permeable gravel aggregate underlain by geotextile, or other suitable material.
- Minimising of subsoil exposure and retention of strips of undisturbed vegetation on the edge of the working area where practicable.
- Where surface vegetation has been removed (with the exception of arable crops), this will be reseeded to prevent future runoff.
- On-site retention of sediment will be maximised by routing all drainage through the site drainage system.
- Include measures to intercept sediment runoff at source in the drainage system using suitable filters to remove sediment from water discharged to the surface drainage network.
- Plant and wheel washing is carried out in a designated area of hard standing at least 10m from any watercourse or surface water drain, rock outcrop (hard rock at surface) or karstic sinkhole.
- Traffic movements would be restricted to minimise surface disturbance.
- Collect run-off in lagoons and allow suspended solids to settle before disposal.
- Divert clean water away from the area of construction work in order to minimise the volume of contaminated water.
- Routing the cable to avoid water resources and flood risk receptors where practicable. In locations where large areas of exposed ground lie adjacent to watercourses, buffer strips of vegetation will be retained where practicable to prevent runoff.

1.8.1.2 Pollution prevention

116. Construction activities will adhere to industry good practice measures as detailed in the Environment Agency's Pollution PPG notes (including PPG1, PPG5, PPG8 and PPG21) (although these have been revoked, they provide a useful guide for good industry practice measures) and Construction Industry Research and Information Association (CIRIA)'s 'Control of water pollution from construction sites: Guidance for consultants and contractors (C532)' (2001).

117. Details relating to pollution prevention and response with respect to flooding and hazardous materials are provided in Section 1.3.10.

118. Perched waters within Made Ground or groundwater from dewatering activities will be collected within a tank or lagoon prior to any treatment or discharge. This wastewater shall either be discharged in accordance with the protective provisions secured in the Draft DCO (Document Reference: 6.1) or:

- Discharged to foul sewer under a trade effluent consent agreed with the local water company / supplier; and / or
- Discharged to surface water under an environmental permit issued from the Environment Agency.

1.8.1.3 Watercourse crossings

119. All Main Rivers will be crossed using trenchless techniques such as HDD to avoid direct interaction with these watercourses. Most Ordinary Watercourses will also be crossed using trenchless techniques. Details are in line with Appendix 5.1 Crossing Schedule (Document Reference: 3.3.2).

120. The HDD cable entry and exit pits will be at least 9m from the banks of the watercourse (in line with the permitting requirement for Environment Agency/LLFA, District Councils, Internal Drainage Board) and the cable will be at least 3m below the hard bed. Protective provisions for the benefit of drainage authorities and for the benefit of the Environment Agency have been included within the Draft DCO (Document Reference: 6.1).

121. Bailey bridges or similar may be used as options to traverse Main Rivers where direct access is not readily available from both sides.

122. Ground investigations and a hydrogeological risk assessment meeting the requirements of Groundwater Protection Principles (Environment Agency, 2017) will be undertaken at each HDD crossing location.

123. Selection of a crossing technique for Ordinary Watercourses not crossed using trenchless techniques will be dependent on local site conditions and may include the use of temporary culverts, where vehicular access is required.

124. Where trenched crossings would be carried out on Ordinary Watercourses, this would involve installing temporary dams (composed of sandbags, straw bales and ditching clay, or another suitable technique) upstream and downstream of the crossing point. The cable trench would then be excavated in the dry area of riverbed between the two dams with the river flow maintained using a temporary pump or flume using fish-friendly filters.

125. If used, temporary culverts will be adequately sized to avoid impounding flows (including allowing for increased winter flows as a result of climate change).

126. In order to ensure that there are no adverse impacts resulting from the installation of temporary dams, the following measures would be adopted, as appropriate (to be detailed in the Construction Method Statements outlined in Table 1.2):

- Restricting the amount of time that temporary dams are in place, e.g. typically no more than one week;
- Prior to dewatering the area between the temporary dams, a fish rescue would be undertaken;
- Flumes or pumps would be adequately sized to ensure that flows downstream are maintained whilst minimising upstream impoundment;
- Avoiding times when there is adverse weather forecast;
- Ensuring that over pumping has sufficient capacity to accommodate extreme events if necessary;
- Scour protection would also be used to protect the riverbed downstream of the dam from high energy flow at the outlets of flumes and pumps; and
- Sympathetic reinstatement of channel and banks.

1.8.1.4 Bentonite breakout

127. Drilling fluid is used to lubricate and cool the drill bit and string, suspend, and carry away the drill cuttings, also to make the drill string buoyant and to stabilise the borehole. Bentonite is a non-toxic, inert, natural clay mineral (mainly montmorillonite) with ability to absorb water and increase its own volume by several times, forming a gelatinous and viscous fluid. With the addition of water, it forms drilling fluid, used in HDD. The drilling fluid may also contain minor amounts of other additives, e.g., polymers, soda ash, and xanthan gum (typically <0.1%) to control the fluid viscosity and regulate pH depending on the pH of the water supply. It is classified under Classification Regulation (EC) No 1272/2008 Classification Directive 67/548/EEC, 1999/45/EC and in both cases is classified as not hazardous. It does not represent a pollutant but can cause localised smothering of habitats during a significant breakout event.

