



**SCOTTISHPOWER
RENEWABLES**

East Anglia ONE North Offshore Windfarm

Outline Code of Construction Practice

Applicant: East Anglia ONE North Limited

Document Reference: 8.1

SPR Reference: EA1N-DWF-ENV-REP-IBR-000383 Rev 10

Pursuant to APFP Regulation: 5(2)(q)

Author: Royal HaskoningDHV

Date: 31st January 2022

Revision: Version 10

Applicable to

East Anglia ONE North



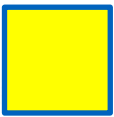
Revision Summary				
Rev	Date	Prepared by	Checked by	Approved by
01	08/10/2019	Paolo Pizzolla	Julia Bolton	Helen Walker
02	15/12/2020	Paolo Pizzolla	Ian Mackay	Rich Morris
03	24/02/2021	Paolo Pizzolla	Ian Mackay	Rich Morris
04	04/03/2021	Paolo Pizzolla	Ian Mackay	Rich Morris
05	25/03/2021	Paolo Pizzolla	Ian Mackay	Rich Morris
06	06/05/2021	Paolo Pizzolla	Ian Mackay	Rich Morris
07	07/06/2021	Paolo Pizzolla	Ian Mackay	Rich Morris
08	28/06/2021	Paolo Pizzolla	Ian Mackay	Rich Morris
09	05/07/2021	Paolo Pizzolla	Ian Mackay	Rich Morris
10	31/01/2022	Paolo Pizzolla	Lesley Jamieson	Brian McGrellis

Description of Revisions			
Rev	Page	Section	Description
01	n/a	n/a	Final for Submission
02	n/a	n/a	Draft for submission at Deadline 3
03	n/a	n/a	Final for submission at Deadline 6
04	n/a	n/a	Final for submission at Deadline 7
05	n/a	n/a	Final for submission at Deadline 8
06	n/a	n/a	Final for submission at Deadline 10
07	n/a	n/a	Final for submission at Deadline 11
08	n/a	n/a	Final for submission at Deadline 12
09	n/a	n/a	Final for submission at Deadline 13
10	n/a	n/a	Final for Submission



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Glossary of Acronyms

ALO	Agricultural Liaison Officer
AQMP	Air Quality Management Plan
BCT	Bat Conservation Trust
CCS	Construction Consolidation Sites
CDM	Construction (Design and Management) Regulations 2015
CMS	Construction Method Statement
CoCP	Code of Construction Practice
COPA	Control of Pollution Act 1974
COSHH	Control of Substances Hazardous to Health
DCO	Development Consent Order
dB	Decibels
DOW COP	Definition of Waste Code of Practice
DPF	Diesel Particulate Filters
ECoW	Ecological Clerk of Works
EMS	Environmental Management System
ES	Environmental Statement
GP3	Groundwater Protection Principles and Practice
HDD	Horizontal Directional Drilling
HGV	Heavy Goods Vehicle
IDB	Internal Drainage Board
LLFA	Lead Local Flood Authority
LOAEL	Lowest Observed Adverse Effect Level
MMP	Materials Management Plan
mph	Miles per hour
NRMM	Non-Road Mobile Machinery
OCoCP	Outline Code of Construction Practice
OCTMP	Outline Construction Traffic Management Plan
OLEMS	Outline Landscape and Ecological Management Strategy
PPA	Planning Performance Agreement
PPE	Personal Protective Equipment
PPG	Pollution Prevention Guidance
PRoW	Public Rights of Way
SMP	Soils Management Plan
SOAEL	Significant Observed Adverse Effect Level
SPZ	Source Protection Zone
SuDS	Sustainable Drainage System
SWDP	Surface Water and Drainage Management Plan



Glossary of Terminology

Applicant	East Anglia ONE North Limited.
Cable sealing end compound	A compound which allows the safe transition of cables between the overhead lines and underground cables which connect to the National Grid substation.
Cable sealing end (with circuit breaker) compound	A compound (which includes a circuit breaker) which allows the safe transition of cables between the overhead lines and underground cables which connect to the National Grid substation.
Construction consolidation sites	Compounds associated with the onshore works which may include elements such as hard standings, lay down and storage areas for construction materials and equipment, areas for vehicular parking, welfare facilities, wheel washing facilities, workshop facilities and temporary fencing or other means of enclosure.
Development area	The area comprising the onshore development area and the offshore development area (described as the 'order limits' within the Development Consent Order).
East Anglia ONE North project	The proposed project consisting of up to 67 wind turbines, up to four offshore electrical platforms, up to one construction, operation and maintenance platform, inter-array cables, platform link cables, up to one operational meteorological mast, up to two offshore export cables, fibre optic cables, landfall infrastructure, onshore cables and ducts, onshore substation, and National Grid infrastructure.
East Anglia ONE North windfarm site	The offshore area within which wind turbines and offshore platforms will be located.
European site	Sites designated for nature conservation under the Habitats Directive and Birds Directive, as defined in regulation 8 of the Conservation of Habitats and Species Regulations 2017 and regulation 18 of the Conservation of Offshore Marine Habitats and Species Regulations 2017. These include candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation and Special Protection Areas.
Horizontal directional drilling (HDD)	A method of cable installation where the cable is drilled beneath a feature without the need for trenching.
HDD temporary working area	Temporary compounds which will contain laydown, storage and work areas for HDD drilling works.
Heavy Goods Vehicle (HGV)	A term for any vehicle with a Gross Weight over 3.5 tonnes. This assessment also uses the term HGV as a proxy for HGVs and buses / coaches recognising the similar size and environmental characteristics of the respective vehicle types.
Jointing bay	Underground structures constructed at intervals along the onshore cable route to join sections of cable and facilitate installation of the cables into the buried ducts.
Landfall	The area (from Mean Low Water Springs) where the offshore export cables would make contact with land, and connect to the onshore cables.



Link boxes	Underground chambers within the onshore cable route housing electrical earthing links.
Mitigation areas	Areas captured within the onshore Development Area specifically for mitigating expected or anticipated impacts.
National electricity grid	The high voltage electricity transmission network in England and Wales owned and maintained by National Grid Electricity Transmission
National Grid infrastructure	A National Grid substation, cable sealing end compounds, cable sealing end (with circuit breaker) compound, underground cabling and National Grid overhead line realignment works to facilitate connection to the national electricity grid, all of which will be consented as part of the proposed East Anglia ONE North project Development Consent Order but will be National Grid owned assets.
National Grid overhead line realignment works	Works required to upgrade the existing electricity pylons and overhead lines (including cable sealing end compounds and cable sealing end (with circuit breaker) compound) to transport electricity from the National Grid substation to the national electricity grid.
National Grid overhead line realignment works area	The proposed area for National Grid overhead line realignment works.
National Grid substation	The substation (including all of the electrical equipment within it) necessary to connect the electricity generated by the proposed East Anglia ONE North project to the national electricity grid which will be owned by National Grid but is being consented as part of the proposed East Anglia ONE North project Development Consent Order.
National Grid substation location	The proposed location of the National Grid substation.
Natura 2000 site	A site forming part of the network of sites made up of Special Areas of Conservation and Special Protection Areas designated respectively under the Habitats Directive and Birds Directive.
Onshore cable corridor	The corridor within which the onshore cable route will be located.
Onshore cable route	This is the construction swathe within the onshore cable corridor which would contain onshore cables as well as temporary ground required for construction which includes cable trenches, haul road and spoil storage areas.
Onshore cables	The cables which would bring electricity from landfall to the onshore substation. The onshore cable is comprised of up to six power cables (which may be laid directly within a trench, or laid in cable ducts or protective covers), up to two fibre optic cables and up to two distributed temperature sensing cables.
Onshore development area	The area in which the landfall, onshore cable corridor, onshore substation, landscaping and ecological mitigation areas, temporary construction facilities (such as access roads and construction consolidation sites), and the National Grid Infrastructure will be located.



Onshore infrastructure	The combined name for all of the onshore infrastructure associated with the proposed East Anglia ONE North project from landfall to the connection to the national electricity grid.
Onshore preparation works	Operations consisting of site clearance, demolition work, early planting of landscaping works, archaeological investigations, environmental surveys, ecological mitigation, investigations for the purpose of assessing ground conditions, remedial work in respect of any contamination or other adverse ground conditions, diversion and laying of services, erection of temporary means of enclosure, creation of site accesses, footpath creation, erection of welfare facilities and the temporary display of site notices or advertisements.
Onshore substation	The East Anglia ONE North substation and all of the electrical equipment within the onshore substation and connecting to the National Grid infrastructure.
Onshore substation location	The proposed location of the onshore substation for the proposed East Anglia ONE North project.
Transition bay	Underground structures at the landfall that house the joints between the offshore export cables and the onshore cables.



Outline Code of Construction Practice

1 Introduction

1.1 Background

1. This Outline Code of Construction Practice (OCoCP) relates to the onshore elements of the proposed East Anglia ONE North project and associated infrastructure.
2. The OCoCP forms part of a set of documents that supports the Environmental Statement (ES) (document reference 6.1) submitted by the Applicant as part of the Development Consent Order (DCO) application (the Application).
3. A final detailed Code of Construction Practice (CoCP) will be produced post-consent, prior to onshore construction of the proposed East Anglia ONE North project, and will be in line with this OCoCP (as secured under the requirements of the draft DCO).
4. This OCoCP reinforces commitments made in the ES (document reference 6.1).
5. The final CoCP will provide a key mechanism, enforceable via the DCO, 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. The final CoCP will provide this control through agreed site practices and mitigation as outlined in this document.

1.2 Structure of the OCoCP

6. The OCoCP will summarise the general principles and control measures to be adopted during construction of the onshore infrastructure associated with the proposed East Anglia ONE North project, and will provide the framework for the preparation of the final, more detailed CoCP which will be developed post-consent.
7. The OCoCP describes the following:
 - **Section 2:** General Principles
 - **Section 3:** General Site Operations
 - **Section 4:** Reinstatement
 - **Section 5:** Pollution Prevention and Response
 - **Section 6:** Contaminated Land and Groundwater



- **Section 7:** Waste Management
- **Section 8:** Soil Management
- **Section 9:** Noise and Vibration Management
- **Section 10:** Air Quality Management
- **Section 11:** Surface Water and Drainage Management
- **Section 12:** Sizewell Gap
- **Section 13:** Utility Providers
- **Section 14:** Monitoring and Site Inspections
- **Section 15:** Contingency Planning

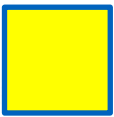
8. A number of management plans will set out how the appointed contractor will manage environmental risks associated with construction activities. These management plans will set out specific control measures necessary to deliver the requirements of the CoCP and any other management and mitigation measures that the Applicant will implement, where possible, that relate specifically to the onshore construction phase of the proposed East Anglia ONE North project. These management plans and strategies are detailed in the sections below and summarised in **Table 1.1**.

Table 1.1 Code of Construction Practice

Description	Section of OCoCP
A Surface Water and Drainage Management Plan will be prepared which describes the approach to surface water and foul water drainage, and water supply during construction and details of existing drainage within the construction areas. The plan will detail local baseline conditions, and summarise the Water Framework Directive (WFD) assessment. The plan will detail any control measures and mitigation measures which will be implemented, along with any monitoring and reporting requirements, for construction drainage and surrounding land (in consultation with landowners where possible).	11.1.4
A Flood Management Plan will be prepared which describes the control measures designed to manage flood risk during construction. The plan will include details of flood warning and evacuation procedures, key contacts, emergency contacts and insurance details.	11
A Construction Phase Noise and Vibration Management Plan will be prepared which describes measures to minimise noise and vibration impacts on sensitive receptors and comply with relevant legislation, requirements, standards and best practice relating to construction noise. The plan will detail noise and vibration baseline conditions and assessments, and describe mitigation to minimise adverse impacts which will be followed for construction activities at the landfall, the onshore cable route, onshore substation and National Grid infrastructure. The plan will also specify the procedures to be followed in the event of a noise or vibration	9



Description	Section of OCoCP
environmental incident, alongside any monitoring or reporting which may be required.	
A Site Waste Management Plan will be prepared which describes measures to manage waste across the construction areas in accordance with a waste hierarchy to minimise, reuse and recycle waste materials. The plan will identify training and monitoring required, and highlight areas where best practice in waste management can be achieved to reduce the quantities of waste going to landfill, maximising opportunities for reuse and recycling that are cost neutral (or cost negative), and provides options for planning and processing waste during the construction and excavation activities.	7
A Soil Management Plan will be prepared which describes methods to avoid mixing of topsoil and subsoil, minimise soil compaction and disturbance to the surrounding areas, and reinstatement of soils in general accordance with their original structure and location. The Soil Management Plan will require the production of Methods Statements for soil handling.	8
An Air Quality Management Plan will be prepared describes control measures to manage dust and emission during construction works. The plan will detail air quality baseline conditions, and describe mitigation to minimise adverse impacts which will be followed for enabling works and construction activities at the landfill, the onshore cable route, onshore substation and National Grid infrastructure, and any monitoring and reporting which may be required.	10.1
A Materials Management Plan will be prepared which describes methods to quantify wastes generated from construction related excavation and its potential reuse, and the import and export of construction materials (in particular aggregate for temporary haul roads).	6
A Pollution Prevention and Response Plan will be prepared which describes controls for the prevention of pollution which will be in place during construction works. The plan will include all emergency incident response procedures (including unconsented discharge to land or water, release of silt, emergency pollution events to air, flooding and extreme weather) and will detail key site and emergency contacts. The Pollution Prevention and Response Plan will require the production of a Groundwater Protection Method Statement and Construction Method Statements for the protection of onshore waters.	5, 11.1.2 and 15
A Stakeholder Communications Plan will be prepared which describes Communication process to ensure construction works are fully communicated to interested parties. The plan will detail all methods of communication which will be used to inform stakeholders and the public, including letters, newsletters, exhibitions and public information days, parish magazines, Parish Council meetings and the relevant webpage, as well as detailing the roles and responsibilities of the Community Liaison Officer.	2.6
An Artificial Light Emissions Management Plan will be prepared and implemented. The plan will detail the appropriate management and mitigation measures to be taken to manage artificial light emissions. The plan will detail any sensitive receptors, and describe the Artificial Light Emissions Management Plan which will be implemented, including lighting requirements, positioning and hours of operation, alongside any monitoring and reporting which might be required.	3.8



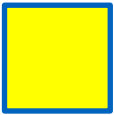
Description	Section of OCoCP
A Watercourse Crossing Method Statement which accords with the outline watercourse crossing method statement will provide information on the watercourses to be crossed, the different types of crossing that will be used as part of the onshore construction works and details of proposed methods of crossing. The method statement will also detail control measures which will be implemented to safeguard surface water quality and ensure no adverse impacts occurs on local drainage, flood risk or fisheries.	11.1.3
A Sizewell Gap Construction Method Statement , which must accord with the outline Sizewell Gap construction method statement, will provide information on the specific construction activities and the control measures to be implemented at Sizewell Gap, particularly in relation to the interaction between construction traffic associated with the Project and maintaining access to both the onshore development area and along Sizewell Gap.	12

1.2.1 Consultation and Approval

9. The Environment Agency will be consulted during the preparation of the following management plans prepared as part of the final CoCP:
 - Surface water and drainage management plan;
 - Flood management plan;
 - Site waste management plan;
 - Materials management plan;
 - Pollution prevention and response plan (including groundwater protection method statements and construction method statements for the protection of onshore water); and
 - The final Watercourse Crossing Method Statement.

10. Suffolk County Council (SCC) as the Lead Local Flood Authority (LLFA) and the East Suffolk Internal Drainage Board (IDB) will be consulted during the preparation of any of the documents listed within **Table 1.1** which contain information pertinent to Ordinary watercourses within the East Suffolk Internal Drainage District.

11. The relevant statutory nature conservation body will be consulted during the preparation of the following management plans (with regard to the specified Work Nos.) prepared as part of the final CoCP:
 - Surface Water and Drainage Management Plan, in respect of Work Nos. 7 to 14 and Work No. 19;



- Construction Phase Noise and Vibration Management Plan, in respect of Work Nos. 7 to 14;
 - The Soil Management Plan in relation to Work No. 12 and Work No. 12A;
 - Pollution Prevention and Response Plan, in respect of Work Nos. 7 to 14 and Work No. 19;
 - Artificial Light Emissions Plan, in respect of Work Nos. 7 to 14; and
 - The Watercourse Crossing Method Statement.
12. The abovementioned consultation with the statutory nature conservation body will include the extent of monitoring and site inspection provisions to be incorporated within the plans (where relevant).
13. As per Requirement 22 of the **draft DCO** (document reference 3.1), the management plans and method statements set out within **Table 1.1** will be submitted to and approved by the relevant planning authority in advance of the relevant stage of the onshore works.
14. Requirement 22 of the **draft DCO** (document reference 3.1) also makes provision for consultation with the relevant statutory nature conservation body during the approval of the plans listed in paragraph 11 above in respect of the Work Nos specified. The relevant statutory nature conservation body will be consulted where any of the approved plans listed in paragraph 11 above require to be updated.

1.2.2 Plans not included in the OCoCP

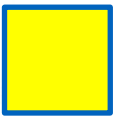
15. The following plans will also be prepared as part of the proposed East Anglia ONE North project, but do not form part of the final CoCP:
- An **Onshore Substation Design Principles Statement** will be prepared detailing the design principles which will determine the layout, scale and external appearance of the onshore substation buildings. An outline version of this plan has been submitted with this DCO application;
 - **Construction Method Statements** will be prepared, detailing procedures and construction best practice that will be adhered to during construction (see **section 2.5**);
 - A **Landscape Management Plan** and **Ecological Management Plan** will be prepared and will set out the overarching principles of landscape and ecological management to be adhered to. An outline version of these plans has been submitted with this DCO application (Outline Landscape and Ecological Mitigation Strategy (OLEMS));



- An **Access Management Plan** sets out detail on location, frontage, general layout, visibility and embedded mitigation measures for access for each Construction Consolidation Site (CCS), substation, and points of access to the onshore cable route. An outline version of this plan has been submitted with this DCO application;
- An **Archaeological Written Scheme of Investigation (Onshore)** will be prepared, detailing the methods to be used for the suite of archaeological works during construction. An outline version of this plan has been submitted with this DCO application;
- A **Construction Traffic Management Plan** will be prepared, detailing the standards and procedures for managing the impact of Heavy Goods Vehicle (HGV) traffic during the construction period, including localised road improvements necessary to facilitate the safe use of the existing road network. An outline version of this plan has been submitted with this DCO application;
- A **Travel Plan** will be prepared, documenting how construction personnel traffic would be managed and controlled. An outline version of this plan has been submitted with this DCO application;
- A **Public Rights of Way (PRoW) Strategy** will be prepared, detailing the agreed approach to any PRoW diversions or other mitigation required. An outline version of this plan has been submitted with this DCO application; and
- A **Pre-Commencement Archaeological Execution Plan** will be prepared.