128. For small breakouts it may cause more damage to habitats to attempt to contain the breakout and remove the escaped material, i.e. trampling of grassland associated with responding to the breakout and the potential for exposing bare ground. To reduce the risk of drilling fluid reaching the surface, a site-specific design and risk assessment will then be undertaken as part of the post-consent detailed design process. This will consider the any risk of using trenchless crossing techniques and set out the mitigation and actions required to monitor construction activities and to avoid any damage.

129. A Horizontal Directional Drill Method Statement and Contingency Plan will be agreed with the Environment Agency prior to commencement of construction activities, which will be secured under a Requirement in the DCO. An Outline Horizontal Directional Drill Method Statement and Contingency Plan (Document Reference: 7.15) has been provided as part of the DCO application.

1.8.1.5 Surface water drainage

130. During construction, the onshore cable installation will be designed with drainage channels to intercept drainage within the working width. Additional drainage channels will be installed to intercept water from the cable trench. This will be discharged at a controlled rate into local ditches or drains via temporary interceptor drains. Depending upon the precise location, water from the channels will be infiltrated or discharged into the existing drainage network.

131. Construction drainage will be developed and implemented to minimise water within the cable trench and ensure ongoing drainage of surrounding land. If water enters the trenches during installation from surface runoff of groundwater seepage, this will be pumped via settling tanks, sediment basins, sediment filtration socks or mobile treatment facilities to remove sediment, before being discharged into local ditches or drains via temporary interceptor drains. Existing land drains will be reinstated, wherever practicable, following construction. In the event this is not feasible, there will be an agreed post construction drainage scheme implemented.

132. In addition, buffer strips of vegetation will be retained adjacent to water bodies where practicable, to intercept any contaminated runoff. To protect groundwater bodies, excavation will be shallow, limited to approximately 1.6m

below the surface, except where it passes below road and rail infrastructure or water bodies where it may be deeper.

133. A Construction Surface Water Drainage Plan (see Table 1.2) will be developed, as part of the CoCP, and agreed with the relevant regulators and implemented to minimise water within the cable trench and other working areas and ensure ongoing drainage of surrounding land. This typically includes interceptor drainage ditches being temporarily installed parallel to the trenches and soil storage areas to provide interception of surface water runoff and the use of pumps to remove water from the trenches during cable installation.

134. The Construction Surface Water Drainage Plan will include the following measures:

- Any pumps, flumes or channels will be designed to have sufficient capacity, as set out in Section 1.8.1.3 (Watercourse Crossings), to convey the required range of flows at each location.
- Interceptor drains for the settlement of sediment (sediment traps). Sediment traps are locally wider/deeper areas of the drains that will encourage passive sediment deposition.
- Weekly monitoring of sediment traps (visual inspection) with increased monitoring during inclement weather. If required these traps can be pumped via settling tanks to remove sediment, based on a pre-defined level / depth of sediment.
- Where water enters the construction areas, this will be pumped via settling tanks, sediment filtration socks or ponds to remove sediment before being discharged into local ditches or drains via the interceptor drains in order to prevent increases in fine sediment supply to the watercourses.
- When the interceptor drains, and associated sediment traps are decommissioned any standing water within the drains would be pumped out to settling tanks as described above. Sediment that has settled out within the interceptor drain would be left in place. Soils would be replaced in the reverse order that they were removed, and turf reinstated.

135. Existing land drains along the onshore cable route and at the onshore substation will be reinstated, where practicable and in agreement with each Landowner, following construction. A specialist drainage contractor will undertake surveys to locate drains and create drawings both pre- and post-construction and ensure appropriate reinstatement. The Construction Surface Water Drainage Plan will include provisions to minimise water within the working area and ensure ongoing drainage of surrounding land. In the event reinstating existing land drains is not feasible, there will be an agreed post construction drainage scheme implemented.

1.8.1.6 Groundwater

136. To prevent deterioration in water body status, the following groundwater control measures will be implemented during construction phase:

- Use of good industry practice techniques and due diligence regarding the potential for pollution throughout all construction, operation and

maintenance, and decommissioning activities. This provides a robust approach to managing pollution incidents on site to reduce the probability and impact of leaks and spills.

- Ground investigations and a hydrogeological risk assessment meeting the requirements of Groundwater Protection Guides (Environment Agency, 2017), will be undertaken at each trenchless crossing location.
- Where earthworks/excavations are within 50m (or 250m dependent upon volume abstracted) of private potable groundwater abstractions, mitigation measures may include the development of a hydrogeological risk assessment to understand potential effects of hydraulic connectivity during construction. The risk assessment will meet the requirements of Environment Agency's Approach to Groundwater Protection 2018 Framework.
- A written scheme dealing with contamination of any land and groundwater will be undertaken before construction activities commence (see Section 1.4).
- No works will be undertaken in Source Protection Zone (SPZ) 1 areas to ensure there is no direct impact on sensitive potable abstractions.

1.8.1.7 Foul drainage

137. Foul drainage (e.g. from construction welfare facilities) will be collected through mains connection to an existing mains sewer (if such a connection is available) or collected in a septic tank located within the development boundary and transported off site for disposal at a licensed facility with appropriate treatment capacity within its existing permit.

138. On site treatment plant may be required to treat the wastewater prior to disposal in order to meet discharge limits set by either the Environment Agency or local water company.

1.8.2 Flood Warning and Evacuation Plan

139. The Principal Contractor will be required to monitor local weather forecasts and ensure there is an evacuation route in place, in the event that fluvial or coastal flooding takes place during the construction stages of the Project.

140. Where there are Environment Agency Flood Alerts and Flood Warnings, it is recommended that site users sign up to receive the relevant flood warnings and alerts.

141. A flood warning and evacuation plan is a list of steps to be taken in case of a flood, although it can also include steps such as taking out the relevant insurance or using recommended flood mitigation products.

142. Specific flood warning and evacuation plans should be produced for the construction phase of the onshore cable route, specifically related to construction works at watercourse crossing locations where personnel or materials may be located, albeit temporarily, within Flood Zones 2 and 3.

143. All personnel should be made aware of any access routes which are located within Flood Zones 2 and 3 and any flood warnings issued for those areas

should result in the relevant access routes being cleared of all project personnel and, where practicable, all project plant / materials.

144. A site-specific flood warning and evacuation plan should include practical steps for protecting North Falls, be easy to communicate and consider delegated responsibility, or whether personnel are likely to require additional support during a flood event.

145. It is anticipated that North Falls will require a comprehensive flood warning and evacuation plan including the following aspects:

- A list of important contacts, including Floodline, utilities companies and insurance providers;
- A description or map showing locations of service shut-off points;
- Basic strategies for protecting property, including moving assets to safety where practicable, turning off/isolating services and moving to safety; and
- Safe access and egress routes.

146. The Environment Agency provide a free Flood Warning ("flooding is expected") service for fluvial flooding (rising river levels). It is recommended that the flood warning and evacuation plan considers how receipt of these flood alerts or warnings may affect their operations.

147. It should be noted that large parts of the onshore cable route are in rural undeveloped areas, that are not covered by flood warnings. Furthermore, it is important to note that Environment Agency flood alerts and warnings are not issued in response to surface water flooding.

148. As such the flood warning and evacuation plan will include independent checks (i.e. Met Office Weather Warnings) alongside any alerts or warnings issued by the Environment Agency. These checks will also account for risks outside of the alerts / warnings in areas that may be at risk from failure of defences (such as a breach). This will allow consideration of how this information will affect planned works, especially areas in close proximity to key watercourses.

149. The Principal Contractor and management should liaise with Essex County Council as the LLFA, and the Environment Agency so they are aware of any forecast related to heavy rainfall events. The potential for flooding can then be assessed to enable work to stop, especially for areas within close proximity to key watercourses, and the site cleared of all personnel in this instance.

150. Refer to Section 1.3.10.1 for details of measures when working in Flood Zones 2 and 3 and areas at risk of surface water flooding with regard to TCC locations.

1.9 Air quality management

151. ES Chapter 20 Onshore Air Quality (Document Reference: 3.1.22) identifies receptors that are potentially sensitive to air and dust emissions. The control measures set out below are to be applied in order to ensure that any potential effects upon these receptors are adequately mitigated.

1.9.1 Control measures

152. A number of management and mitigation measures in relation to the emission of dust and other emissions during construction works have been identified.

1.9.1.1 Communications

153. A Stakeholder Communications Plan will be developed and implemented and will include community engagement before work commences on site.

154. The name and contact details of person(s) accountable for air quality and dust issues, within the Principal Contractor's team, will be displayed on the site boundary.

155. The head or regional office contact information, for the Principal Contractor, will also be displayed.

156. A Dust Management Plan (DMP) will form part of the CoCP for each phase of the works setting out measures to control emissions. The level of detail will depend on the risk and will include as a minimum the recommended measures below.

1.9.1.2 Dust management

157. Throughout the construction works, the following dust management measures shall be implemented where practicable to maintain suspended particulates to suitable levels:

- 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 local authority when asked;
- Record any exceptional incidents that cause dust and/or air emissions, either on- or off-site, and the action taken to resolve the situation in the logbook;
- Hold regular liaison meetings with other high risk construction sites within 500m of the site boundary, 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;
- 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 local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and windowsills within 100m of site boundary, with cleaning to be provided if necessary;
- Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked;
- 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;

- Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is practicable;
- Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site and where there is a sensitive receptor within 250m;
- Material stockpiles will be low mounds without steep sides or sharp changes in shape;
- Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period;
- 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 site as soon as practicable, unless being re-used on site. If they are being re-used on-site cover as described below;
- Manage stockpiles to prevent wind whipping;
- Ensure all vehicles switch off engines when stationary – no idling vehicles;
- 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 15mph on surfaced and 10mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate);
- Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials;
- Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing). Further details are provided in ES Chapter 27 Traffic and Transport (Document Reference: 3.1.29);
- 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 practicable and appropriate;
- Use enclosed chutes and conveyors and covered skips;
- Minimise drop heights from handling equipment and use fine water sprays on such equipment wherever appropriate;
- 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; and

- Avoid bonfires and burning of waste materials.