1.3 Purpose and Scope of final CoCP

16. The purpose of the final CoCP is to support the construction management team in its duties to help ensure that the construction of the onshore infrastructure of the proposed East Anglia ONE North project complies with relevant European and UK legislation and requirements in the draft DCO. The document is also a mechanism to deliver environmental commitments as set out in the ES and to promote environmental and construction best practice.
17. The final CoCP will set out the management measures which the proposed East Anglia ONE North project will require its contractors to adopt and implement for any onshore construction works for the proposed East Anglia ONE North project. Works and locations within the scope of this document include enabling works, construction, commissioning and re-instatement of the proposed East Anglia ONE North project for onshore works from the landfall located north of the edge of Thorpeness to the National Grid infrastructure. Works include:
 - Export cable installation from the landfall location to the transition bays, including horizontal directional drilling (HDD);



- Temporary works associated with landfall HDD and transition bay excavation;
 - Onshore cable installation along the onshore cable route including jointing bays and potential HDD;
 - Temporary works associated within the onshore cable route and onshore substation including enabling works for example the establishment of a haul road, CCSs and working area (any area with the onshore development area where construction activities are taking place);
 - Onshore substation, and temporary access;
 - National Grid infrastructure;
 - Interface between the onshore substation and National Grid infrastructure; and
 - Reinstatement and mitigation works enacted during the construction phase.
18. The OCoCP has been compiled with the objective of demonstrating environmental management controls in one cohesive document for the onshore works and formalises commitments made to the relevant planning authority and statutory consultees outlined in the ES (document reference 6.1).
19. The scope of this document is not intended to identify the responsibilities at an implementation level or provide specific detailed methods, but rather to highlight the proposed content of the final CoCP and outline the approach to be taken within the context of the wider framework of the Applicant's environmental management controls.
20. Practical implementation and compliance arrangements associated with CoCP commitments will primarily be delivered via other associated and topic specific plans as identified in **Table 1.1**.

1.4 Control of Onshore Preparation Works

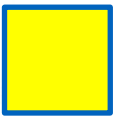
21. Onshore preparation works within the **draft DCO** (document reference 3.1) will not be subject to the provisions of the final CoCP. However, specified onshore preparation works will be controlled through a standalone Onshore Preparation Works Management Plan. **Appendix 1** of this CoCP provides details of the onshore preparation works activities to be covered by the Onshore Preparation Works Management Plan, the elements of each to be addressed (e.g. timings and working hours) and the approval process.

1.5 Planning Performance Agreement

22. The Applicant will enter a Planning Performance Agreement (PPA) with East Suffolk Council and separately with Suffolk County Council, to provide a cost recovery mechanism for the Councils in administering the Projects. This will



include for instance, recovery of costs associated with the discharging of requirements within each DCO. This model has been successfully adopted for the East Anglia ONE Project.



2 General Principles

2.1 Construction Sequencing with East Anglia TWO

23. Should both the East Anglia ONE North project and the East Anglia TWO project be consented and then built sequentially, when the first project goes into construction, the ducting for the second project will be installed along the whole of the onshore cable route in parallel with the installation of the onshore cables for the first project. This will include installing ducting using a trenchless technique at the landfall for both Projects at the same time.
24. When the second project then moves into the construction phase, temporary infrastructure such as haul roads would be installed (where required) to access the works; duct integrity testing and repair would be undertaken (where required); new joint bays will be constructed along the cable route; surface water management arrangements would be established; and the pulling of electrical cables through the pre-installed cable ducts would be undertaken. Jointing of the electrical cables, backfilling of jointing bays and reinstatement would then follow.

2.2 Environmental Management Principles

25. 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.
26. Through the EMS, contractors undertaking work on behalf of the Applicant are screened and selected using a variety of criteria that include environmental credentials. The EMS will, inter alia, provide for the preparation and implementation of a programme of environmental monitoring and auditing to ensure that the Applicant's environmental standards are being adhered to.
27. Prior to the commencement of each stage of construction works, the CoCP for that phase will be issued to the relevant planning authority for review and approval.
28. The Applicant will then provide the final version of the CoCP to statutory bodies and the relevant planning authority. The measures and standards identified in the CoCP will then be implemented by the appointed Contractors.



2.3 Health and Safety Principles

29. 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 East Anglia ONE North 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 East Anglia ONE North 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 East Anglia ONE North project or to others who may be affected;
- Ensure that suitably competent employees and other designers, engineers, supervisors and contractors are engaged to undertake the responsibilities associated with the proposed East Anglia ONE North 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 East Anglia ONE North project have, where appropriate, a readily available, valid, suitable and sufficient Pre-Construction Information document and Health and Safety Plan as defined in the Construction (Design and Management) (CDM) Regulations 2015;
- Ensure that upon completion of construction a suitable and sufficient Health and Safety File is completed and transferred, where appropriate, to the Applicant; and
- 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. A method statement detailing the safety measures to be imposed on site will be prepared prior to the commencement of the development.

- Where the onshore development area of the Project interacts with Public Rights of Way, measures will be implemented as set out within the final Public Rights of Way Strategy which must accord with the **Outline Public Rights of Way Strategy** (document reference 8.4).

2.4 Construction Principles

30. The appointed Construction Manager and associated management team will be responsible for implementation of the CoCP provisions, and for ensuring that the various construction contractors are in compliance with these requirements. The practical implementation arrangements and responsibilities conferred to the construction contractors will be detailed in further management protocols to be developed, such as the associated plans as identified in **Table 1.1**.
31. The provisions of the CoCP, will be incorporated into the contracts for the construction of the proposed East Anglia ONE North project and will be required to be adhered to. The Applicant and its contractors will be required to comply fully with the terms of the CoCP.
32. Aims of the final CoCP include the avoidance 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 (ECow) supported by other specialists as necessary (such as ecological, archaeological, auditing specialists).
33. In addition to the arrangements under the CoCP, the appointed contractors will be encouraged to register with the Considerate Constructors Scheme¹ which is a voluntary code of practice that seeks to:
 - Enhance the appearance of the site;
 - Constructors ensure sites appear professional and well managed.
 - Secure everyone's safety;
 - Constructors attain the highest levels of safety performance.
 - Respect the community;
 - Constructors give utmost consideration to their impact on neighbours and the public.
 - Care for the workforce; and

¹ <https://www.ccscheme.org.uk/>



- Constructors provide a supportive and caring working environment).
- Protect the environment.
 - Constructors protect and enhance the environment.

2.5 Construction Method Statements

34. Detailed Construction Method Statements (CMS) will be developed by the Principal Contractor for relevant construction operations.
35. The CMS which will be produced as part of the CoCP:
 - Watercourse Crossing Method Statement;
 - Groundwater Protection Method Statement;
 - Method Statement for Soil Handling; and
 - Construction Method Statements for the Protection of Onshore Water.
36. The CMS which will be produced, but not as part of the CoCP, are:
 - Landfall Construction Method Statement (secured under a requirement of the draft DCO);
 - Breeding Bird Protection Plan (secured under the EMP, further detail is provided in the OLEMS submitted with this DCO application);
 - Arboricultural Method Statement (secured under the EMP, further detail is provided in the OLEMS submitted with this DCO application);
 - Invasive Species Management Plan (secured under the EMP, further detail is provided in the OLEMS submitted with this DCO application); and
 - SPA Crossing Method Statement (secured under the EMP, further detail is provided in the OLEMS submitted with this DCO application).
37. Should a trenchless technique be selected to cross any obstacle or feature along the onshore cable route (excluding the trenchless solution at the landfall, given this has a standalone method statement), an appropriate method statement will be prepared post-consent and prior to the undertaking of the relevant works.
38. Each CMS will follow construction industry good practice guidance and adhere to the following:



- Environment Agency Pollution Prevention Guidance (PPG²) 01 – General guide to the prevention of water pollution;
- Environment Agency PPG05 – Works near or liable to affect watercourses;
- Environment Agency PPG06 – Working at construction and demolition sites;
- Environment Agency PPG08 – Storage and disposal of used oils;
- Environment Agency PPG11 – Preventing pollution at industrial sites;
- Environment Agency PPG20 – Dewatering of underground ducts and chambers;
- Environment Agency PPG 21 – Pollution incident response planning;
- Environment Agency, Pollution Prevention for Businesses (2016);
- The Sustainable Drainage System (SuDS) Manual, C697/C753, CIRIA (2007 and 2015);
- Site Handbook for the Construction of SuDS, C698, CIRIA (2007);
- CIRIA Report C502 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;
- CIRIA Handbook C692 Environmental Good Practice on Site; and
- CIRIA Handbook C651 Environmental Good Practice on Site Checklist.

2.6 Local Community Liaison

39. A Stakeholder Communications Plan will be developed as part of the CoCP.

40. The Applicant will appoint a local community liaison officer as a single point of contact for communications. The main responsibilities of the community liaison officer will include:

- Ensuring effective and open communication with local residents and businesses that may be affected by the construction works.
- Maintaining a proactive public relations campaign, 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.
- Keeping local residents informed through a combination of communication channels, for example information boards and parish council meetings.

² N.B PPG guidance withdrawn in 2015 by the UK Government. Following which, Pollution Prevention for Businesses was published in 2016. The PPGs are revoked as regulatory guidance in England, but still provide a useful guide for best practice measures.



- Responding 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 planning authority.
 - Provide support to members of the public (including property occupiers affected by existing flood risk) or community groups in seeking funding from the Flood Resilience Fund (see **Section 11.1.7.1**).
41. Parish Councils in the relevant area will be contacted (in writing) 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.
42. The Applicant will also undertake a targeted community engagement programme during the construction works. This will involve the use of a dedicated website (or webpage) to provide regular lookaheads as the construction works progress. The website (or webpage) will also include the addition of a subscription option where individuals can register to receive detailed updates on the construction works. The existing database held by the Applicant (established during the pre-application stage of the Application) will continue to be utilised to provide more general project updates.
43. To promote this dedicated website (or webpage) and the subscription feature a maildrop will be distributed to all Royal Mail subscribed residential and business properties in Sizewell, and the parishes of Aldringham-cum-Thorpe, Knodishall, Friston, Marlesford, Yoxford, Theberton and Eastbridge, Snape and Aldeburgh.
44. Further details of the measures implemented for the East Anglia ONE project and which will be incorporated within the Project's Stakeholder Communications Plan is set out within **Appendix 3**.



3 General Site Operations

3.1 Working Hours and Timing of Works

45. Onshore working hours (and exceptions to these) are specified under the requirements of the draft DCO (document reference 3.1). Onshore construction activities would normally be conducted during working hours of 7am to 7pm Monday to Friday and 7am to 1pm on Saturdays with no construction works on Sundays or bank holidays. Construction works may occur outside the above times where permitted in line with the DCO.
46. In line with Requirements 23 and 24 of the **draft DCO** (document reference 3.1), where essential activities are scheduled outside of the specified construction hours the Applicant will provide details of their timing, duration and environmental control measures to the relevant planning authority for advance approval. This is with the exception of emergency works. In the case of works which are not specifically listed in paragraph (2) of the Requirements, approval will be required from the relevant planning authority as to whether such works are essential. The relevant planning authority therefore retains control over the activities that can be undertaken outside the standard construction hours.
47. In the case of work required in response to an emergency or which, if not completed, would be unsafe or harmful to the works, staff, the public or the local environment, the relevant planning authority will be informed within 5 working days following the event, including details on the nature of the emergency and the hours/duration that emergency works were undertaken.
48. As outlined **Section 9**, the Applicant's contractors will be controlled to working within the core working hours of 0800 hours to 1800 hours on weekdays (excluding bank holidays) and from 0800 hours to 1300 hours on Saturdays. To maximise productivity within the core working hours, the Applicant's contractors will require a period of up to one hour before (Monday to Saturday) and up to one hour after (Monday to Friday) core working hours for start-up and close-down of activities. This will include (but not be limited to) deliveries, movement to place of work, unloading, maintenance and general preparation work. This will not include operation of plant or machinery likely to cause a disturbance to local residents or businesses.
49. The term 'essential activities' relates to such works that, if not completed within a particular sequence or within a particular time frame, would be of detriment to the safety or construction of the Project and may include such activities as those that require continuous periods of operation and which have been assessed in the Environmental Statement such as concrete pouring, dewatering, cable



pulling, cable jointing and HDD drilling; internal fitting out works associated with the onshore substation such as equipment or cabling installation or assembly; delivery to the transmission works of abnormal loads that may cause congestion on the local road network; the testing or commissioning of any electrical plant or cables installed as part of the authorised development; and activity necessary in the instance of an emergency where there is a risk to persons, delivery of electricity or property.

50. The Applicant will seek to sensitively time and minimise the duration of construction activities. The relevant planning authority will be advised of the likely timetable of works. This timetable will also be shared with affected communities through the local community liaison officer.

3.2 Construction Site Layout and Housekeeping

51. The final CoCP will include a site layout showing the location of CCSs, HDD compounds, onshore substation and National Grid infrastructure and main features of these sites. Ahead of construction, further site investigations will be required for the proposed East Anglia ONE North 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 that existing services are not disrupted. This would include radio detection, ground penetration radar and vacuum excavation where necessary. Any changes to site layout or design following approval of the final CoCP will require updated layouts to be issued to the relevant planning authority in accordance with arrangements set out in the final CoCP.
52. 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. Specific areas within the worksites will be designated as smoking 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, workers 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 suitably enclosed containers and waste will be removed at frequent intervals and the site kept clean and tidy;
 - Hoardings will be painted in a colour agreed with the relevant planning authority;



- Any weeds will be appropriately managed;
 - Static plant will have suitable drip tray protection;
 - Hoardings and boundary fences will be frequently inspected, repaired and repainted as necessary;
 - Cover, seed or fence stockpiles to prevent wind whipping as appropriate; and
 - Adequate welfare facilities will be provided for all site staff and visitors.
53. In addition, where construction 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;
 - The Contractor will be required to sign up to the Environment Agency 'Floodline' flood warning service;
 - During construction, all site staff would be made aware of sections of the onshore cable route that are located within a Flood Zone; debris will be safely contained and will be kept at least 10m from watercourses, reducing the risk of large items and sediment entering the flood flow; and
 - Machinery will be stored or returned to areas of hard standings, preferably remote from flood waters, or where this is not possible, sufficiently constrained so as not to wash away.
54. Where relevant, the measures listed in Paragraph 53 will apply to construction works within areas identified as having an increased risk of surface water flooding.
55. Where construction working areas are adjacent to watercourses or cross Flood Zone 2 or 3, the following measures will be implemented:
- Spoil storage will be laid out with gaps at regular intervals and tightly compacted to minimise impact on flood waters;
 - Any site fencing installed will have regard to possible flood risk and should be designed so as to not impede flows as necessary; and
 - There shall be no storage of spoil directly on watercourse banks. Where possible, 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.



56. Where relevant, the measures listed in Paragraph 55 above will apply to construction works within areas identified as having an increased risk of surface water flooding.
57. Temporary means of access will be provided to severed fields for vehicles and machinery in order to ensure access is maintained wherever practicable.
58. Wherever practicable, appropriate planning and timing of works will be agreed with landowners and occupiers, subject to individual agreements.

3.3 Access Over Land Plot 12

59. As identified in the Book of Reference (AS-114), a small number of individuals have rights of access over Land Plot 12 (AS-105), including owners or tenants of Ness House, The Coach House and Stable Cottage and users of adjacent horse paddocks. Whilst Land Plot 12 is not a PRow, the Applicant will maintain access to these properties and the horse paddocks via a temporary diversion(s). Those with rights over Land Plot 12 will be notified in advance of the temporary closure to communicate the expected duration and details of the temporary diversion(s).

3.4 Screening and Fencing

60. Site fencing requirements will be controlled under the requirements of the draft DCO, which will require details of permanent and temporary fencing, walls and other means of enclosure to be submitted to the relevant planning authority for approval before the relevant stage of onshore works can commence. This will be in accordance with the specification for fences set out in the Specification for Highway Works, Vol. 3 (BS1722 Part 2), or equivalent, using single wire detail or sheep netting with similar horizontal spacing.
61. Details of temporary construction screening, fencing and site security will be included within the final CoCP based on the following:
 - The landfall CSS and HDD temporary working area will be securely fenced with hoarding and access from the local road network, suitable for haulage equipment, will be installed along the onshore cable route to the drilling site;
 - During construction of the onshore cable route, fencing will be installed to demarcate the working area, including CCSs and jointing bays. Fencing will be used where necessary; post and wire or similar will be used otherwise;
 - Within the area labelled '*Area within which the onshore cable route's western boundary fence will be subject to acoustic and camouflage treatment*' on **Figure 1, Appendix 1**, a solid boundary fence (with acoustic attenuation) will be installed along the western boundary of the onshore cable route for the



duration of the temporary haul road's presence with camouflage style painting on its outer façade;

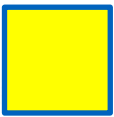
- Once each work area is completed, it may be possible to bring the fences in to the sides of the haul road so that the land occupied by the trenches and soil storage areas can be returned to normal use;
- The general area of the onshore substation and National Grid substation will be enclosed by a temporary perimeter fence (solid hoarding) for the duration of the construction period with a permanent fence installed at the end of the construction works; and
- All working areas shall be sufficiently and adequately fenced off from members of the public and to prevent animals from straying on to the construction areas. Species-specific fencing may be prescribed where relevant.

3.4.1 Woodland/Hedgerow Protection

62. Where possible, the proposed East Anglia ONE North project will seek to avoid mature trees within hedgerows through the micrositing of individual cables, in order to retain mature trees where practicable.
63. Full details showing the position of fencing to protect all woodland areas, trees and hedgerows to be retained within the proposed East Anglia ONE North project will be submitted to the relevant planning authority for approval prior to construction. The protective fencing will comply with BS 5837 (Trees in relation to design, demolition and construction - Recommendations), and will be erected to demarcate the canopy spread of the trees and hedgerows. Further detail on fencing in relation to hedgerows and woodland is contained within the OLEMS.

3.5 Site Induction

64. The construction of the proposed East Anglia ONE North project will require all personnel working on or attending 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 requirements / licence conditions;
 - Client environmental requirements (including the CoCP);
 - Environmental management structure and contacts;
 - Pollution Prevention Plan;
 - Site specific environmental sensitivities;
 - Waste management arrangements;
 - Water and wastewater management;



- Hazardous material management;
- Fuel, oil and chemical management;
- Spill contingency;
- Environmental emergency response;
- Reporting of incidents and complaints; and
- The relevant Personal Protective Equipment (PPE) requirements.

65. More specific information will be provided to staff according to their role.

3.6 Site Security

66. Adequate security will be provided by contractors working on behalf of the Applicant to protect the public and staff, prevent theft from or damage to the works, and prevent unauthorised entry to or exit from the site. 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 final CoCP.

3.7 Welfare

67. Construction areas will be serviced by temporary construction offices and necessary welfare facilities, which may include 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 CCS. Small welfare facilities may be provided at areas outside the CCS to serve specific work activities.

3.8 Artificial Light Emissions

68. An Artificial Light Emissions Management Plan will be prepared as part of the final CoCP, under the requirements of the draft DCO, and which will be submitted to the relevant planning authority for approval prior to construction commencing. The approved Artificial Light Emissions Management Plan will be maintained throughout the construction of the relevant works and could include:

- Micrositing to avoid identified bat roosts, where possible;
- Pre-construction survey to confirm the presence of bats;
- All temporary lighting to be designed in line with the BCT Guidance Note 8 Bats and artificial lighting (2018). This to include the use of directional lighting during construction;
- Construction phase lighting will be limited to permitted working hours in low light conditions, with lower-level security lighting outside of these times;

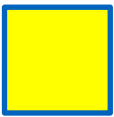


- The use of directional beams, non-reflective surfaces and barriers and screens, to avoid light nuisance whilst maintaining safety and security obligations; and
 - Ensure that dark corridors remain in place during the construction phase.
69. Details of the location, height, design and luminance of all floodlighting to be used during the construction of the proposed East Anglia ONE North project, together with measures to limit obtrusive glare to nearby residential properties, will be set out in the Artificial Light Emissions Management Plan.
70. 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 sky glow, so far as reasonably practicable. Lighting spillage will also avoid or minimise impacts on ecological receptors, including nocturnal species.
71. 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 best practice will be followed to minimise noise and pollution from such generators.



4 Reinstatement

72. Restoration of land will be controlled under the requirements of the DCO. Any land used temporarily for construction is to be reinstated to its former condition, or such condition as the relevant planning authority may approve. Reinstatement associated with roads will be undertaken in consultation with the local highway authority where relevant. All reinstatement will be undertaken as soon as reasonably practical and within twelve months of completion of the relevant stage of the onshore works or such other period as agreed with the relevant planning authority.
73. Topsoil and subsoil will be stored separately in bunds as per Construction Code of Practice for the Sustainable Use of Soils on Construction Sites (Defra 2009). This guidance should be used as a reference and should be assessed against current legislation and controls. Once trenches are complete and back-filled, the stored topsoil will be re-distributed over the area of the relevant work section, with the exception of the haul road and any associated drainage.
74. Long-term storage of topsoil in bunds or heaps will be avoided where possible. However, some topsoil will have to be reserved for re-covering the final area when the haul road is removed at the end of construction.
75. Reinstatement as far as practicable of fences, and re-planting sections of hedgerows, hedge banks, would be undertaken. Further detail is provided in the OLEMS.



5 Pollution Prevention and Response

76. As part of the final CoCP, a proposed East Anglia ONE North project specific Pollution Prevention and 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.
77. Personnel working on site, including any subcontractors, will be trained in the proposed East Anglia ONE North 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 relevant planning authority and the Environment Agency.
78. 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.
79. The final CoCP will consider and 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 best practice guidelines (such as Pollution Prevention for Business).
80. The Pollution Prevention and Response Plan will require the production of a Groundwater Protection Method Statement and Construction Method Statements for the protection of onshore waters.

5.1 Control Measures

81. The following best practice 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 drains and watercourses, and safe access and egress for plant and manual handling. Spill response materials

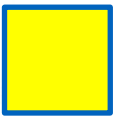


will be provided nearby and be readily accessible, with personnel trained in spill response;

- 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;
- 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 CCS overnight;
- Inspection of all construction plant for fuel leaks before being delivered to the working area;
- Facilities storing oils and fuels will be locked and made secure when not in use;
- Small plant will be provided with drip trays or commercial 'plant nappies';
- A groundwater protection method statement will be prepared as part of the Pollution Prevention and Response Plan, which will consider impacts to groundwater quality and secure measures to minimise construction-phase groundwater quality impacts; and
- In the event that unexpected gross contamination is encountered (i.e. visual and olfactory evidence of hydrocarbons, spent oxide, tars or other unusual discolorations or odours), work in the affected area will cease on instruction by the Site Manager or delegate. The affected area will be contained and made as safe as reasonably practical pending assessment by a suitably qualified environmental specialist. Consultation with the relevant planning authority and the Environment Agency will be undertaken, and agreement reached on plans for further investigation and remediation measures (where necessary) prior to any remedial action being undertaken.

5.2 Monitoring

82. The monitoring of management and mitigation measures is described in **section 14**.



6 Contaminated Land and Groundwater (including Materials Management)

83. **Chapter 18 Ground Conditions and Contamination** of the ES (document reference 6.1.18) identifies sensitive receptors to ground condition impacts (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.

6.1 Control Measures

84. A Materials Management Plan (MMP) will be drafted in advance of any construction works. Good environmental practice shall be followed during the construction phase of the proposed East Anglia ONE North project, in accordance with the now revoked Environment Agency's PPG (PPG1, PPG5, PPG6, PPG21 and PPG22)³ and current best practice guidelines. The measures associated with contaminated land set out within the final CoCP will have regard to the latest relevant guidance at the time of writing (currently BS10175:2011+A2:2017 and the Environment Agency's Land Contamination Risk Management Framework 2020).

85. The embedded mitigation measures as set out within **section 18.3.3, Chapter 18** of the Environmental Statement (APP-066) will be implemented during construction of the Project. The following additional management measures shall be employed during construction:

- All works/operations to be carried out by appropriately trained personnel;
- Appropriate PPE and working practices to be adopted by construction workers, including subcontractors, and health and safety measures would 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,

³ It should be noted that the Pollution Prevention Guidelines are no longer the current documents used by the Environment Agency, although the mitigation presented in the guidelines is still appropriate for managing pollution prevention on construction sites.



Risk Assessments and Controls (Environment Agency 2017), and in agreement with the Environment Agency would be undertaken;

- Adherence to an Incident/Emergency Response Plan which will be drafted in advance of any construction works;
- Adoption of a CL:AIRE⁴ Industry Code of Practice (Definition of Waste Code of Practice (DoW CoP)) to manage excavated soils on site, thereby maximise sustainability and providing an audit trail to demonstrate the appropriate use of materials;
- Hydrogeological risk assessments will be undertaken prior to commencement of any construction activity:
 - that could cause changes to aquifer flow or affect aquifer water quality within 500m of any groundwater dependent habitats within ecological sites;
 - that requires excavations below 1m within 250m of boreholes or springs; or
 - within 250m of a groundwater abstraction.
- 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) for the proposed East Anglia ONE North project will be developed;
- Where possible, avoidance of construction in areas of historic development.

86. The Environment Agency will be consulted on the findings of all hydrogeological risk assessments undertaken prior to the relevant works commencing.

87. In the event that unexpected gross contamination is encountered (i.e. visual and olfactory evidence of hydrocarbons, spent oxide, tars or other unusual discolorations or odours), work in the affected area will cease on instruction by the Site Manager or delegate. The affected area will be contained and made as safe as reasonably practical pending assessment by suitably qualified environmental specialist. Consultation with the relevant planning authority and the Environment Agency will be undertaken, and agreement reached on plans for further investigation and remediation measures (where necessary) prior to any remedial action being taken.

88. The ECoW 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

⁴ CL:AIRE is an environmental body providing training, information and resources for all those involved in sustainable land management. <https://www.claire.co.uk/>



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.

89. 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.
90. Should contaminated land be identified within the Order limits prior to the commencement of construction, the Applicant will liaise with the Environment Agency and relevant planning authority to agree on a proportionate approach to remediation of the affected area. It is anticipated that the specific approach will be determined by the nature and extent of contamination identified.

6.2 Monitoring

91. The monitoring of management and mitigation measures is described in **section 14**.



7 Waste Management

92. **Chapter 18 Ground Conditions and Contamination** of the ES (document reference 6.1.18) assesses the impacts of the onshore development area in terms of waste generation during the construction, operation and decommissioning phases. The Applicant aims to manage waste in accordance with:

- Legislative requirements;
- The EMS; and
- The waste hierarchy by avoiding waste generation and promoting waste minimisation in the first instance. Where waste is produced, reuse or recycle or recovery should be considered where practical and economically feasible prior to considering disposal.

7.1 Control Measures

93. A Site Waste Management Plan (SWMP) for the proposed East Anglia ONE North project will be developed. The plan will manage construction waste across the proposed East Anglia ONE North project in accordance with a waste hierarchy to minimise, reuse and recycle waste materials. The plan will be developed in line with legislation and best practice and will record the following information, as a minimum:

- The types and quantities of waste generated (using the appropriate European Waste Catalogue (EWC) code and description for each waste type);
- The management approach for each waste type (Reduce, Reuse, Recycle, Recover, Dispose) including any treatment;
- The storage arrangements for each waste type; and
- The site waste monitoring and reporting arrangements.

94. In addition, the following management measures shall be employed during the construction:

- 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 proposed East Anglia ONE North 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



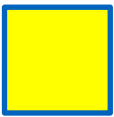
permit (or an authorised exemption), which is in place to ensure that the site is operated in a manner to prevent emissions causing harm to human health or the environment;

- 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 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 within each CCS. 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;
- Site waste will be segregated as far as practical (and at a minimum to separate hazardous wastes) and stored in labelled and secure facilities;
- Duty of Care requirements in relation to the storage, transfer and disposal of waste will be complied with;
- Site waste management and environmental, health and safety plans will be prepared in advance of all construction or other disruptive site works;
- All personnel will be fully trained in these matters to ensure compliance;
- Site waste management will feature as a topic in the site environmental induction, which all staff working on site must attend, which will be supplemented by Tool Box Talks (TBT's);
- 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; and
- The appointed contractors will 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.



7.2 Monitoring

95. Waste arisings, transfers and disposals will be monitored by the appointed Contractor(s) through the SWMP. Additional monitoring measures are outlined in **section 14**.



8 Soil Management

96. **Chapter 21 Land Use** of the ES (document reference 6.1.21) identifies the soil resource potentially affected by the proposed East Anglia ONE North project. 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. The SMP will require the production of Methods Statements for soil handling.

8.1 Control Measures

97. A Soil Management Plan (SMP) including CMS for soil handling, would be produced by a competent soil science contractor and agreed with the relevant planning authority in advance of the works. This would be completed pre-construction once an earthworks contractor has been appointed and detailed earthworks phasing information is available.

98. A pre-construction land survey would be undertaken by a qualified Agricultural Liaison Officer (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 possible following onshore cable installation.

99. The contractor would be required to comply with the SMP. The SMP will typically include the following measures:

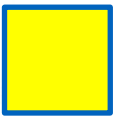
- Soils handling, storage and reinstatement by a competent contractor under Defra (2009) Construction code of practice for the Sustainable Use of Soils on Construction Sites;
- Topsoil stripping within all construction areas and storage adjacent to where it is extracted, where practical;
- Storage of the excavated subsoil separately from the topsoil, with sufficient separation to ensure segregation;
- Handling of soils according to their characteristics e.g. 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;
- Where under storage areas, 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 movements of heavy plant and vehicles to specific 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 where possible; and
- In circumstances where construction has resulted in soil compaction, further remediation may be provided, through an agreed remediation strategy

8.2 Monitoring

100. The monitoring of management and mitigation measures is described in **section 14**.



9 Noise and Vibration Management

101. There is the potential for noise to be generated during the construction process, from for example heavy plant and machinery, as identified in **Chapter 25 Noise and Vibration** of the ES (document reference 6.1.25). Measures will be implemented on site to minimise any effects and a programme of monitoring may be required. The final CoCP will be prepared post-consent in accordance with this OCoCP and identify specific areas sensitive to noise and/or vibration within the onshore development area. The following specific mitigation measures will be implemented in these areas.
102. The Applicant will ensure compliance with relevant legislation, requirements, standards and best practice relating to construction noise. The main objective with regard to managing construction noise is to:
 - Minimise noise and vibration impacts on nearby residents and other sensitive receptors to acceptable levels in accordance with BS5228:2009+A1:2014 or other relevant guidance agreed in consultation relevant planning authority. Any measurement of construction phase noise will be undertaken in accordance with BS5228:2009+A1:2014 (or the most recent iteration).
103. The final CoCP will identify specific areas within the onshore development area that are sensitive to construction phase noise. The following specific mitigation measures will be implemented in these areas where practicable.

9.1 Control Measures

9.1.1 Control of Pollution Act Section 61 Measures

104. The Applicant's contractors will seek and obtain prior consent(s) from the relevant planning authority for all the works, as defined by Section 60 of the Control of Pollution Act 1974 (COPA), under Section 61 of the COPA. The application(s) for Section 61 consent will include details of the works and measures to be implemented to minimise the noise resulting from such works. This is a proactive approach and regarded as representing best practice for major infrastructure projects.
105. The contractors will use Best Practicable Means, as defined by Section 72 of COPA, to minimise construction noise as far reasonable and practical to do so.
106. The Section 61 applications will include a detailed description of the monitoring and monitoring locations proposed for the particular works covered by the consent application. Provision for noise monitoring at appropriate times and



locations and subsequent reporting will be incorporated within the Section 61 consent application(s).

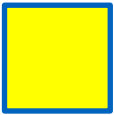
107. In recognition of the relevant planning authorities' preference, the applications for prior consent under Section 61 of COPA will assess the noise impact from construction noise using the ABC assessment method set out in Annex 4 of BS5228.
108. A Construction Phase Noise and Vibration Management Plan (reflective of relevant Section 61 consent(s)) will be submitted to and approved by the relevant planning authority and form part of the final CoCP. The Construction Phase Noise and Vibration Management Plan will set out the specific measures in relation to the control of construction phase noise. The plan will be reflective of the sensitivities of the properties within the vicinity of the onshore development area and must be submitted to and approved by the relevant planning authority prior to commencement of the relevant stage of the onshore works.
109. The Project's ES identifies receptors that are potentially sensitive to noise and vibration impacts, including noise and vibration from construction traffic, together with management and mitigation measures for the Project. Standard noise and vibration mitigation techniques will be implemented wherever possible, such as specified working times and use of low noise emitting plant and equipment. Further details of these measures shall be presented in the final CoCP. The following standards shall be adhered to:
 - BS5228 - Noise and vibration control on construction and open sites;
 - BS4142:2014 – Rating and assessment of industrial and/or commercial sound;
 - Environmental Protection Act 1990; and
 - Noise and Statutory Nuisance Act 1993.
110. Best practicable noise mitigation measures, to be implemented and controlled through the Construction Phase Noise and Vibration Management Plan, will typically include:
 - Management of construction operating hours in the area of the onshore substation and National Grid infrastructure in accordance with the following conditions:
 - Core working hours will be from 0800 hours to 1800 hours on weekdays (excluding bank holidays) and from 0800 hours to 1300 hours on Saturdays. The Applicant will require that its contractors adhere to these core working hours during construction works in the area of the onshore



- substation and National Grid infrastructure as far as is reasonably practicable or unless otherwise permitted under Section 61 of COPA;
- Except in the case of an emergency, any work required to be undertaken outside core hours (not including repairs or maintenance) will be agreed with the relevant authority prior to undertaking the work under Section 61 of COPA;
 - To maximise productivity within the core hours, the Applicant's contractors will require a period of up to one hour before (Monday to Saturday) and up to one hour after (Monday to Friday) core working hours for start-up and close-down of activities. This will include (but not be limited to) deliveries, movement to place of work, unloading, maintenance and general preparation work. This will not include operation of plant or machinery likely to cause a disturbance to local residents or businesses. These periods will not be considered an extension of core working hours;
 - Certain operations such as earthworks are season and weather dependent. In these instances, the Applicant's contractors will seek to extend the core working hours and/or days for such operations to take advantage of daylight hours, with the consent of the relevant planning authority;
 - Certain other specific construction activities will require extended working hours for reasons of engineering practicability. These activities include, but are not limited to, the activities specified within Requirement 23(2) and Requirement 24(2) of the **draft DCO** (document reference 3.1). Surveys (e.g. for ecological or engineering purposes) may also need to be carried out outside core working hours; and
 - In the case of work required in response to an emergency or which, if not completed, would be unsafe or harmful to the works, staff, the public or the local environment, the relevant planning authority will be informed within 5 working days following the event, including details on the nature of the emergency and the hours/duration that emergency works were undertaken. Examples of the type of work envisaged include where unexpectedly poor ground conditions, encountered while excavating, which require immediate stabilisation.
 - Implementation of traffic management measures such as agreed routes and timing of movements for construction traffic. The Outline Construction Traffic Management Plan (OCTMP) submitted with this DCO application (document reference 8.9) contains measures to manage the daily profile of HGV movements and deliveries to site through a 'booking system', which aims to spread the number of HGV movements across the working day;
 - Use of screens and noise barriers / acoustic screens;



- Construction site layout to minimise or avoid reversing with use of banksmen where appropriate. Output noise from reversing alarms set at levels for health and safety compliance;
 - Use of modern, fit for purpose, well maintained plant and equipment to minimise noise generation. Plant and vehicles will be fitted with mufflers / silencers maintained in good working order. Use of silenced equipment, as far as possible and low impact type compressors and generators fitted with lined and sealed acoustic covers. Doors and covers housing noise emitting plant will be kept closed when machines are in use. The positioning and specification of any generators used close to residential properties shall be positioned so as to ensure compliance with the assessed noise guidance thresholds.
 - No audible music or radios to be played on site;
 - Ensuring engines are switched off when machines are idle;
 - Regular communication with site neighbours to inform them of the construction schedule, and when noisy activities are likely to occur;
 - Use of pre-construction surveys to identify road surface irregularities which require remediation in order to mitigate vibration impacts (including monitoring of haul road condition);
 - Provisions and arrangements for dealing with an emergency situation, including notification of residents potentially impacted by any emergency event;
 - Development of a construction phase noise and vibration monitoring plan, including a schedule of noise and vibration monitoring locations and stages during construction of the Project when monitoring will be undertaken;
 - Undertaking of construction noise monitoring required to ensure compliance with all acoustic commitments and consents and reporting to the relevant planning authority; and
 - Implementation of management processes to ensure ongoing compliance, improvement and efficient corrective actions to avoid any potential non-compliance.
111. A Construction Traffic Management Plan (CTMP), under the requirements of the draft DCO, will also be submitted to and approved by the relevant planning authority which will outline measures to manage impacts of construction vehicles, including commitments around the use of Euro VI class HGVs.
112. Recognising the sensitivities of certain properties within the vicinity of the onshore development area, **section 9.1.2** to **section 9.1.5** outline the measures anticipated to be implemented at the landfall, at key locations identified along the



onshore cable route and at the onshore substation location. In particular, the Applicant will engage with Wardens Trust, St Mary the Virgin Church in Friston, and the occupants of other noise sensitive premises in accordance with the Stakeholder Communication Plan. Information obtained from this engagement will be used to prepare specific noise control plans for each noise sensitive premises. The Applicant will require its contactors to incorporate specific noise control plans into the application(s) for prior consent under Section 61 of COPA.