1.9.1.3 Measures specific to earthworks

158. Measures specific to earthworks may typically include:

- Re-vegetate or cover earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable;
- Only remove the cover in small areas during work and not all at once; and
- Use hessian, mulches or tackifiers where it is not practicable to re-vegetate or cover with topsoil, as soon as practicable.

1.9.1.4 Measures specific to construction

159. Measures specific to construction may typically include:

- Ensure sand and other aggregates are stored in appropriate manner to minimise dust generation for example the use of bunded areas;
- Avoid scabbling (roughening of concrete surfaces) if practicable;
- 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 power materials ensure bags are sealed after use and stored appropriately to prevent dust.

1.9.1.5 Measures specific to access and egress from site

160. Measures specific to access and egress from site may typically include:

- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site;
- 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 where practicable, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned;
- 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
- Locate access gates at least 10m from receptors where practicable.

1.9.1.6 Measures specific to Non-Road Mobile Machinery (NRMM)

161. Non-Road Mobile Machinery (NRMM) and plant would be well maintained. If any emissions of dark smoke occur, then the relevant machinery should stop

immediately, and any problem rectified. In addition, the following controls should apply to NRMM:

- All NRMM should use fuel equivalent to ultralow sulphur diesel (fuel meeting the specification within EN590:2004) where practicable;
- All NRMM should comply with the appropriate NRMM regulations;
- All NRMM would be fitted with Diesel Particulate Filters (DPF) conforming to defined and demonstrated filtration efficiency (load/duty cycle permitting);
- The ongoing conformity of plant retrofitted with DPF, to a defined performance standard, should be ensured through a programme of onsite checks;
- Fuel conservation measures should be implemented, including instructions to (i) throttle down or switch off idle construction equipment; (ii) switch off the engines of trucks while they are waiting to access the site and while they are being loaded or unloaded and (iii) ensure equipment is properly maintained to ensure efficient fuel consumption; and
- Consideration will also be given to the siting of NRMM within the working area. Where practicable, locating generators and plant at the greatest distance from receptors will reduce the potential for air quality effects.

1.10 Invasive non-native species

162. Invasive non-native species (INNS) that are known, or are highly likely to occur, in selected parts of the construction works areas are American mink *Neovision vision*., Japanese knotweed *Fallopia japonica*, water fern *Azolla filiculoides* and New Zealand Pigmyweed *Crassula helmsii*. Actions to address the presence (or potential presence) of such species are addressed below. These measures should be read in conjunction with the Outline Landscape and Ecological Management Strategy, secured under a Requirement in the Draft DCO (Document Reference: 6.1).

163. Butterfly bush *Buddleja davidii* was also recorded within the onshore project area by Essex Field Club. Butterfly bush is not native to the UK; however it is also not legally listed as an INNS within Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) and therefore does not require specific management measures.

164. One record of American mink spraints/ droppings was reported within environmental records obtained from Essex Field Club, specifically at Holland Brook. A further American mink spraint was recorded at Tendring Brook during the otter and water vole surveys.

165. Japanese knotweed was recorded by Essex Field Club during soil funnel extraction within the Little Clacton area. Even though this record is outside of the onshore project area, Japanese knotweed is still highly likely to be present due to the species' widespread distribution throughout Essex.

166. Six occurrences of water fern and ten occurrences of New Zealand Pigmyweed were recorded within the ditch networks of the Holland Haven Marshes SSSI during the National Vegetation Classification (NVC) surveys.

167. Prior to construction, an INNS Management Plan will be agreed with the Environment Agency and Natural England in order to minimise the potential risk of INNS spread within terrestrial habitats, into watercourses and from works vehicles. The plan will include the following:

- A plan of all invasive species locations and extents within works areas;
- A protocol for removing INNS and for managing the waste generated (where required);
- Good site practice measures for managing the spread of INNS during works at watercourses; and
- A requirement for an Ecological Clerk of Works (ECoW) and details of their responsibilities with respect to INNS.

168. All construction vehicles and machinery entering and leaving the working area(s) will follow the biosecurity measures of the Great Britain Invasive Non-native Species Strategy (Defra, 2015) “check, clean, dry” guidance. In addition, the following biosecurity protocols will be adopted in all areas known to support INNS as a minimum:

- To avoid disturbance and spread of INNS, where practical an exclusion zone will be created around INNS of at least 7m;
- Signage will be erected to indicate the location of soils, materials or water contaminated with INNS;
- Should exclusion not be practical, good site practice measures for managing the spread of INNS during works at watercourses will be followed, including:
    - All vehicles arriving on site will be checked to ensure that they are clean and free from any INNS prior to entering the working area(s);
    - If soil or other material is imported to the working area(s), documentation from suppliers will be obtained to ensure it is free from INNS;
    - All footwear of construction personnel and visitors will be inspected visually to ensure they are clean from soil and debris before entering and leaving the working area(s);
    - All vehicles will be kept clean, in particular removing any accumulated mud/material before entering and leaving the working area(s);
    - All facilities within working area(s) will be equipped with disinfectant to clean footwear/equipment/vehicles prior to entering and leaving the working area(s);
    - All removed material and/or disinfectant used to clean footwear/equipment/vehicles will be appropriately disposed of; and

- All access to working area(s) will be kept to a minimum and all vehicles and personnel will keep to maintained tracks, with vehicles parked within designated areas and/or hard standing.

- The use of tracked vehicles should be avoided within areas of INNS; and
- Wherever practicable, personnel and vehicles will avoid areas known to contain INNS. The ECoW will undertake regular inspections of the work area to confirm the presence of INNS (including Himalayan balsam) and adherence to required measures. In the event that additional areas of INNS are identified the ECoW will review and update the INNS Management Plan to include these additional area/INNS and their appropriate measures.

1.11 Noise and vibration

169. ES Chapter 26 Noise and Vibration (Document Reference: 3.1.28) identifies receptors that are potentially sensitive to noise and vibration impacts. The control measures set out below are to be applied in order to ensure that any potential effects upon these receptors are adequately mitigated.

170. There is the potential for noise and vibration to be generated during the construction process, especially from heavy plant and machinery. Measures will be implemented on site to minimise any effects and a programme of monitoring may be required.

1.11.1 Control measures

171. The final CoCP will detail standard measures to control construction noise emissions (best practicable means) and where applicable, mitigation measures. The CoCP will be developed based on the confirmed list of plant and equipment proposed by the appointed Principal Contractor for that phase of the works i.e. confirming the actual expected noise levels and location of works during construction activities.

1.11.1.1 Best practicable means

172. 'Best Practicable Means' (BPM) that the Principal Contractor will adopt to minimise noise during construction include:

- Where practicable, locating temporary plant so that it is screened from receptors by on-site structures, such as site cabins;
- Using modern, quiet equipment and ensuring such equipment is properly maintained and operated by trained staff;
- Applying enclosures to particularly noisy equipment / plant where practicable;
- Ensuring that mobile plant is well maintained such that loose body fittings or exhausts do not rattle or vibrate;
- Avoiding unnecessary revving of engines;
- Avoiding reversing wherever practicable;
- Vehicles should be fitted low noise reversing warnings where practicable;

- Reporting any defective equipment/plant as soon as practicable so that corrective maintenance can be undertaken;
- Ensuring plant machinery is turned off when not in use;
- Any plant found to be requiring interim maintenance to be taken out of use;
- Providing local residents with 24-hour contact details for a site representative in the event that disturbance due to noise from the construction works is perceived;
- Establishing a community engagement process, through the Stakeholder Communications Plan, including informing local residents, businesses and blue light organisations about the construction works, detailing the timing and duration of any particularly noisy elements, and providing a contact telephone number to them;
- Where practicable, noisy works should be interspersed between quieter works to provide periods of respite;
- Where practicable, the works should be phased to ensure that the noisiest operations are performed during the least sensitive times;
- Minimising the duration of the works is generally beneficial, if higher noise levels may result in a significant reduction in the overall duration of the works this should be considered;
- Using non-vibratory ground compaction methods at distances of 8m or less from a receptor;
- Choosing alternative, lower impact equipment or methods wherever practicable;
- Scheduling the use of vibration-causing equipment at the least sensitive time of day;
- Routing, operating or locating high vibration sources as far away from sensitive areas as practicable;
- Sequencing operations so that vibration-causing activities do not occur simultaneously; and
- Keeping equipment well maintained.

1.11.1.2 Mitigation

173. The following mitigation measures will be considered and included in the final CoCP, where applicable and practicable:

- Adhering to working hours and timing of works as set out in Section 1.3.1;
- Selection of quieter plant, equipment or working methods;
- Use of additional silencers and/or enclosures around noisy equipment;
- Reduced numbers of plant during sensitive periods;
- Reduced on-time of plant during sensitive periods;

- Increased separation distance between works and Noise and Vibration Sensitive Receptors (NVSRs);
- Interspersing of noisy works between quieter works to provide periods of respite;
- Phasing of the works to ensure that the noisiest operations are performed during the least sensitive times and vice-versa; and
- Review of the construction programme to minimise the duration of the works at the closest approach to properties where practicable to give periods of respite.

1.11.1.3 Measures specific to cumulative noise

174. The appointed Principal Contractor will liaise with the principal construction contractors for Five Estuaries and Norwich to Tilbury, if the relevant projects overlap temporally and spatially. This liaison will ensure that simultaneous working at similar locations will be considered (alongside appropriate mitigation measures), thereby minimising the potential for cumulative construction noise effects to occur.

1.11.2 Construction plant mitigation

175. Careful scrutiny of plant selection at procurement stage will ensure that the potential construction noise impacts are reduced as much as reasonably practicable.

1.11.2.1 Localised screening / temporary noise barriers

176. Noise barriers may be installed within the Order limits to further reduce noise emissions in proximity to noise sensitive receptors, such as residential properties.