9.1.2 Landfall Construction Noise Control

113. There is a requirement for 24-hour working at times at the landfall associated with HDD activities. The Applicant recognises the importance of controlling noise levels at sensitive receptors at this location.
114. In order to mitigate received noise levels at the closest noise sensitive receptors, acoustic barriers of an appropriate height and specification will be erected around the perimeter of the HDD temporary working area and/or around specific items of plant for the duration of the landfall HDD works. Alternatively, and where practicable, surplus spoil arising from preparatory works will be used to form bunds around the working areas or specific items of plant to attenuate noise. Such measures are anticipated to achieve a noise reduction of between 5 and 10dB, dependent on the positioning and specification of the screening in relation to the noise source and / or noise sensitive receptor.
115. Prior to construction, the Applicant will identify the positioning and orientation of plant and equipment involved with the landfall construction with the aim of reducing noise levels at noise sensitive receptors. The general positioning of the plant and equipment will be specified within the final Landfall Construction Method Statement, which must be submitted to and approved by the relevant planning authority prior to commencement of Work Nos. 6 or 8.
116. During the detailed design of the landfall works, the received noise levels at sensitive receptors will be reviewed and additional practicable measures to reduce noise at these locations will be further explored as appropriate.

9.1.3 Onshore Cable Route Construction Noise Control

117. In line with Requirement 23 of the **draft DCO** (document reference 3.1), other than during an emergency, no construction activities will take place along the onshore cable route outside the core working hours specified within **section 9.1.1** (i.e. no evening or night time working) without the prior approval of the relevant planning authority.
118. The Applicant will install temporary noise barriers (i.e. noise cushions which may be attached to perimeter fencing) along any section of the onshore cable route

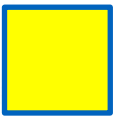


and construction consolidation site which falls within 100 metres of a building used as a dwelling-house and the recreational field used by the Wardens Trust charity (see **Figure 1, Appendix 2**). Barriers will remain in place for the duration of construction works at these locations. Such measures are anticipated to achieve a noise reduction of between 5 and 10dB, dependent on the positioning and specification of the screening in relation to the noise source and / or noise sensitive receptor.

119. As required, a reduced speed limit of 10mph will be enforced along any section of the onshore cable route and construction consolidation site which falls within 100 metres of a building used as a dwelling-house and the recreational field used by the Wardens Trust charity, in order to control noise and dust generation at such receptors.
120. During the detailed design of the onshore cable route and construction consolidation sites, the received noise levels at sensitive receptors will be reviewed and additional practicable measures to reduce noise at these locations will be further explored as appropriate.

9.1.4 Specific Measures at Wardens Trust

121. It is important to understand the nature and duration of the activities being undertaken within the section of onshore cable route which falls in close proximity to the Wardens Trust. The circa 200m section of the onshore cable route identified as being subject to additional construction phase controls (see **Figure 1, Appendix 2**) is likely to experience the following key construction activities during a parallel construction of the East Anglia TWO project and the East Anglia ONE North project over an approximate 24-month period:
 - Acoustic fence installation: 4 days
 - Topsoil strip and storage bund development: 2 days
 - Haul road installation: 2 days
 - Trenching and duct Installation: 10 days
 - Removal of haul road: 2 days
 - Topsoil reinstatement: 2 days
 - Acoustic fence installation: 2 days
 - Ground reinstatement: 2 days
122. Outside the above construction activities, the temporary haul road would be in regular use (at reduced speed limits within the area shown in **Figure 1, Appendix 2**) to service the landfall works located further south.



123. The measures described in **Section 9.1.3** above and those listed below will be deployed during construction works within the vicinity of the Wardens Trust's 'Wardens Hall' and associated amenity field:

- Construction activities taking place within the permitted working hours;
- Installation of temporary noise barriers the onshore cable route which falls within 100 metres of the Wardens Hall and the recreational field used by the Wardens Trust charity (see **Figure 1, Appendix 2**);
- A reduced speed limit of 10mph will be enforced along onshore cable route which falls within 100 metres of the Wardens Hall and the recreational field used by the Wardens Trust charity;
- Bespoke Best Practicable Means and the associated best practicable noise mitigation measures which reflects the sensitive use of the Wardens Trust facilities set out within **Section 9.1.1** will be implemented by the Applicant's contractors; and
- Stockpiles of topsoil and subsoil arisings generated from trenching works will be located towards the edge of the cable route working width, providing further benefit to the Wardens Trust by virtue of the inherent noise attenuation properties associated with these stockpiles.

124. The above measures will reduce impacts arising from construction noise as far as practicable during the works undertaken within the vicinity of the Wardens Trust's 'Wardens Hall' and associated amenity field.

9.1.5 Onshore Substation Location Construction Noise Control

125. No residential properties are located within 100m of the onshore substation, National Grid infrastructure or associated construction consolidation sites. However, the Applicant will install noise barriers along the eastern boundary of the onshore substation CCS closest to Grove Road to reduce construction noise impacts upon users of the adjacent PRow and the road itself.

126. Furthermore, additional practicable measures will be considered relative to the areas of works and residential receptors as appropriate, with such measures including the attenuation of typically stationary plant within a particular work area which typically is associated with higher noise levels (such as generators).

9.2 Monitoring

127. The Construction Phase Noise and Vibration Management Plan will set out a procedure for monitoring of the management and mitigation measures. If it is deemed by the relevant planning authority that during construction monitoring of



construction noise is necessary, then the locations for such monitoring will be agreed in advance with the relevant planning authority.

128. The Section 61 applications will include a detailed description of the monitoring and monitoring locations proposed for the particular works covered by the consent application. Provision for noise monitoring at appropriate times and locations and subsequent reporting will be incorporated within the Section 61 consent application(s).
129. Additional monitoring of management and mitigation measure is described in **section 14**.

9.3 Policy Requirements

130. Significant adverse impacts are defined as a noise level predicted or measured to exceed the Significant Observed Adverse Effect Levels (SOAELs) in **Table 9.1**. These values are taken from those contained in the High Speed Two Phase 1 Information Paper E23: Control of Construction Noise and Vibration, which should be referred to in order to understand the full context in which the SOEAL values are derived.

Table 9.1 Construction Noise Effect Levels for Permanent Residential Buildings (outdoor at the façade)

Day	Time (hours)	Averaging Period (T)	Lowest Observed Adverse Effect Level $L_{pAeq,T}$ (dB)	Significant Observed Adverse Effect Level $L_{pAeq,T}$ (dB)
Mondays to Fridays	0700 - 0800	1 hour	60	70
	0800 - 1800	10 hours	65	75
	1800 - 1900	1 hour	60	70
	1900 - 2200*	1 hour	55	65
Saturdays	0700 - 0800	1 hour	60	70
	0800 - 1300	5 hours	65	75
	1300 - 1400*	1 hour	60	70
	1400 - 2200*	1 hour	55	65
Sundays & Public Holidays	No working as per Requirement 23 and Requirement 24 of the draft DCO (document reference 3.1)			
Any night	2200 - 0700*	1 hour	45	55
* Denotes working hours and construction noise effect levels relating to horizontal directional drilling operations				



131. Construction noise will not exceed the SOAEL values as set out in **Table 9.1** as a consequence of implementing the control measures set out in **Section 9.1** and **Section 9.2** above.
132. For the avoidance of doubt, construction noise will be minimised below the LOAELs where it is reasonably practicable to do so through implementing the control measures set out in **Section 9.1** and **Section 9.2** above.



10 Air Quality Management

133. **Chapter 19 Air Quality** of the ES (document reference 6.1.19) identifies receptors that are potentially sensitive to air and dust emissions. The final CoCP will identify specific areas sensitive to changes in air quality within the onshore development area. The following specific mitigation measures will be implemented in these areas where practicable. The Applicant will discuss the mitigation measures with the relevant planning authority during preparation of the final CoCP, and where specific mitigation measures proposed by the relevant planning authority are not deemed practicable, the rationale for this will be explained within the final CoCP. The control measures set out in **section 10.1.1** to **section 10.1.8** are to be applied in order to ensure that any potential effects upon these receptors are adequately mitigated.

10.1 Control Measures

134. A number of management and mitigation measures in relation to the emission of dust and other emissions during construction works have been identified.
135. An Air Quality Management Plan (AQMP) will be developed and implemented, which may include measures to control other emissions, approved by the relevant planning authority.
136. Contact details shall be clearly displayed at suitable positions along the site boundary to allow members of the public to raise comments on air quality and dust matters. A stakeholder communications plan will be developed and implemented that includes community engagement before work commences on site.
137. The final CoCP will identify sensitive locations in the vicinity of the onshore development area. Sensitive locations will be identified with consideration of parameters including (but not limited to):
- Quantities of construction materials;
 - Soil type;
 - Coastal areas (and areas of higher wind speeds); and
 - Positions of large stockpiles.
138. A comprehensive set of measures will apply to these locations and be identified within the final CoCP.



10.1.1 Access Strategy

139. The movement of Heavy Goods Vehicles (HGVs) travelling to construction sites can influence air quality and as such the emissions associated with vehicle movements are taken account of in the strategies used to manage traffic. Detailed information regarding the impact of HGVs and construction traffic is laid out in the Outline Construction Traffic Management Plan (document reference 8.9), Outline Access Management Plan (OAMP) (document reference 8.10) and the Outline Travel Plan (OTP) (document reference 8.11). The OTP sets out how construction personnel traffic would be managed and controlled and the OCTMP sets out the standards and procedures for managing the impact of HGV traffic during the construction period, including localised road improvements necessary to facilitate the safe use of the existing road network. These are secured under of the requirements of the draft DCO.
140. The access strategy applies a hierarchical approach to selecting routes and where possible, seeks to reduce the impact of HGV traffic upon the most sensitive communities. This access strategy includes the following commitments:
- All HGV traffic would be required to travel via the A1094 or B1122 from the A12, no traffic would be permitted to travel via alternative routes, such as the B1121 or B1119;
 - No HGV traffic would be permitted to travel though Leiston or Coldfair Green / Knodishall;
 - No HGV traffic would be permitted to travel via B1121 past Benhall, Sternfield or Friston; and
 - No HGV traffic would be permitted to travel via B1353 (Thorpeness Road).

10.1.2 Dust Management

141. Throughout the construction works, the following dust management measures shall be implemented where possible 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 relevant planning authority when asked.
 - Record any exceptional incidents that cause dust and / or air emissions, either on- or offsite, and the action taken to resolve the situation in the log book.
 - Liaise with any 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 note any dust deposition, record inspection results, and make the log available to the relevant planning 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.
- The requirement for any monitoring will be determined in consultation with the relevant planning authority in the event that complaints regarding dust nuisance are recorded.
- Plan the 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.
- Take measures to control 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 possible.
- Cover, seed or screen stockpiles to prevent wind whipping as appropriate. The final measures (or combination of) to be implemented will be proportionate to the sensitivity of receptors identified and agreed with the relevant planning authority in accordance with Requirement 22 of the **draft DCO** (document reference 3.1).
- 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.
- As required, a reduced speed limit of 10mph will be enforced along any section of the onshore cable route and construction consolidation site which falls within 100 metres of a building used as a dwelling-house and the recreational field used by the Wardens Trust charity, in order to control noise and dust generation at such receptors.
- In areas of the onshore development area not within 100m of a building used as a dwelling-house, a maximum-speed-limit of 15 mph on surfaced, and 10 mph on unsurfaced, haul roads and work areas will be signposted and imposed.
- Produce a CTMP to manage the sustainable delivery of goods and materials.



- Implement the Travel Plan that will be produced for the proposed East Anglia ONE North project, which supports and encourages sustainable travel for contractor operatives and staff (public transport, cycling, walking, and car-sharing).
- Only use cutting, grinding or sawing equipment fitted or in conjunction with suitable dust suppression techniques such as water sprays or local extraction, e.g. suitable local exhaust ventilation systems.
- Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where possible and appropriate.
- Use enclosed chutes and conveyors and covered skips.
- Minimise drop heights from conveyors, loading shovels, hoppers and other loading or 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.
- Bonfires and burning of waste materials should not be permitted.

10.1.3 Measures Specific to Earthworks

142. 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.

10.1.4 Measures Specific to Construction

143. Measures specific to construction may typically include:

- Ensure construction sand and other construction aggregates are stored in silos, banded areas or in a controlled and well-managed manner.
- Avoid scabbling (roughening of concrete surfaces) if possible.
- 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.
- For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust release.



10.1.5 Measures Specific to Access and Egress from Site

144. 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.
- Loaded 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 log book.
- Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.
- Install a wheel washing system (with rumble grids to dislodge accumulated dust and mud) prior to leaving the site where reasonably practicable.
- Adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.
- Locate site access gates at least 10m from receptors where possible.

10.1.6 Measures Specific to Non-Road Mobile Machinery (NRMM)

145. Prior to construction, the Applicant will identify the positioning and orientation of plant and equipment involved with the landfall construction in consideration of sensitive air quality receptors where practicable. This will be undertaken with cognisance of the proximity of working areas in relation to the designated sites of nature conservation (i.e. Leiston – Aldeburgh SSSI).

146. Additionally, the Applicant will identify the positioning and orientation of any NRMM which does not comply with Stage IV or Stage V controls in consideration of sensitive air quality receptors where practicable. This will be undertaken with cognisance of the proximity of working areas in relation to sensitive human receptors and designated sites of nature conservation, with the aim of locating such NRMM as far away from sensitive locations as practicable.

147. 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 possible, all NRMM will comply with Stage IV emissions standards under EU Directive 97/68/EC or later.
- Use of NRMM which is not compliant with Stage IV emissions standards or later will be restricted to areas outside the 100m buffer of properties and outside designated habitat sites shown in **Figure 1, Appendix 2** where practicable.
- All NRMM should 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.
- Implementation of energy conservation measures including instructions to throttle down or switch off idle construction equipment; switch off the engines of trucks while they are waiting to access the site and while they are being loaded or unloaded, ensure equipment is properly maintained to ensure efficient energy consumption.

10.1.7 HGV Emissions

148. To ensure emissions from HGV are minimised through Stratford St. Andrew, in the event of an overlap of the proposed East Anglia TWO and East Anglia ONE North projects' construction phase with the construction of the proposed Sizewell C nuclear power station, there would be a requirement to ensure 70% of the Projects' HGV delivery vehicles are of a Euro VI-standard.
149. This requirement would only apply prior to the opening of the Two-Villages Bypass⁵.
150. The Outline Construction Traffic Management Plan presents further details of the Euro VI-standard commitment.

10.1.8 Monitoring

151. The monitoring of management and mitigation measures is described in **section 14** and will be carried out in accordance with the Outline Construction Traffic Management Plan.

⁵ The Two-Villages bypass is proposed as mitigation by EDF Energy to bypass of the villages of Farnham and Stratford St. Andrew on the A12 to mitigate the impacts of SZC.



11 Surface Water and Drainage Management

152. **Chapter 20 Water Resources and Flood Risk** of the ES (document reference 6.1.20) includes applicable management and mitigation measures for the construction and operational phases of the proposed East Anglia ONE North project. The measures have been provided to reduce the impact of the proposed East Anglia ONE North project on surface and groundwater resources. The main objectives with regards to managing potential surface water and foul water drainage are as follows:

- To protect surface and groundwater by ensuring that appropriate measures are in place to prevent contaminants (e.g. sediment release) from entering the surrounding environment and in particular pathways that might lead to water receptors. An overview of proposed controls for hazardous materials is provided in **section 5**.
- To comply with relevant legislation and good practice in terms of managing surface and foul water abstractions and discharges.
- To maintain and protect private water supplies during construction.

153. In particular, the control measures are designed to manage flood risk. Further control measures are identified within **Section 11.1** below and an illustration of applicable control measures is presented in **Plate 11.1**.

11.1 Control Measures

154. A Surface Water and Drainage Management Plan and a Flood Management Plan will be produced as part of the final CoCP. These are discussed further in the following sections.

155. Note that management measures of operational stage surface water drainage will be detailed and secured in the final Operational Drainage Management Plan produced post-consent to discharge Requirement 41 of the **draft DCO** (document reference 3.1). The Operational Drainage Management Plan will be based upon the **Outline Operational Drainage Management Plan** (an updated version has been submitted at Deadline 13, document reference ExA.AS-13.D13.V7).

156. In accordance with the Land Drainage Act 1991 and local byelaws, where required the Applicant will seek written consent from the East Suffolk IDB on the final methodology for any temporary or permanent works associated with Ordinary watercourses within the East Suffolk Internal Drainage District.



157. Written consent from the Lead Local Flood Authority will be obtained for the final methodology for any temporary or permanent works associated with Ordinary watercourse crossings outside of the East Suffolk Internal Drainage District (pursuant the Land Drainage Act 1991).

11.1.1 Sediment Management

158. To minimise potential impacts from the construction phase on land, surface water or groundwater receptors, where required, the following measures will be implemented:

- Work along the cable route would be limited to short sections (work fronts) at any one time. 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. Subsoil will then be excavated to the appropriate depth and stored separately to the topsoil. On completion of trenching, trenches will be back-filled, and the stored topsoil will be re-distributed over the area of the work front, with the exception of the access road and any associated drainage features.
- Buffer strips of vegetation will be retained adjacent to the Hundred River and Friston Watercourse, where possible. Where surface vegetation has been removed, it will be reseeded to prevent future runoff (excluding arable crops).
- A CMS will be developed for the construction activities and will adhere to construction industry good practice guidance as detailed in the Environment Agency's PPG notes (including PPG01, PPG05, PPG08 and PPG21) and CIRIA's 'Control of water pollution from construction sites: Guidance for consultants and contractors (C532) – A guide to good practice' (2001). Specific measures to control sediment supply that will be captured within the CMS include:
 - Excavation arisings from trenching activities will not be stored within areas identified as Flood Zone 2 or Flood Zone 3 along the length of the onshore cable route, or within the floodplain associated with the Hundred River unless otherwise agreed with the Environment Agency.
 - Subsoil exposure will be minimised and strips of undisturbed vegetation will be retained on the edge of the working area where possible.
 - 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 systems. Additionally, where required, soil bunds will be created along the edge of the working area to contain any overland flow paths and prevent sediment from being washed outside the working area.



- The drainage system will include drainage channels (or swales) along the length of the onshore cable route to collect surface water runoff and direct it to a suitable point of discharge or soak-away.
 - The drainage system will also include silt fences at the foot of soil storage areas to intercept sediment runoff at source.
 - Attenuation or settlement ponds will be established within the onshore development area to assist in surface water runoff. Where necessary, topsoil and subsoil storage areas along the onshore cable route will be cleared to accommodate attenuation or settlement ponds.
 - Suitable filters will be used to remove sediment from any water discharged into the surface drainage network.
 - Additional silt fences will be included in parts of the working area that are in proximity to surface drainage channels.
 - Where possible, spoil storage would be set back 5m from water courses, to minimise potential for silt run off from the onshore cable route working width.
 - Soil and sediment accumulation on road surfaces will be minimised as reasonably practicable by washing the wheels of vehicles leaving site and, where required, clearance of the road surface. Traffic movement would be restricted to minimise the potential for surface disturbance.
159. Where relevant, the measures listed in Paragraph 158 above will apply to construction works within areas identified as having an increased risk of surface water flooding. The measures listed in Paragraph 158 will be captured within the final CoCP and accompanying surface water and drainage management plan secured by Requirement 22 of the **draft DCO** (document reference 3.1). During construction, the Applicant's contractor must ensure that the final CoCP and surface water and drainage management plan are implemented as approved for the section of the works for which they are contracted to deliver.
160. Detailed evaluation of each section of the Onshore Development Area will be undertaken prior to construction works commencing and selection of the most appropriate mitigation measures for each area will be applied. Such evaluation will consider, but not be limited to, extent of work areas, topography of the site, geology and soil conditions, hydrology and surrounding receptors.
161. The findings of such evaluation will inform the design of the final surface water management scheme, which will be set out within the surface water and drainage management plan. Where sensitive areas to flood risk are identified, the Applicant proposes to re-designate the area allocated for stockpile storage illustrated within **Plate 6.18, Chapter 6** of the ES (APP-054) for surface water management measures, which could include linear basins or ditches parallel to



the onshore cable trenches. Appropriate silt traps would be proactively installed where their use is deemed effective to minimise sediment build up within such basins or ditches. The linear basins and / or ditches would be designed to allow for infiltration of runoff and settlement of any residual sediment not collected by the silt traps. An example of how surface water could be controlled during construction is presented within **Plate 11.1** below.

162. Delivery of surface water management measures will be taken into account in the phasing of the onshore works through consultation with the Applicant's contractor. Equally, the phasing of the onshore works will be considered in the design and preparation of the surface water and drainage management plan.
163. Where space is available adjacent to an area being constructed during any given period of the construction programme, this will be used for the implementation of surface water management measures such as linear basins and / or ditches subject to the findings of the evaluation. This will be reflected in the final surface water and drainage management plan secured by Requirement 22(2)(a) of the **draft DCO** (document reference 3.1).

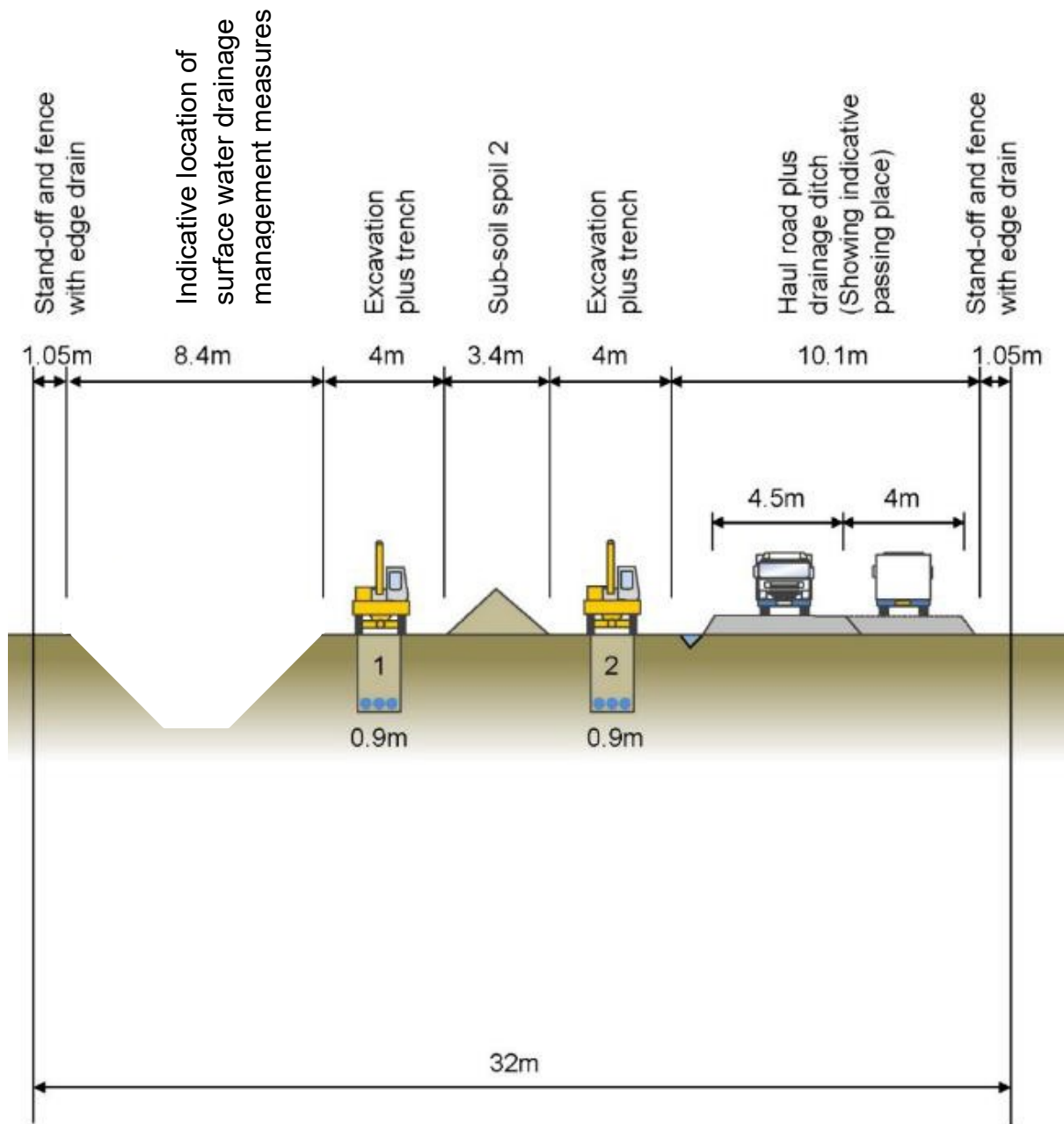


Plate 11.1 Example of How to Control Surface Water and Sediment will be Controlled Within the Onshore Cable Route During Construction

164. Whilst the Applicant will seek in the first instance to maintain the surface water drainage measures within the working width of the onshore cable route, temporary possession powers are available to undertake ancillary works within the wider onshore cable corridor. Furthermore, given the way in which the **draft DCO** (document reference 3.1) has been written, if both East Anglia TWO and East Anglia ONE North are consented, it is likely the ducting for the second project will be installed in parallel with the construction of the cables for the first



project and will share a temporary haul road where possible. This provides greater flexibility in implementing effective surface water drainage measures during construction.

11.1.2 Pollution Prevention

165. Specific measures relating to pollution prevention that will be captured within the CMS will typically include:

- Cable installation activities will be designed to ensure that they will not affect groundwater in any significant manner. Excavations will be shallow (approximately 1.2m under the ground surface, although they may be slightly deeper beneath watercourse and service crossings) and significantly above the level of the Principal Aquifer. If subsurface works are required in Source Protection Zone (SPZ) 1 or SPZ2 (as identified in **Chapter 18 Ground Conditions and Contamination**), the construction methodology will stipulate that the best available techniques are used for any installations, to be agreed in advance with the Environment Agency. Furthermore, a hydrogeological risk assessment meeting the requirements of GP3 (Environment Agency 2017) will be undertaken for any trenchless crossing locations in SPZ2 or SPZ3. If significant risks are identified, alternatives to cross the SPZ will be considered.
- Concrete and cement mixing and washing areas will be situated at least 10m away from the nearest watercourse. These will incorporate settlement and recirculation systems to allow water to be re-used. All washing out of equipment will be undertaken in a contained area, and all water will be collected for off-site disposal.
- All fuels, oils, lubricants and other chemicals will be stored in an impermeable bund with at least 110% of the stored capacity. Damaged containers will be removed from site. All refuelling will take place in a dedicated impermeable area, using a bunded bowser. The refuelling and fuel storage area will be located at least 10m from the nearest watercourse. Biodegradable oils will be used where possible.
- Spill kits will be available on site at all times. Sand bags or stop logs will also be available for deployment on the outlets from the site drainage system in case of emergency spillages.
- Foul drainage (e.g. from construction welfare facilities) will be collected through a mains connection to an existing mains sewer (if a suitable connection is available), or collected in a septic tank located within the onshore development area and transported off site for disposal at a licensed facility. The specific approach will be determined during detailed design with



consideration of the availability of mains connections and the number of working hours for site attendees.

- A pre-construction survey of water features (i.e. site walkover / visual inspection) will be undertaken to ensure that water features are identified and subject to hydrogeological risk assessments where required.
- Hydrogeological risk assessments will be undertaken prior to commencement of any construction activity:
 - that could cause changes to aquifer flow or affect aquifer water quality within 500m of any groundwater dependent habitats within ecological sites;
 - that requires excavations below 1m within 250m of boreholes or springs; or
 - within 250m of a groundwater abstraction.

The Environment Agency will be consulted on the findings of all hydrogeological risk assessments undertaken prior to the relevant works commencing.

- No chemicals will be stored within 50m of a watercourse or water abstraction borehole.
- A groundwater protection method statement will be prepared as part of the Pollution Prevention and Response Plan, which will consider impacts to groundwater quality and secure measures to minimise construction phase groundwater quality impacts.

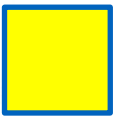
11.1.3 Watercourse Crossings

166. The following additional measures would be applied where possible, and detailed in the Watercourse Crossing Method Statement (which will be included as part of the final CoCP and must accord with the Outline Watercourse Crossing Method Statement) to reduce the impacts associated with the trenched crossing of the Hundred River:

- In order to ensure that there are no adverse impacts resulting from the installation of temporary dams, where possible the amount of time that temporary dams are in place would be restricted to a maximum of 10 weeks. Flumes or pumps would be adequately sized to maintain flows downstream of the obstruction whilst minimising upstream impoundment, and scour protection would be used to protect the bed downstream of the dam from higher energy flows at the outlet of the flumes or pumps. Furthermore, a fish rescue would be undertaken in the area between the temporary dams prior to dewatering.



- Dewatering activities will not commence until the relevant environmental permit has been granted by the Environment Agency. The application for the relevant environmental permit will include measures to ensure that any water removed from subsurface excavations is returned to ground and any water that is removed from a watercourse will be returned to the same watercourse, unless otherwise agreed with the Environment Agency. Dewatering activities that require an abstraction licence will follow the Environment Agency's Hydrogeological Impact Appraisal for Dewatering.
- The temporary bridge or culvert for the haul road would be adequately sized to avoid impounding flows. If a culvert is used, the invert level of the structure will be installed below the natural bed of the channel so that sediment transport and the movement of fish and aquatic invertebrates can be maintained.
- Any over-pumping at the Hundred River crossing would be a non-consumptive operation (i.e. no transmission loss). Measures will be identified within the final CoCP (the final Watercourse Crossing Method Statement) to ensure that sufficient flow at the Hundred River is maintained.
- The final Watercourse Crossing Method Statement will include information on surface water flow rates and discharge rates during construction works to ensure the compensation discharge currently operated by Essex & Suffolk Water at the Hundred River between July and October is conveyed downstream of the crossing location.
- Cable ducts would typically be installed 2m below the bed of the watercourse, allowing the necessary water volumes and flows (sufficient to account for climate-related changes in fluvial flows and erosion). This would be dependent upon local geology and geomorphological risks (e.g. bed scour and channel instability) and avoid exposure during periods of higher energy flow where the bed could be mobilised.
- Vegetation would not be removed from the banks unless necessary to undertake the works; any vegetation removal would be restricted to the smallest practicable footprint.
- Where possible, localised improvements to the geomorphology and in-channel habitats will be considered where the watercourse is crossed using open cut techniques. This will include sympathetic reinstatement of banks (e.g. by replacing re-sectioned banks with more natural profiles that are typical of the natural geomorphology of the watercourse). Note that any improvements would be restricted to within the onshore development area of the proposed East Anglia ONE North project.



- Relevant abstraction licence holder(s) will be consulted by the Applicant regarding any works at the Hundred River crossing which have the potential to disrupt flow.

167. Where the final Watercourse Crossing Method Statement contains information relating to Ordinary watercourse, the LLFA and East Suffolk Internal Drainage Board (IDB) will be consulted.

11.1.4 Surface Water Drainage – Overview

168. Changes in surface water runoff as a result of the increase in impermeable area from the construction of the Projects will be attenuated and discharged at a controlled rate, in consultation with the LLFA and Environment Agency.
169. The controlled runoff rate will be limited to the equivalent greenfield runoff rate so as not to cause an increased risk of flooding off-site. The feasibility for infiltration systems will also be assessed during the detailed design development of the systems required for each phase of the works.
170. A Surface Water and Drainage Management Plan (SWDP), similar to the indicative plans referred to in **Section 11.1.5** and **Section 11.1.6** below, will be developed and implemented for the whole of the onshore development area to minimise water within the cable trench and ensure ongoing drainage of surrounding land. Where water enters the trenches during installation from surface runoff or groundwater seepage, this will be pumped via settling tanks, sediment basins or mobile treatment facilities to remove sediment, before being discharged into local ditches or drains via temporary interceptor drains in order to prevent increases in fine sediment supply to the watercourses.
171. Land drainage systems would be maintained during construction, where possible, and reinstated on completion. Consultation with landowners and occupiers would be undertaken to establish existing drainage arrangements, location of drains and any other relevant information. Following construction, field drainage systems and ditches would be fully reinstated where possible in consultation with landowners / occupiers. Further mitigation will include the use of a specialist, local drainage contractor to undertake surveys to locate drains and develop a strategy and produce drawings for both pre and post-construction and ensure appropriate reinstatement. The final SWDP will include provisions to minimise water within the working area and ensure ongoing drainage of surrounding land.
172. During construction, the Applicant's contractor must ensure that the final CoCP and SWDP are implemented as approved for the section of the works for which they are contracted to deliver. The ECoW will be responsible for ensuring that the



effective surface water drainage management measures are in place for each relevant stage of construction and ensure that the relevant contractor also has in place a plan and appropriate means to respond to unforeseen events. This forward planning and implementation is critical to the effective management of surface water during construction and is a key lesson learnt from the construction of the East Anglia ONE project.

173. The final SWDP will ensure that any construction works regulated by the Land Drainage Act 1991 and controlled by East Suffolk Internal Board byelaws must have written consent from the East Suffolk Internal Drainage Board prior to being undertaken.
174. The final SWDP will ensure that any construction works regulated by the Land Drainage Act 1991 and controlled by the Lead Local Flood Authority must have written consent from the Lead Local Flood Authority prior to being undertaken.
175. Where there is sufficient space within the Order limits, further consideration of the benefits for the potential storage of rainwater for use in construction activities requiring a supply of water will be provided in the final CoCP. Any solution will take into account the need to ensure capacity is provided within the construction phase surface water drainage system to accommodate future rainfall events.

11.1.5 Surface Water Drainage – Substation Area

176. Infiltration or attenuation basins will be included within or close to the onshore substation and National Grid substation to provide sufficient volume to manage infiltration or attenuation of surface water runoff prior to discharge into the closest watercourse or sewer connection. The full specification for the basins will be addressed as part of detailed design during the post consent phase following detailed assessment of each section of the Onshore Development Area as described in **section 11.1.1**. A 1 in 30 year storm event return period (3.33% chance of occurrence) will be accommodated within the construction drainage design for Work Nos. 30, 31, 34, 38, 41 and 42.
177. The overall surface water storage volume required for such a scheme is 14,979m³ (see calculations within Appendix 4⁶). This has been calculated based on the following reasonable worst case assumptions:

⁶ The calculations shown within Appendix 4 generate the required storage volume to accommodate a 1 in 30 year storm event based on the area of hardstanding identified within Table 11.1. This required volume is then transposed to Figure 2 which presents an illustrative layout of how the required storage volume can be incorporated in multiple basins within the construction site layout.



- Attenuation only, with a rate of discharge no greater than the existing greenfield runoff rate, unless otherwise agreed within the final CoCP that a higher rate can be accommodated;
- No allowance for climate change, given the overall duration of the construction programme;
- Temporary basin(s) with a design depth of up to 1m (plus freeboard). The final depth of the temporary basin(s) will be subject to detailed design and depths may be greater provided adequate safety mechanism are in place;
- 3,300m³ additional storage provided to offset the removal of existing depressions on the assumption that they do not function as natural soakaways during construction; and Impermeable surfaces which comprise the operational and construction footprints associated with both the East Anglia TWO, East Anglia ONE North and National Grid substations, together with supporting infrastructure such as access roads and CCSs. The exact footprints assumed are set out in **Table 11.1**.

Table 11.1 Areas of Hardstanding Assumed to be 100% Impermeable

Hardstanding	Footprint
East Anglia TWO onshore substation footprint	32,300m ²
East Anglia ONE North onshore substation footprint	32,300m ²
National Grid substation footprint (Air Insulated Switchgear)	44,950m ²
East Anglia TWO onshore substation CCS	17,100m ²
East Anglia ONE North onshore substation CCS	17,100m ²
National Grid substation CCS	23,350m ²
Operational access road	13,600m ²
Cable sealing end compounds	10,000m ²
Access road to the sealing end compound	1,850m ²
East Anglia ONE North and TWO construction SuDS basin footprint (top of water during 1 in 30 year event)	16,684 m ²
Total	209,234m²

178. Multiple basins are likely to be provided across the site to accommodate the required surface water storage volume; the exact location and specification of each basin will be determined as part of the detailed design process. An indicative general arrangement is presented on **Figure 2** within **Appendix 2** to



demonstrate how such a scheme can be accommodated within the Order limits alongside the other infrastructure within the Order limits alongside the other infrastructure (e.g. the operational footprint of both projects and the footprints of temporary infrastructure such as the construction consolidation sites).