177. As an example of the relative effectiveness of applying a temporary localised noise barrier BS 5228 states:

- *"…as a working approximation, if there is a barrier or other topographic feature between the source and the receiving position, assume an approximate attenuation of 5 dB when the top of the plant is just visible to the receiver over the noise barrier, and of 10 dB when the noise screen completely hides the sources from the receiver. High topographical features and specifically designed and positioned noise barriers could provide greater attenuation*."

178. The exact specification of any noise barriers that may be required to mitigate significant residual construction noise will be determined during detailed design based on the confirmed list of plant and equipment and presented in the final CoCP. Noise barriers will be introduced with the appropriate specification for the location and noise reduction required.

1.11.2.2 Noise insulation or temporary rehousing

179. If the implementation of all reasonable mitigation measures and BPM still results in construction noise levels exceeding the Threshold Values, BS 5228-1 does recommend further options such as the provision of noise insulation to affected habitable rooms.

180. BS 5228-1 also provides example noise limits for determining eligibility for noise insulation and temporary rehousing which are above the Threshold Values. To qualify for insulation or temporary rehousing these noise limits would have to be exceeded "*for a period of 10 or more days of working in any 15 consecutive days or for a total number of days exceeding 40 in any 6 consecutive months*." (BS 5228-1 Section E.4).

1.11.3 Complaints procedure

181. The final CoCP will include a procedure for investigating noise and vibration complaints during the Project's construction.

1.12 Onshore Archaeology

182. All onshore works will be carried out in accordance with the AMS, which includes the Onshore OWSI. These documents will include details of specifically identified measures to mitigate the impact of the onshore works to known heritage assets and will also include a range of standard mitigation measures which would be applied to any currently unknown heritage assets that could be affected by construction.

~~182.~~183. The AMS **[9.65]** and ~~Outline~~ Onshore OWSI ~~(Document Reference [~~**7.12 (Rev1)]**~~)~~ ~~has~~ have been submitted / updated ~~as part of the DCO application~~during the DCO Examination and detail~~s~~ the onshore archaeological strategy for the Project within the onshore project area (see Table 1.3).

~~183. The Outline Onshore WSI sets out the proposed approaches and commitments to archaeological survey and investigation to be undertaken post-consent. This includes both initial informative survey stages of mitigation work and subsequent additional mitigation measures, where required. This forms part of an overarching mitigation strategy to be undertaken within the onshore project area.~~

184. It is anticipated that ~~the initial informative survey stages of mitigation~~archaeological evaluation works would take place as part of the wider pre-construction programme and activities, post-consent, followed by further and additional bespoke mitigation requirements on a case-by-case basis, as required, in ongoing consultation and engagement with the Archaeological Curators (Essex County Council's Historic Environment Consultant and Historic England).

~~184.~~185. The Archaeological Curators will be afforded access to the archaeological mitigation sites to monitor the evaluation and mitigation works and sign-off completed archaeological work in accordance with the ~~Outline~~ Onshore OWSI and AMS. The detailed WSIs shall set out the arrangements and responsibilities for the implementation, monitoring and sign off of the archaeological mitigation measures.

1.12.1 Control Measures

186. The mitigation measures which are relevant to the OCoCP include those summarised below. The AMS and ~~Outline~~ Onshore OWSI should be referred to for full details of these mitigation measures.

~~185.~~187. The mitigation measures required will be confirmed as further information from archaeological evaluation works becomes available. The onshore works are designed to mitigate the potential impact from construction on archaeological resources.

1.12.1.1 Preservation In-Situ

~~186.~~188. Where opportunities remain for preserving sites or important features, areas or elements of archaeological remains in-situ through the pre-construction and construction stages, these would be considered on a case-by-case, site by site and area by area basis in further discussion with Essex County Council (and Historic England as required).

189. As part of the post-consent detailed design phase, further consideration would be given, where practicable, to micro-siting of individual cables, haul roads, temporary construction compounds etc. (within the confines of the onshore project area) which will seek to minimise impact upon those areas of highest sub-surface archaeological potential, within the confines of engineering and other environmental constraints.

190. Appropriate protection measures, such as buffer zones, fencing and signage, will be put in place throughout the period of construction to safeguard the archaeological remains to be preserved in situ and ensure there is no accidental damage to the preserved remains.

1.12.1.2 Open Area Excavation and Strip, Map and Record

191. Open area excavation and strip, map and record are two forms of archaeological excavation which systematically identifies, examines and records archaeological deposits, features and structures. It also recovers artefacts, ecofacts and other remains within a specified area where the extents of archaeological remains are well defined by previous survey and evaluation work.

~~187.~~192. Whilst these specified areas should ideally be defined and excavated prior to construction; where this is not practicable, agreed areas will be fenced to demarcate the archaeological working area to ensure no physical impacts are caused prior to implementation of the archaeological programme of works. These areas will not be released for construction until agreed archaeological field work has been completed and signed off by the Archaeological Curators, in line with the AMS.