179. The indicative general arrangement shown on Figure 2 takes into account the existing terrain to ensure the surface water basins are appropriately located downstream of the working areas. Areas to the north of the existing 400kV overhead line are uphill of the construction works they are of no benefit for managing surface water from the construction works.
180. It should be noted that the total storage volume provided by the basins illustrated on **Figure 2** (15,600m³) is greater than the required 14,979m³ to reflect terrain and their necessary irregular shaping. The design of the final basins will be deepened to accommodate an additional 300mm freeboard (albeit this does not affect the footprint of the basins shown in **Figure 2** of the **Outline CoCP**).
181. The final general arrangement and design of the construction phase surface water management scheme for the entirety of the onshore development area. However, the Applicant considers a temporary surface water drainage scheme designed to a 1 in 15 year return period event is proportionate and sufficient to mitigate the risk of surface water flooding at the substations' location.

11.1.6 Surface Water Drainage - Onshore Cable Route

182. Where necessary, topsoil and subsoil storage areas along the onshore cable route will be cleared to accommodate surface water basins (such as the example illustrated in **Plate 11.1** above). The full specification for the basins will be addressed as part of detailed design during the post consent phase following detailed assessment of each section of the Onshore Development Area as described in **Section 11.1.1**.
183. During construction, where a requirement is identified as a result of the detailed assessments, the onshore cable route will be bounded by drainage channels (one on each side) to intercept drainage from within the working corridor. Additional drainage channels will be installed to intercept water pumped from the cable trench. Depending upon the precise location, water from the channels will be infiltrated or attenuated and then discharged into the surface drainage network where practicable. The objective would be to infiltrate surface water wherever possible within the site before it is discharged offsite. However, should infiltration not be possible and in locations where surface drainage networks are not available to discharge water offsite within the immediate area, attenuated water will cascade along a series of basins to such point where it can be discharged to an existing drainage network. Measures, as set out within **Section 11.1.1** above,



will be implemented to minimise sediment being discharged to existing drainage networks. The exact number of basins along the onshore cable route will depend on the findings of infiltration testing and further detailed ground investigations post-consent.

184. **Figure 3, Appendix 2** provides an indicative general arrangement for a construction phase temporary surface water drainage scheme, broken into 100m length sections of the onshore cable route. The illustration presents how a scheme may be designed within a typical section of the onshore cable route with a working width of 32m, or where the working width reduces to 16.1m (for example, where the onshore cable route crosses an important hedgerow).
185. The indicative design shown on **Figure 3, Appendix 2** is for illustration purposes only at this stage and will be subject to detailed design post-consent to reflect the final onshore cable route design and temporary works details that will be available at that stage.

11.1.6.1 Typical Onshore Cable Route Working Width

186. The overall capacity and associated surface area of the basins required within a typical 100m length of the onshore cable route working width (as shown on **Figure 3, Appendix 2**) have been calculated based on the construction footprint of the East Anglia ONE North onshore cable route, allowing an 8.4m wide swathe within the onshore cable route for surface water management as shown in the onshore cable route cross-section in **Plate 11.1**. Where East Anglia TWO and East Anglia ONE North are constructed together (i.e. with the ducts for the second project installed in parallel with the installation of the onshore cables for the first project), the width within the onshore cable route available for surface water management measures would at least double to 16.8m.
187. The following assumptions have been made in calculating the storage capacities required within a typical section of the onshore cable route:
- A 100m-length section of the onshore cable route;
 - A 1 in 10 year storm event return period (10% chance of occurrence);
 - No allowance for climate change, given the overall duration of the construction programme (anticipated to be a maximum of 24-months for the onshore cables, comprised of shorter sub-periods for each section of the onshore cable route);
 - Attenuation only, with a rate of discharge no greater than the existing greenfield runoff rate (i.e. assuming at this stage that infiltration is not available);



- Impermeable surfaces within the onshore cable route working width were taken to be the temporary haul road and associated drainage ditch (5.5m wide), onshore cable trenches (1.8m (2 x 0.9m) wide), subsoil spoil piles (3.4m wide) and the surface water management area, equating to approximately 45% of the total area within the 100m-length section of onshore cable route; and
- Temporary basin(s) design depth of up to 1m (with additional 300mm freeboard). The final depth of the temporary basins will be subject to detailed design.

188. **Table 11.2** presents the required and provided surface water storage volumes and corresponding attenuation basin dimensions associated with a 1 in 10 year storm event.

Table 11.2 Construction Phase Surface Water Drainage Design Storage Calculations for a 100m length section of the 32m-wide Onshore Cable Route

Storm Event Return Period	Basin Length	Basin Area	Overall Volume Required (m ³)	Volume Illustrated in <i>Figure 3, Appendix 2</i> (m ³)
1 in 10 year	16m	134.4 m ²	49 m ³	55.3 m ³

189. **Figure 3, Appendix 2** illustrates a surface water drainage scheme for a 1 in 10 year event.

11.1.6.2 Onshore Cable Route with a Reduced Working Width

190. Where the onshore cable route crosses an important hedgerow as specified within Schedule 11 Part 2 of the **draft DCO** (document reference 3.1), the working width of the onshore cable route will reduce from 32m to 16.1m. It is not the intention to provide surface water storage basins within this reduced working width, rather surface water will be conveyed to a basin to one side of an important hedgerow. Where water from these basins is not able to be discharged into an existing drainage network offsite, swales will convey surface water along the onshore cable route (cascading through a series of basins) to such point where it can be discharged to an existing drainage network. An illustrative example is provided within **Figure 3, Appendix 2**.

191. A longer section of the onshore cable route subject to a reduced working width is located between the Hundred River and Aldeburgh Road. At this location, it is



anticipated that a swale will convey surface water eastwards along the onshore cable route to be discharged into the Hundred River via a smaller basin (subject to appropriate consent). Where East Anglia TWO and East Anglia ONE North are constructed together (i.e. with the ducts for the second project installed in parallel with the installation of the onshore cables for the first project), each Project will be served by its own swale.

192. Additional means of mechanical silt removal may be implemented as required where water is discharged from the temporary surface water basin to the Hundred River. This may include the deployment of mobile treatment facilities to remove sediment such as 'Siltbuster' technologies. The Applicant will ensure that any mechanical silt removal equipment adopts suitable noise control measures as discussed in **Section 9**.
193. The final SWDP approved by the relevant planning authority will set out the final general arrangement and design of the construction phase surface water management scheme for the entirety of the onshore development area. However, the Applicants consider a temporary surface water drainage scheme designed to a 1 in 10 year return period event is proportionate and sufficient to mitigate the risk of surface water flooding along the onshore cable route. Recognising that some areas along the onshore development area may be more sensitive to flood risk than others, the Applicant will continue to engage with the LLFA post-consent during the preparation of the final SWDP to design a suitable temporary drainage scheme which is proportionate to local sensitivities.

11.1.6.3 Crossing of Existing Drains

194. At drain crossings, the haul road would be installed over a pre-installed piped connection to allow continued access to the cable route. The pipe would be installed in the drain bed so as to avoid upstream impoundment and would be sized to accommodate reasonable 'worst-case' water volumes and flows.
195. Where drains are shallower than 1.5m, temporary damming, culverting or diverting may be employed, with agreement from internal drainage boards and flood management agencies.
196. As a worst case, the cable ducts and/or cables would be installed in a flat formation (each cable core installed alongside each other). Onshore cables will typically be installed in trenches approximately 1.2m below ground level and of approximate 0.9m width. The default arrangement assumes that cables (and ducts if used) are laid in trefoil (plus fibre-optic cables and DTS cabling) in a total of two trenches. The width of the trenches and the spacing between them would vary depending on the depth of burial. This depth would allow the cables (and



protective tiles and tape) to be laid below the level of typical field drainage pipes and other underground services to minimise impact and interaction.

11.1.7 Flood Risk Management

197. The measures identified in **section 11.1.1** to **section 11.1.6** include detail of how management of surface water drainage has an associated relationship in reducing flood risk during construction. In addition to these measures above, the following measures will be implemented to further minimise potential impacts from the construction phase on possible flood risk receptors:

- A Flood Management Plan (as secured by Requirement 22 of the **draft DCO** (document reference 3.1)) will be prepared which describes the control measures designed to manage flood risk during construction. The plan will include details of flood warning and evacuation procedures, key contacts, emergency contacts and insurance details.
- The Flood Management Plan will be produced as part of the final CoCP in consultation with the Environment Agency, the Lead Local Flood Authority and requires approval by the relevant planning authority.
- The Flood Management Plan will include provision for secondary surface water management measures, such as small bunding to contain small localised areas of surface water ponding within the Order limits, as well as the creation of associated drainage channels or cut-off ditches if required.
- All bunding serving a containment purpose would be properly constructed and sealed to act as reliable barrier to potential downstream receptors.
- Monitoring of weather forecasts will be undertaken in order to identify any forecasts of heavy rainfall events.
- Surface water storage ponds will be checked regularly and drained down as required to ensure that capacity is available ahead of any heavy rainfall events forecast.
- Access to maintain and observe flood control measures during rainfall events will be set out and agreed with relevant landowners.
- Post heavy rainfall events, a review will be undertaken to identify measures that were effective in controlling surface water and any additional measures that could be reasonably undertaken to address surface water run off where required.
- In advance of any heavy rainfall events forecast, so as far as is reasonably practicable, no new work phases will be opened, the site readied for a forecast storm event by securing work areas and ensuring the construction surface water system is clear and able to operate efficiently.



11.1.7.1 Flood Resilience Fund

198. A Flood Resilience Fund will be established by East Anglia TWO Limited and East Anglia ONE North Limited to the value of £500,000 which will be available for applications from 6 months prior to construction of the onshore substation associated with the first Project to commence construction (should both the East Anglia ONE North project and the East Anglia TWO project be consented) until 6 months following completion of this onshore construction and will be available for flood resilience measures in the general vicinity of the onshore development area.
199. The Flood Resilience Fund will provide funding for local residents, community groups, SCC and other statutory bodies to undertake flood resilience measures to assist in alleviating the existing flood risk to local residents if a flood event were to occur. Any works funded under the Flood Resilience Fund must be undertaken by the individual or organisation requesting the funding given that the works would be focused on addressing existing flood risk.
200. The Applicant will promote the existence of the fund and will provide technical support for members of the public or community groups to assist in their application for funding if requested.
201. Options to administer the Flood Resilience Fund include a Section 111 with SCC (under the Local Government Act 1972); a charitable trust (such as the Suffolk Community Foundation with whom the Applicants are discussing the administration of the Projects' separate £2.5m Community Benefit Fund; or through ScottishPower Renewables (parent company of the Applicants).

11.1.8 Marlesford Bridge (Work No. 37)

202. The Applicant will consult the Environment Agency on the need for any environmental permits for works within Work No. 37 prior to such works commencing. Where a requirement for construction activities is identified at Work No. 37 (Marlesford Bridge) and such works require a permit, the Applicant will submit an application for the relevant Environmental Permits under The Environmental Permitting (England and Wales) Regulations 2016. This will include an application for a Flood Risk Activity Permit, for which a Flood Risk Assessment of the relevant works will be undertaken.

11.2 Licences

203. **Table 11.3** sets out the additional licences or permits necessary prior to construction in relation to water resources and flood risk.



Table 11.3 Licences or Permits Necessary prior to Construction in relation to Water Resources and Flood Risk

Issuing body	Name of consent	Applicable to
Environment Agency	Flood Risk Activity Permit issued under the Environmental Permitting (England and Wales) Regulations 2016	A permit may be required for any proposed works or structures within 8m of any fluvial defence; any proposed works or structures in/under/over/within 8m of the top of the bank of a main river, or 16m if it is a tidally influenced main river.
	Water Abstraction licence	Abstractions of more than 20 cubic metres / day from main and ordinary watercourses, and groundwater and certain dewatering activities.
	Environmental Permit for water discharge or waste operations / registration of exempt waste operations and water discharges (as necessary or registered exemption from such)	Discharge to surface water (main river or ordinary watercourse) or groundwater of anything other than clean, uncontaminated surface water run-off
Lead Local Flood Authority (Suffolk County Council) or East Suffolk Internal Drainage Board	Consent for works affecting ordinary watercourses (Ordinary Watercourse Consent – also known as Land Drainage Consent)	Works in/over/under/near an ordinary watercourse

11.3 Abstractions

204. The final CoCP will include a figure illustrating the locations of all current abstraction licences, domestic abstractions and protected rights prior to the commencement of construction. Measures will be included within the final CoCP to ensure no derogation to abstraction licences, domestic abstractions and protected rights as a result of the Project.
205. Abstraction of water may be required for potable supply or for use during site activities, such as concrete batching or washing. The appointed Contractor will be responsible for obtaining from the Environment Agency, in advance of use, any permits for the use of abstracted water during the construction related activities and for monitoring and recording associated abstraction rates or other licence requirements to demonstrate compliance.
206. In the event that abstracted water is required for potable supply purposes, this will be undertaken in consultation with the Environmental Protection Team of the relevant planning authority to facilitate regulation under and compliance with the Private Water Supplies (England) Regulations 2016.



207. Any landowners with private water supplies will be identified during landowner consultations, and all affected landowners and water supplies will be monitored appropriately during construction works. Standard mitigation, where required, would include pre- and post-construction monitoring surveys of the water supply, development of risk management measures and the preparation of contingency supply arrangements.

11.4 Discharge

208. The appointed Contractor will be responsible for obtaining from the Environment Agency, in advance of discharge, any permits associated with the use of septic tanks or other effluent / washout water treatment facilities and for monitoring and recording specified volumetric, quality or reference conditions, to demonstrate compliance.
209. If the permanent connection to the foul sewer is not available during the construction phase, the foul water and sewage effluents produced by the construction workforce shall be contained by temporary foul drainage facilities to be installed. In the case of the latter, all foul water shall be disposed of off-site by a licensed contractor.
210. Waste sludge from septic tanks and effluents from cesspits and sewage holding tanks will be removed by a suitably licensed and registered waste carrier in accordance with Duty of Care requirements, with details and records maintained in accordance with the SWMP.
211. The foul water drainage requirements for the Project will be limited to temporary drainage during construction. This will be reflected within the final CoCP when setting out the hierarchy of foul water drainage (i.e. connection to mains sewer network or septic tank) and justifying the selected foul water drainage solution.



12 Sizewell Gap

212. Measures to minimise the interaction and interference with access along Sizewell Gap during construction of the Project will be set out within the final Sizewell Gap Construction Method Statement, which will accord with the **Outline Sizewell Gap Construction Method Statement** (REP8-086). The Sizewell Gap Construction Method Statement will include information relating to the:

- Design of construction accesses connecting with Sizewell Gap, including any vegetation removal required to achieve the minimum visibility splays set out within the final Access Management Plan (secured by Requirement 16 of the **draft DCO** (APP-023));
- Management and maintenance measures to be implemented at each construction access connecting with Sizewell Gap and along Sizewell Gap itself, including regular road sweeping and repairs where a requirement is identified through the monitoring described below (any road repair identified on Sizewell Gap on the approach to the accesses shall be planned and carried out at such times to avoid Sizewell B shift changes); and
- Monitoring of each construction access connecting with Sizewell Gap and along Sizewell Gap itself, including the requirement for monitoring and improvement such as through a programme of inspections, recording and reporting defects as required.

213. The following measures will be adopted to manage the interaction between the accesses and Sizewell Gap during construction of the Project:

- Accesses will have appropriate advance warning signage in line with the approved Access Management Plan;
- All gates at accesses will be manned or locked daily when there is no construction activity;
- Accesses will have grit bins placed at the entrance way;
- Once each access is established, a wheel wash facility will be established for HGVs to use prior to entering Sizewell Gap;
- The Applicant and its construction partners will liaise with the Suffolk Joint Emergency Planning Unit to communicate the nature and programme of the works and ensure that the requirements (if any) of the Suffolk Joint Emergency Planning Unit are implemented and enforced throughout the works to maintain the integrity of the Radiation Emergency Plan. On site personnel will be made aware of the general provisions of the Radiation Emergency Plan and specific requirements (if any) of the Radiation



Emergency Plan for each area in which they are working, and this is to be documented by the contractor;

- Prior to works commencing, the Applicant and its contractors will liaise with Sizewell B Power Station and the Sizewell A Site to communicate the nature and programme of the works. The Applicant will ensure that the requirements (if any) of the Sizewell B On Site Emergency Plan are implemented and enforced throughout the works to maintain the integrity of the Sizewell Onsite Emergency Plan. On site personnel will be made aware of the general provisions of the Sizewell B Onsite Emergency Plan and specific requirements (if any) of the Sizewell B Onsite Emergency Plan for each area in which they are working, and this is to be documented by the contractor;
- The Applicant will consult with Sizewell B during the preparation of the final Sizewell Gap Construction Method Statement; and
- The Applicant will consult with Sizewell C during the preparation of the final Sizewell Gap Construction Method Statement, to the extent that it relates to Work No. 15.



13 Utility Providers

- 214. 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 best practice.
- 215. The continuity of utilities during the construction works would be ensured. Prior to construction, the team on the ground would be made aware of the precise locations of existing services.



14 Monitoring and Site Inspections

216. The management and mitigation measures described above will be monitored by the Contractor's environmental management representative and the ECoW throughout the construction phase. If non-conformity with any of the management and mitigation measures is identified, it will be recorded during a site audit and appropriate remedial actions will be implemented.
217. A monitoring programme will be established for environmental aspects associated with the proposed East Anglia ONE North project site, which will be documented in the final CoCP. The Applicant's EMS and associated audit programme includes a requirement for the Applicant or an experienced nominated delegate to audit the Applicant construction sites on a periodic basis; included in the audit scope will be the appointed Contractor's monitoring and inspection regime.