~~1.12.1.2~~1.12.1.3 Archaeological Monitoring

~~188.~~193. Archaeological monitoring (watching brief) involves archaeological observation and any subsequent required investigation conducted during certain groundworks (e.g. targeted areas of both topsoil stripping and excavation of the cable trench, if required and where practicable) associated with the construction phase.

194. During construction the Principal Contractor(s) and the archaeological contractor will need to work together to ensure the archaeological programme

of works is defined and implemented. The Principal Contractor(s) will manage the construction process to allow for safe access for archaeological works to be carried out by the archaeological team as agreed with the relevant statutory consultees.

~~189. Where appropriate (in locations identified in advance), machine excavation would proceed under archaeological observation but would not be controlled directly by the nominated on-site archaeologist(s). A contingency period would be included in the works programme to allow investigation and recording of archaeological remains that might be identified, disturbed, or destroyed.~~

~~1.12.1.3~~1.12.1.4 *Sensitive and Precautionary Approaches to Construction Works*

~~190.~~195. Certain areas within the onshore project area may require additional, sensitive and precautionary approaches to construction works. The aim of these would be to ensure no accidental damage or accidental physical interactions occur with certain existing sensitive structures and features (of a historic nature) in identified areas.

~~191.~~196. Specific constrained areas would be identified in the post-consent detailed design stage. The measures of precautionary working will likely need to be adopted and would be further detailed in a Construction Stage Plan(s), CoCP, Contractor Environmental Action Plan(s), or similar.

~~1.12.1.4~~1.12.1.5 *Protocol for Archaeological Discoveries*

~~192.~~197. Following agreement with Essex County Council (and Historic England as required) an archaeologist may not be required to monitor all elements of the intrusive groundworks. In these instances, the Applicant and the relevant appointed Principal Contractor(s) will implement a protocol for reporting archaeological discoveries (PAD) to allow reporting of remains that would be recovered outside archaeological investigation. The PAD would be based on the principles set out in the Protocol for Archaeological Discoveries: Offshore Renewables Projects (The Crown Estate, 2014).

~~193.~~198. Each worksite team will have a Site Champion, a single person who is responsible for reporting discoveries to a Nominated Contact within the Applicant project team. The Nominated Contact will notify the Archaeological co-ordinator, who will seek further advice from Essex County Council.

~~194.~~199. The Nominated Contact would be the Environment Manager and/or Principal Contractor within the Applicant project team. Individual Site Champions for specific activities would be specified in method statements. The identity of the Site Champion would be clearly communicated to work teams, via pre-commencement briefings (toolbox talks) for example.

~~195.~~200. The Applicant would be responsible for ensuring that construction teams working within the onshore project area are provided with appropriate training in the application of the PAD and that all staff and contractors are aware of their responsibilities under the protocol.

~~196.~~201. Training to construction staff, site crews and work teams with regard to the practical application of the protocol in their day-to-day work will be provided by a sufficiently experienced and qualified Archaeological Contractor. Hard copies of the PAD document would be made available for use at each temporary construction compound.

~~197.~~202. Provision would be made by the Applicant, in accordance with the PAD, for the prompt reporting/recording to Essex County Council of any archaeological remains encountered or suspected during works.

~~198.~~203. Should previously unknown buried archaeological remains of a significant nature be encountered during construction works, the temporary suspension of intrusive groundworks may be required.

~~*1.12.1.5*~~*1.12.1.6* *Reinstatement of Field Boundaries and Hedgerows*

~~199.~~204. Certain hedgerows and field boundaries may require archaeological recording prior to and/or during the construction phase and further enhanced provisions made and implemented during backfilling and reinstatement.

1.13 Public Rights of Way

~~200.~~205. A number of public rights of way (PRoWs) which will be impacted during the construction phase of the project have been identified in ES Chapter 32 Tourism and Recreation (Document Reference: 3.1.34). A full list of all the PRoWs that cross the North Falls onshore project area is contained within Table 32.15 within ES Chapter 32 Tourism and Recreation.

1.13.1 Control measures

~~201.~~206. In accordance with the relevant Requirement in the Draft DCO (Document Reference: 6.1), no phase of the onshore works that would affect a PRoW specified in Schedule 4 (PRoWs to be Closed or Diverted and Access Land) is to be undertaken until a Public Rights of Way Management Plan (PRoWMP) has been submitted to and approved by the relevant local authority in consultation with the local highway authority. An Outline Public Rights of Way Management Plan (Outline PRoWMP) has been submitted with the DCO application.

~~202.~~207. During construction, disruption to any PRoW will be managed to ensure continued safe access along the PRoW. The exact method will be agreed in advance with the relevant local authority and detailed within the PRoWMP.

~~203.~~208. Following the cessation of construction works, temporary closures will be re-opened following each stage of work where practical. The final reinstatement of the ProWs within the working area will be to a standard equal to that prior to the construction works.

1.14 Onshore Ecology and Tree Protection

~~204.~~209. The measures that are proposed to avoid or mitigate ecological and landscape impacts during the pre-construction, construction and operation phases of the Project, as identified through the Project's EIA, are set out in the OLEMS (Document Reference 7.14). The OLEMS will form the basis for a final Ecological Management Plan (EMP), which will be prepared and submitted to the Local Planning Authority (LPA) (Essex County Council) for approval prior to construction of the Project.

~~205.~~210. The key measures set out in the OLEMS (Document Reference 7.14) that will be implemented during the pre-construction and construction phase are summarised below.

1.14.1 Ecological Clerk of Works

~~206.~~211. All of the ecological work described in the final EMP will be undertaken under the guidance of an ECoW. The ECoW will be primarily responsible for ensuring compliance with the EMP, and their role will include site inductions and toolbox talks, arranging specialist surveys. Undertaking ecological site inspections, reviewing RAMS and notifying the Principal Contractor of any issues/breaches in the EMP and/or CoCP.

1.14.2 Pre-construction surveys

~~207.~~212. Pre-construction surveys will be undertaken, where necessary, in accordance with industry guidance and methodology, and undertaken by appropriately experienced and, where necessary, licensed ecologists.

~~208.~~213. A tree survey will be undertaken by an appropriately qualified arboriculturist and accompanied by an Arboricultural Impact Assessment (AIA). An Arboricultural Method Statement ~~(AMS)~~ and associated tree protection plans (TPP) will be required to ensure retained vegetation is adequately protected throughout the course of the Project's construction. The tree survey report, AIA, Arboricultural Method Statement ~~AMS~~ and TPPs will be appended to the EMP and submitted to and agreed with the LPA (Essex County Council) prior to the commencement of any construction works. See Section 2.2.1 of the OLEMS (Document Reference 7.14) for further details.

1.14.3 Buffer zones

~~209.~~214. The EMP would specify protective buffer zones around key retained habitats (e.g. woodland, veteran trees, ponds, important grasslands and sections of watercourses) and species. These will include:

- A 15m buffer zone will be in place surrounding most areas of ancient woodland to avoid direct impacts during construction. A buffer of at least 10m will also be in place around Holland Mill Wood;
- A 20m standoff buffer zone will be in place for works on the north side of the Holland Haven Marshes SSSI; and
- Buffer zones around active bird nests would be based on species type and sensitivity, but would be at least 5m and marked out to prevent accidental disturbance.

~~210.~~215. The TPPs will also identify any protective buffers zones required for individual trees.

~~211.~~216. Protective fencing will be installed around retained UK Habitats of Principal Importance located directly adjacent to working areas. See Section 2.2.2 and 2.3.2 of the OLEMS (Document Reference 7.14) for further details.

~~212.~~217. All protective buffer zones will be maintained throughout the construction phase.

1.14.4 Designated sites and habitats

~~213.~~218. Direct loss of woodland habitats and veteran trees will be avoided by using trenchless techniques (e.g. HDD) to install cable ducts at all locations where woodland is encountered along the onshore cable route. Trenchless techniques have also been committed to beneath Holland Haven Marshes SSSI, and where practicable beneath hedgerows.

1.14.5 Protected and notable species

~~214.~~219. Section 2.2.3 of the OLEMS (Document Reference 7.14) details the pre-construction measures in respect of protected and notable species, which includes the following:

- Birds (wintering and breeding);
- Bats;
- Badgers;
- Otter and water vole;
- Reptiles;
- Great-crested newts;
- Hazel dormice; and,
- Invasive non-native species (see Section 1.10 of this document).

~~215.~~220. The ECoW will ensure compliance with the measures for these species within the EMP during construction.

~~216.~~221. The following protected species methods statements will be produced as part of the final EMP, where required following pre-construction surveys:

- Reptile precautionary method of working (PMoW);
- Great crested newt PMoW.

~~217.~~222. If other species-specific method statements are required following the completion of pre-construction surveys, these will also be included. See section 2.3.4 of the OLEMS (Document Reference 7.14) for further details.

~~218.~~223. The ECoW will ensure compliance with these method statements during construction.

1.15 Utility Providers

~~219.~~224. Utility providers potentially affected by construction works would be contacted prior to construction works commencing. Methodology for utility crossings would be agreed with asset owners in line with good industry practice.

~~220.~~225. The continuity of utilities during the construction works would be ensured subject to any relocation required which will be carried out in accordance with the protective provisions secured in the Draft DCO (Document Reference: 6.1).

Prior to construction, the team on the ground would be made aware of the precise locations of existing services.

1.16 Incident response and contingency

~~221.~~226. As part of the CoCP, a project-specific environmental emergency / incident response plan will be prepared. The plan will include a response flow chart and detail how to report and deal with an environmental incident, including the measures available to contain/clean up an incident (e.g. spill kits, waste reception facilities). A contact list for notifying relevant stakeholders will be appended to the plan.

~~222.~~227. Personnel working on site, including any subcontractors and visitors, will be trained in the project environmental emergency response procedures, so that they are prepared and able to respond to an incident promptly and effectively. Where appropriate, the Applicant encourages environmental emergency response plans to be tested on-site in consultation with the Applicant.

~~223.~~228. During construction, all site staff would be made aware of sections of the route that are located within a Flood Zone, and aware of the evacuation process in the event of a flood and any Flood Warning Systems would be subscribed to.

1.17 References

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