15 Contingency Planning

218. The proposed East Anglia ONE North project specific Pollution Prevention and Response Plan, detailing how to report and deal with an environmental incident, is discussed in **section 5**.
219. During construction, all site staff would be made aware of sections of the onshore cable 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.
220. If, during construction, remains are found unexpectedly on a site not known to be a burial ground, they will not be removed. In such circumstances, the local environmental health officer and the proposed East Anglia ONE North project archaeologist will be consulted to assess the remains and the police will be consulted. If the police conclude that the remains are of no investigative significance and it is necessary to exhume the remains, then an application for a licence will be made to the Ministry of Justice. Should any animal remains be discovered during the construction phase that indicate a potential burial site, the main works contractor would cease all work in the vicinity and immediately advise the Animal Health Regional Office accordingly.
221. The **draft DCO** (document reference 3.1) requires the Suffolk Resilience Forum Radiation Emergency Plan to be updated prior to undertaking certain works, ensuring that suitable emergency planning arrangements are in place for the duration of such works.



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Appendix 1 Onshore Preparation Works Management Plan

1 Introduction

222. Onshore preparation works are permitted to be undertaken prior to commencement of the authorised development, and are defined within the **draft DCO** (document reference 3.1) as:

“onshore preparation works means operations consisting of site clearance, demolition work, early planting of landscaping works, archaeological investigations, environmental surveys, ecological mitigation, investigations for the purpose of assessing ground conditions, remedial work in respect of any contamination or other adverse ground conditions, diversion and laying of services, erection of temporary means of enclosure, creation of site accesses, footpath creation, erection of welfare facilities and the temporary display of site notices or advertisements”

2 Onshore Preparation Works

223. In order to control the potential for impacts associated with the onshore preparation works, the Applicant will prepare an Onshore Preparation Works Management Plan for the following onshore preparation works:

- Site clearance;
- Demolition work;
- Early planting of landscaping works;
- Ecological mitigation (where intrusive works are required);
- Investigations for the purpose of assessing ground conditions;
- Remedial work in respect of any contamination or other adverse ground conditions;
- Diversion and laying of services;
- Erection of temporary means of enclosure;
- Creation of site accesses;
- Footpath creation; and
- Erection of welfare facilities.



224. The following clarifications are noted in relation to onshore preparation works and the onshore preparation works management plan:
- Archaeological investigations are not subject to an onshore preparation works management plan as they are covered by Requirement 19 (Pre-commencement archaeology execution plan) of the **draft DCO** (document reference 3.1);
 - Requirement 16 (Highway accesses) of the **draft DCO** (document reference 3.1) must continue to be discharged in line with the process and procedures set out within that Requirement at the DCO, namely the submission of written details (which accord with the **Outline Access Management Plan** (document reference 8.10)) and approval by the relevant highway authority in consultation with the relevant planning authority. The onshore preparation works management plan will include details relating to such activities which will supplement the Requirement 16 details but may be submitted separately;
 - It is not anticipated that temporary stopping up of PRoW will be required in respect of onshore preparation works, although any such temporary stopping up will follow the process outlined within the **Outline Public Rights of Way Strategy** (document reference 8.4); and
 - Early planting of landscaping works approved under the onshore preparation works management plan will be incorporated within landscape management plan submitted for approval under Requirement 14 of the **draft DCO** (document reference 3.1).

3 Onshore Preparation Works Management Plan

225. The following elements will be addressed within each onshore preparation works management plan:
- Description of works;
 - Timing of works;
 - Working hours;
 - HGV access routes (if any);
 - Lighting arrangements (if any);
 - Noise mitigation measures and monitoring (if any);



- Surface and ground water controls (if any);
- Dust mitigation measures (if any);
- PRow management measures (if any);
- For early landscaping only, species and location of early planting (if any); and
- Applicant's contact details.

4 Approvals

226. Recognising that the onshore preparation works are works that would not require consent in their own right and are essential to the efficient commencement of the onshore works, where the relevant planning authority receives an onshore preparation works management plan it will notify the Applicant of its decision within 28 days as to its approval or otherwise.

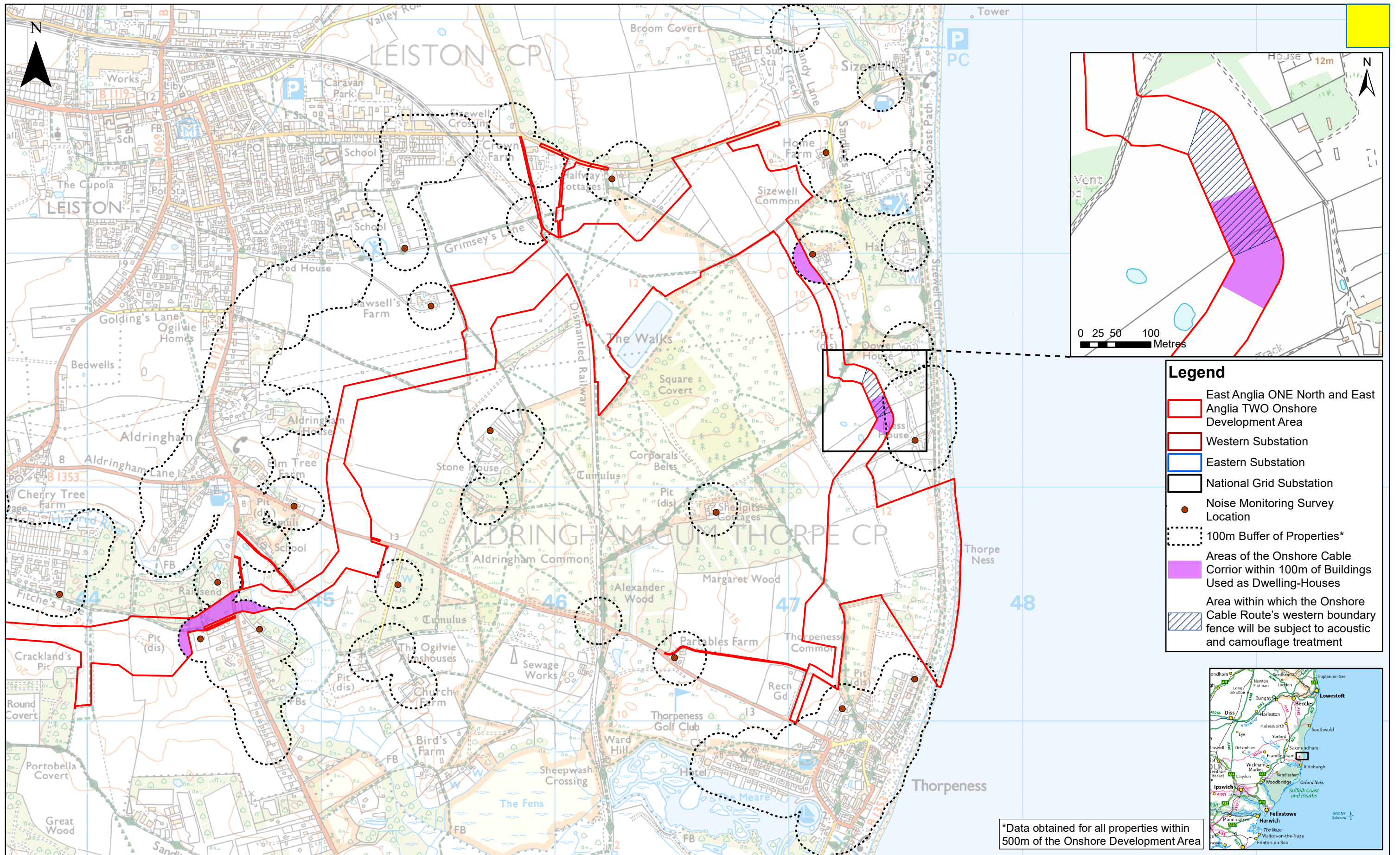


Appendix 2 Figures

Figure 1 Potential Sensitive Receptors and Areas Subject to Additional Construction Phase Controls

Figure 2 Indicative General Arrangement of Construction Surface Water Drainage Infrastructure at Substations Location (1 in 30 Year Design Standard)

Figure 3 Example Construction Surface Water Drainage Scheme for a Section of the Onshore Cable Route



Legend

- East Anglia ONE North and East
- Anglia TWO Onshore Development Area
- Western Substation
- Eastern Substation
- National Grid Substation
- Noise Monitoring Survey Location
- 100m Buffer of Properties*
- Areas of the Onshore Cable Corridor within 100m of Buildings Used as Dwelling-Houses
- Area within which the Onshore Cable Route's western boundary fence will be subject to acoustic and camouflage treatment



*Data obtained for all properties within 500m of the Onshore Development Area

9	07/06/2021	AB	Ninth Issue.		
8	06/05/2021	AB	Eighth Issue.	Prepared:	AB
7	05/05/2021	AB	Seventh Issue.	Checked:	BD
Rev	Date	By	Comment	Approved:	FM

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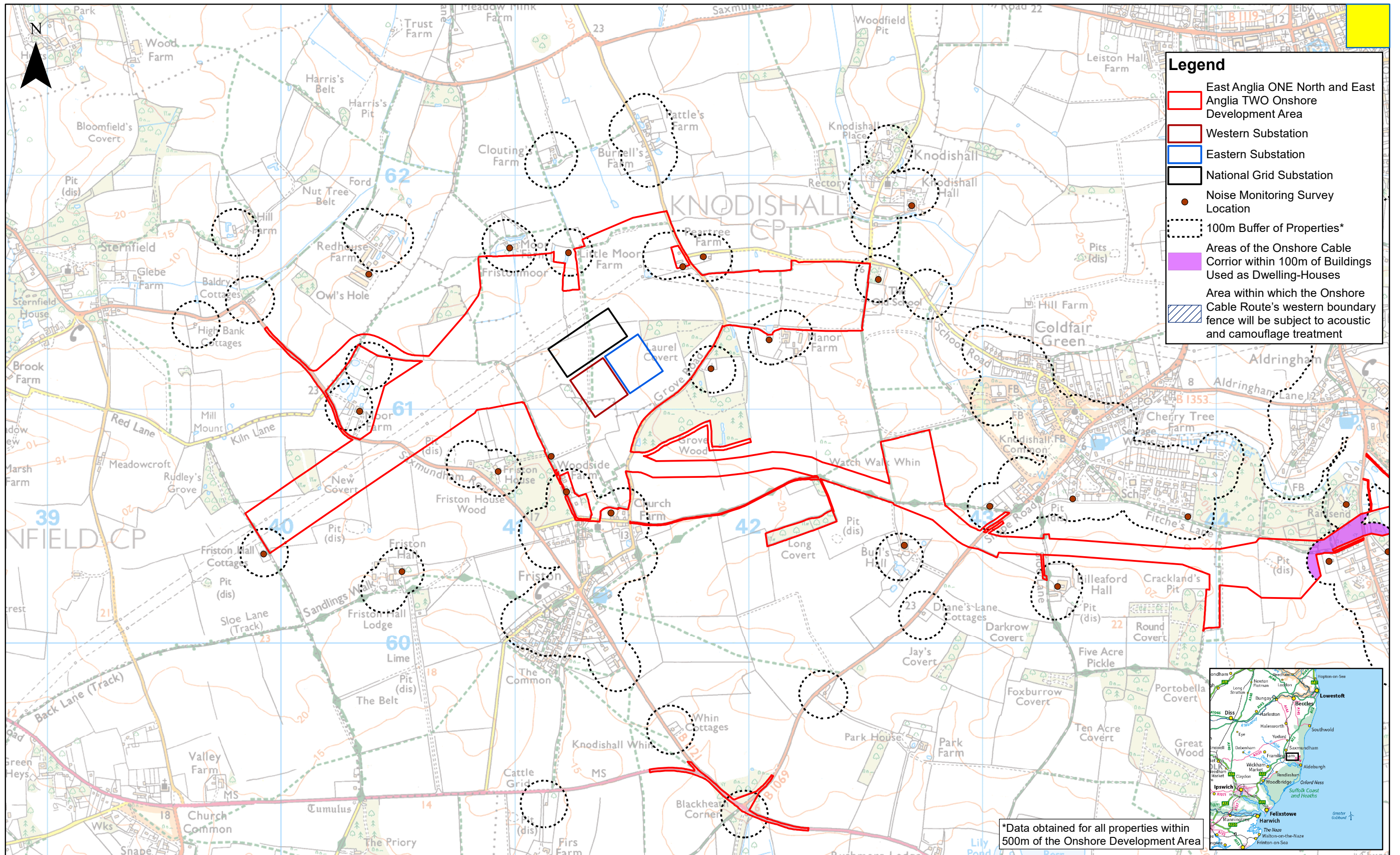
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East Anglia ONE North

Potential Sensitive Receptors and Areas Subject to Additional Construction Phase Controls

Drg No	EA1N-DEV-DRG-IBR-001289	
Rev	9	Coordinate System: BNG
Date	07/06/21	Datum: OSGB36
Figure	1	



Legend

- East Anglia ONE North and East Anglia TWO Onshore Development Area
- Western Substation
- Eastern Substation
- National Grid Substation
- Noise Monitoring Survey Location
- 100m Buffer of Properties*
- Areas of the Onshore Cable Corridor within 100m of Buildings Used as Dwelling-Houses
- Area within which the Onshore Cable Route's western boundary fence will be subject to acoustic and camouflage treatment



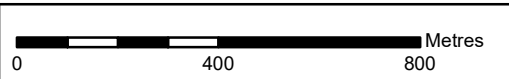
*Data obtained for all properties within 500m of the Onshore Development Area



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8	06/05/2021	AB	Eighth Issue.
7	05/05/2021	AB	Seventh Issue.
Rev	Date	By	Comment

Prepared:	AB
Checked:	BD
Approved:	FM

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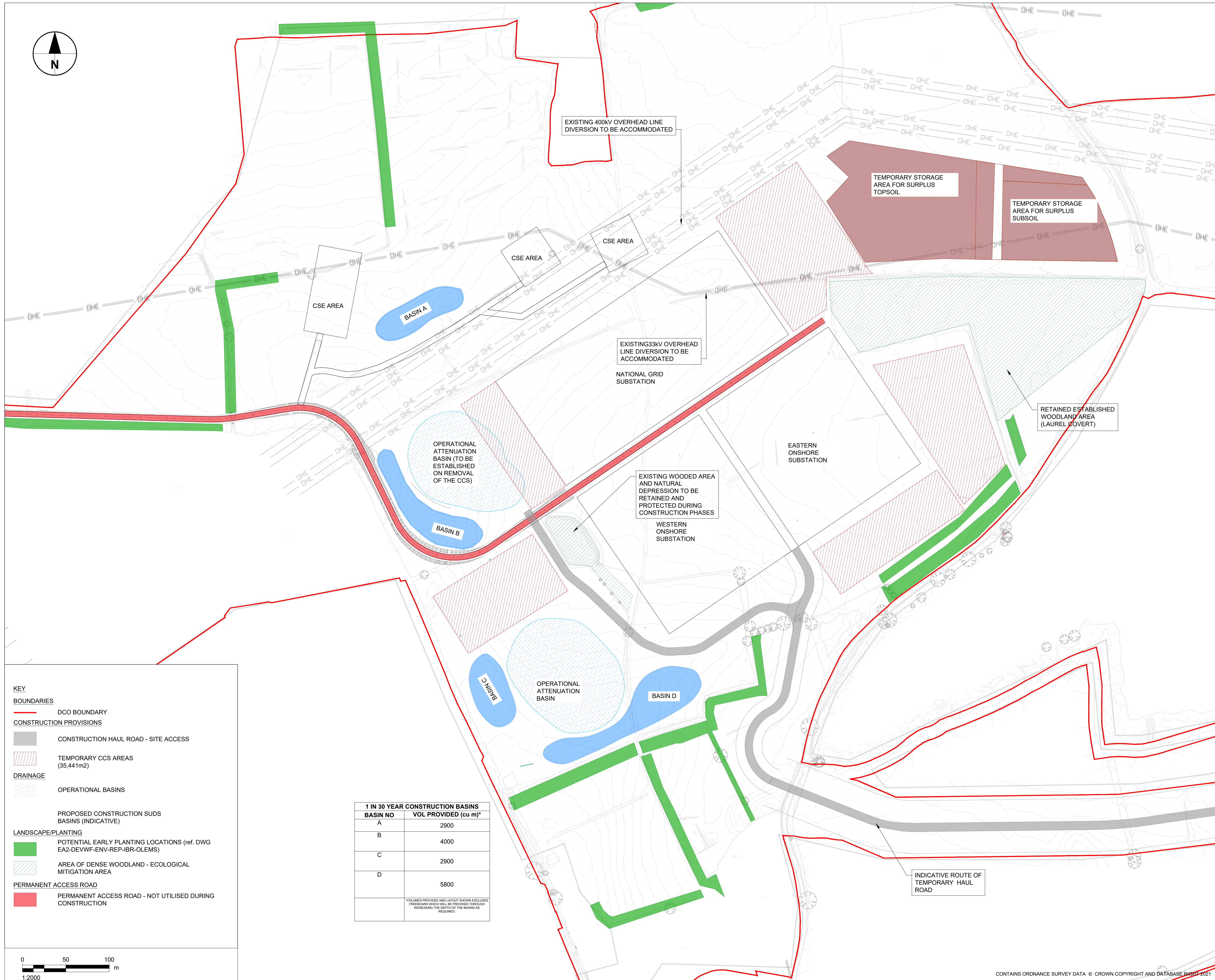
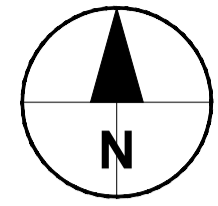


East Anglia ONE North

Potential Sensitive Receptors and Areas Subject to Additional Construction Phase Controls

Drg No	EA1N-DEV-DRG-IBR-001289	
Rev	9	Coordinate System: BNG
Date	07/06/21	Datum: OSGB36
Figure	1	

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 Project Management Initials: Designer: CMc Checked: RQ Approved: RQ
 ISO A1 594mm x 841mm



KEY

BOUNDARIES

- DCO BOUNDARY

CONSTRUCTION PROVISIONS

- CONSTRUCTION HAUL ROAD - SITE ACCESS
- TEMPORARY CCS AREAS (35,441m²)

DRAINAGE

- OPERATIONAL BASINS
- PROPOSED CONSTRUCTION SUDS BASINS (INDICATIVE)

LANDSCAPE/PLANTING

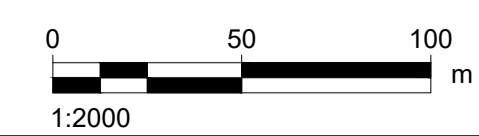
- POTENTIAL EARLY PLANTING LOCATIONS (ref. DWG EA2-DEVWF-ENV-REP-IBR-OLEMS)
- AREA OF DENSE WOODLAND - ECOLOGICAL MITIGATION AREA

PERMANENT ACCESS ROAD

- PERMANENT ACCESS ROAD - NOT UTILISED DURING CONSTRUCTION

1 IN 30 YEAR CONSTRUCTION BASINS	
BASIN NO	VOL PROVIDED (cu m)*
A	2900
B	4000
C	2900
D	5800

*VOLUMES PROVIDED AND LAYOUT SHOWN EXCLUDES FRESHWATER WHICH WILL BE PROVIDED THROUGH INCREASING THE DEPTH OF THE BASINS AS REQUIRED.



Project

EAST ANGLIA TWO AND EAST ANGLIA ONE NORTH ONSHORE SUBSTATION AREA

Client

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Notes

ISSUE/REVISION

Rev	Date	Description	Dwn/Chk/Appr

Key Plan

Purpose Of Issue

FOR INFORMATION

Project Number

60661040

Sheet Title

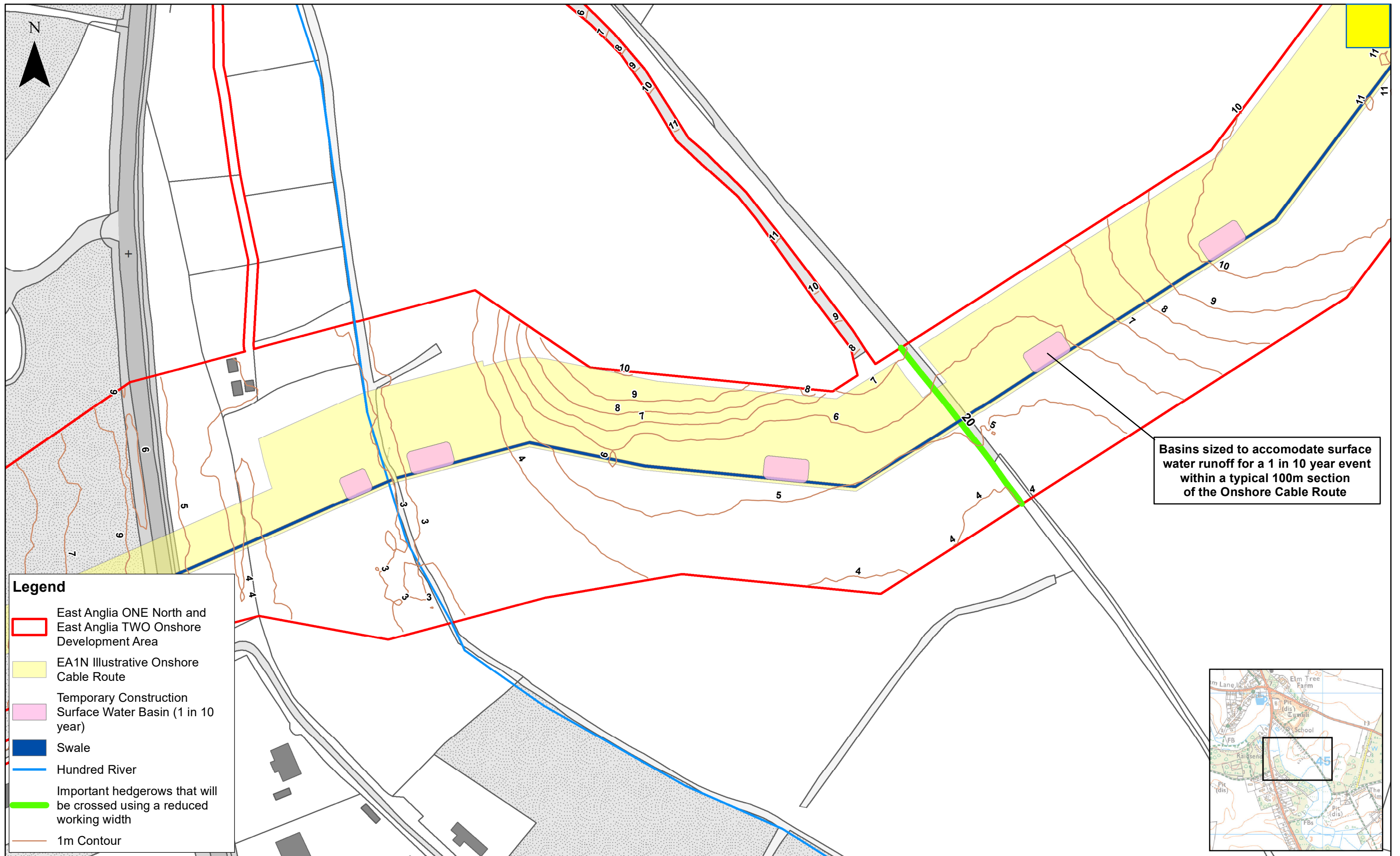
FIGURE 2.INDICATIVE GENERAL ARRANGEMENT OF CONSTRUCTION SURFACE WATER DRAINAGE INFRASTRUCTURE AT SUBSTATION LOCATIONS (1:30YR DESIGN STANDARD)

Sheet Number

60661040-ACM-XX-00-DR-CE-0014

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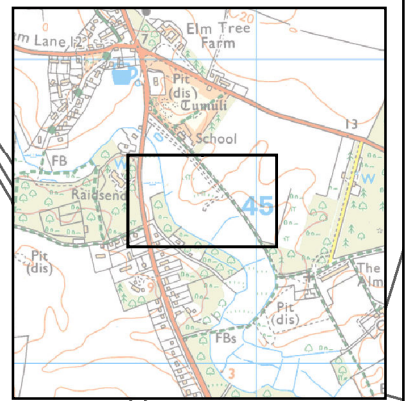
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Legend

- East Anglia ONE North and East Anglia TWO Onshore Development Area
- EA1N Illustrative Onshore Cable Route
- Temporary Construction Surface Water Basin (1 in 10 year)
- Swale
- Hundred River
- Important hedgerows that will be crossed using a reduced working width
- 1m Contour

Basins sized to accommodate surface water runoff for a 1 in 10 year event within a typical 100m section of the Onshore Cable Route



Rev	Date	By	Comment	Approved:
2	07/06/2021	AB	Second Issue.	Prepared: AB
1	04/06/2021	AB	First Issue.	Checked: BD
				Approved: FM

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East Anglia ONE North

Example Construction Surface Water Drainage Scheme for a Section of the Onshore Cable Route

Drg No	EA1N-DEV-DRG-IBR-001317
Rev	2
Date	07/06/21
Figure	3
Coordinate System:	BNG
Datum:	OSGB36



Appendix 3 Community Engagement Activity undertaken for East Anglia ONE that would be replicated for East Anglia ONE North

1 Community Engagement Objectives

1. From consent and throughout construction, ScottishPower Renewables (SPR) (parent company of the Applicant) understands the importance of the continuation of transparent and inclusive community engagement.
2. We know that this is the point at which we deliver on the promises made throughout the development phase and we know the importance of continuing to build relationships.
3. One benefit that the Applicant has is that the Stakeholder Communications Team remains a constant on the Project. We understand the communities and know those within them. We know what the concerns are, the areas they are in and the personalities involved.
4. This means that we can create an engagement strategy that allows us to be targeted and well timed, allowing the Stakeholder Communications Team to talk to people in ways that suit them, bringing the community on the construction journey with us.
5. SPR's experience with the EA1 construction project resulted in minimising complaints and concerns and is the approach we would adopt for the Project. This was delivered on the EA1 project through a robust stakeholder and engagement management process which utilised various communication channels, on-site Stakeholder Communications Team members, community events and wider regional organisation alignments, as detailed within this document



2 Covid-19

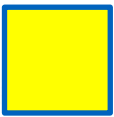
6. Any face-to-face activities for the Project would be dependent on Covid-19 and will strictly follow government guidelines. Our strategy will be created in line with key principles to ensure inclusive engagement where Covid-19 restrictions are still in place:
- Making online interaction as inclusive as possible;
 - Providing alternative or enhanced communication methods that are contact free, such as virtual meetings;
 - Using in-person methods with appropriate precautions, as far as practical, to ensure that public health and safety is maintained, and appropriate safeguards are put in place; and
 - Creating a flexible approach to ensure that we can adapt quickly if government guidelines change.
7. The EA1 project was under construction when the Covid-19 situation arose and successfully adopted the above measures to address the circumstances.

3 Community Liaison Procedure

8. As with the EA1 project, a stakeholder communication plan will be established and appended to the final Code of Construction Practice, which will be approved by the relevant planning authority. This will include a mechanism for queries, complaints and general feedback raised by the local community, ensuring adequate and timely feedback.

4 Community Liaison Officers

9. Prior to the onshore preparation works commencing, a Community Liaison Officer (CLO) will be appointed to work alongside the construction team and be based with them at a construction consolidation site.
10. Since the onshore cable route for the EA1 project was 37km (around 22 miles), a second CLO was appointed once construction had commenced. This meant that the route could be divided between them, and they could take responsibility for their own half (ca. 19km). This meant a dedicated resource and known contact for the communities and they were also able to cover for each other in the event of absence.



11. A CLO would be appointed for the Projects and would be based locally, likely to be in the same offices as the construction team.
12. Both CLOs would report to the Stakeholder Manager, who would oversee all community liaison activities on the Project, ensuring consistency of approach.

5 Project Updates

13. One of the key factors contributing to anxiety, is uncertainty. Through the construction of the EA1 project, transparency with local communities was key and the Applicant will continue this approach for the Project. This will be done in the following ways:
 - Regular email updates on the Project sent to registered subscribers on the Project website to keep them informed of the overall Project;
 - Localised updates to residential and business properties around specific activity taking place along the cable route or onshore substation via post, and email (where possible);
 - Email updates to Parish Councils and interest groups in the relevant area to ensure that they are aware should any questions be raised by their communities;
 - Website updates to provide key information on activity taking place across the onshore development area;
 - Parish Council meeting attendance to provide updates as required; and
 - Talks/presentations given to Chambers of Commerce/Rotary Clubs/General Interest.

6 Home Visits

14. On a number of occasions, we were asked to visit individual properties to give presentations or simply to talk to residents about what was proposed. This usually involved a member of the Stakeholder Communications Team accompanied by a construction representative or a site manager.
15. Again, the same activities would be undertaken should there be a request and Covid restrictions permitting.



7 Pre-enabling Drop-In Events

16. The EA1 project held a number of events at the pre-enabling phase of the EA1 project, to inform local communities about activities required to prepare the area for construction.
17. These pre-enabling works primarily involved road improvements for access and egress to site, traffic calming and the installation of temporary passing places. Early works commenced at the entrance to the substation site in Bramford and to a primary construction compound at Martlesham.
18. Therefore, events took place around two months before construction in Martlesham and Bramford to inform local communities about the changes being undertaken, what the works involved and the working hours etc. These also allowed the Stakeholder Communications Team to familiarise people with the EA1 project and the proposals.
19. Members of the construction team, including the lead construction manager participated along with the stakeholder manager and CLO.
20. Details of the events were sent to Parish Councils and councillors along the onshore cable route, as well as MPs and landowners. There was also an advert in the East Anglian Daily Times and a press release. Emails were sent to all those who had registered on the website to receive updates about the project.
21. The same activity would be proposed for the Project.

8 Construction Commencement Events

22. At the start of construction of the EA1 project's onshore substation site, further public information events were held. Again, these were attended by the construction team, including:
 - The lead construction manager;
 - Site managers;
 - Logistics manager;
 - Environmental manager;
 - Landscape manager; and
 - Stakeholder Communications Team.



23. These aimed to inform and engage with the communities around the onshore substation site and took place in the village halls of Burstall, Bramford and Sproughton.
24. The events were well attended by residents, parish councillors, local councillors and officers from Mid Suffolk and Suffolk County Council. Attendees were able to discuss their queries directly with the construction team.
25. These events aimed to reassure people that they could talk to individuals working on the EA1 project and they could provide their opinions and be listened to.
26. As an example, one local landowner was particularly concerned about flooding on site and the team were able to show him the drainage plans and talk to him about the SuDS (sustainable drainage systems) proposed. Another couple were interested in landscape planting and again, they were able to speak to the team about how this would be managed, demonstrating the benefits in having the experts on the ground who could provide the detail.
27. Further events took place in villages at the along the onshore cable route when construction was due to start. Drop-in events were held in Sproughton, Grundisburgh and Bawdsey and a further event was held at the request of the Parish Council in Tuddenham St. Martin. The aim was to deliver the events in different locations, to ensure that as many stakeholders could participate as possible and nobody felt “left out”.
28. Questions tended to focus on traffic, public rights of way, hours of working, how construction on site would progress. There was also a lot of interest in the archaeology and what it would mean for Suffolk’s heritage.
29. The Stakeholder Communications Team propose to carry out similar drop-in events for the Project. These would be held in the villages directly affected by the onshore substation construction and along the onshore cable route, primarily: Friston, Knodishall, Aldringham cum Thorpe, Leiston cum Sizewell, Aldeburgh and Snape.

9 Construction Events

30. These information events continued throughout construction allowing communities to continue to talk to the Stakeholder Communications Team about the EA1 project and specific works.
31. They were supported by the main contractor and sub-contractors who, in many instances, provided videos, examples and information to explain what was happening.



32. These proved to be very positive events which were well attended and there was genuine interest in the EA1 project and how the works were to be carried out.
33. It will be important to the communities local to the Project that the Applicant continue to engage in this manner and to hold events throughout construction.

10 Parish Council Meetings

34. The Stakeholder Communications Team arranged for the construction team to present to individual Parish Councils on request and this would continue (see Project Updates section). Again, the team was mindful that many residents may not be able to travel, so we took the presentations to them. Therefore, residents from the following villages were able to attend meetings, along with county and district councillors:
 - Great and Little Bealings;
 - Grundisburgh & Culpho;
 - Playford;
 - Newbourne;
 - Waldringford;
 - Bawdsey;
 - Alderton;
 - Ramsholt;
 - Shottesham;
 - Sutton; and
 - Kirton & Falkenham.
35. The meetings were attended by construction managers, the logistics manager, the agricultural liaison manager from the main contractor and the Stakeholder Communications Team.
36. As well as information on the EA1 project, the presentations included detailed engineering information and a questions and answer session.
37. Requests from parishes around the Project will be honoured in the same way once the construction team is appointed.



11 HDD Public Information Days (PIDs)

38. To ensure that people understood how the Horizontal Directional Drilling (HDD) process worked and to dispel any concerns, the CLO organised an information event once the HDD contractor was appointed. This took place in Kirton, a village near The Deben and one of the locations where a HDD operation was undertaken.
39. The construction team, HDD contractor and civils contractor were all in attendance to explain how an HDD drill is undertaken and provided a video to show the process. This was used at subsequent events and roadshows.
40. In addition, the CLO organised three separate visits to the Landfall HDD site – for residents, the local planning authorities and other interested parties. This gave stakeholders an opportunity to see the equipment and gain a greater understanding of the process.
41. The visits were designed to reassure stakeholders on how a HDD construction site is operated. They were able to experience at first-hand how noise and dust are minimised and how traffic is managed in and out of the HDD site, with such things as wheel washing to prevent mud being transferred to the public road for example.
42. These visits resulted in the team receiving a lot of positive feedback.
43. Once the HDD contractor is appointed for Project, the Stakeholder Communications Team will organise similar events.

12 Archaeology Roadshows

44. These were held in conjunction with our archaeology contractors, to talk about the excavations that have taken place and explain some of the finds and their significance.
45. Events were held at Bawdsey (near the landfall); Waldringfield and Martlesham (in the middle of the onshore cable route); Claydon and Barham and Tuddenham St Martin (the western end of the onshore cable route) and on average they attracted some 150 – 200 people each and proved to be very popular.
46. Special visits to the archaeology investigation sites were also organised. On one occasion The Mayor of Woodbridge visited three of the archaeology investigation sites and on another, members of Bramford History Group visited an archaeology investigation site opposite the main construction compound at Claydon.



47. School activities were also organised, where our archaeology contractor's Education and Outreach Officer organised the following:
- The Classroom Dig;
 - A 3D Jigsaw; and
 - A Local Village Treasure Hunt.
48. These were designed to give pupils first-hand experience of how archaeologists discover and record information and supported the following curriculum areas:
- History – developing an understanding of how evidence is collected and used and how knowledge about the past is constructed;
 - Science – observation, gathering and recording data, description of the physical properties of and materials used in artefacts. Types and uses of materials. Survivability of materials;
 - Maths – measuring and drawing finds;
 - English – description, discussion, exploring ideas, listing the main features of a find (colour, material etc.); and
 - Technology – Looking at artefacts, comparing different technologies through time. Comparison between old and new. Why some designs change, and others remain the same.
49. They were aimed at Key Stage 2 but could be adapted for younger or older groups and some 15 schools along the cable route were visited.
50. There were a number of enquiries from the Woman's Institute, Rotary Clubs, Chambers of Commerce and local history groups to provide talks which, again, were accepted and proved very popular.
51. Given the popularity and the interest in this aspect of the work, we will continue with these activities for the Project.

13 Skills and Educational Initiatives

52. This aspect of the Project is vitally important as it could inspire a new generation to work in renewable energy which, as well as being a good career for many people and helping the UK meet our carbon neutral goals, is also of economic benefit to the UK. Therefore, educational initiatives took place throughout the EA1 project and will continue to do so as all the East Anglia projects progress.
53. Examples of some of the activities are listed below:



- **EEEEGR Skills for Energy event sponsorship and stand** - held at East Coast College, the FE College with campuses in Lowestoft and Great Yarmouth, this event is designed to encourage young people in the area to pursue a career in renewable energy;
- **Cambridge Science Centre Suffolk schools tour** – a full-day event focused around renewable energy education, specifically wind energy;
- **Women in Engineering Day** - This event involved a number of schools and a variety of female speakers, including a female engineer from the EA1 project;
- **Suffolk Skills Show – Trinity Park, Ipswich** - This has been an annual event attracting pupils from schools all over Suffolk. SPR has had a stand at this event, which again is designed to inspire students to have an interest in Science, Technology, Engineering and Maths, with a view to future careers; and
- **The Suffolk Show** - SPR takes a stand at this event which provides visitors with an opportunity to learn more about our East Anglia projects. It is the annual county show and attract up to 12,825 visitors and some 800 companies over its two days. Essentially an agricultural show, its main attractions centres on livestock and farming so there are landowners, business leaders and families attending. The stand features a number of attractions, including: a video of our windfarms in action, a 'Mad Science' representative; virtual reality headsets; a meet the engineer session and merchandise.

14 Summary

54. These initiatives successfully developed by the EA1 project's Stakeholder Communications Team is the template for the initiatives to be developed for the Project. Such initiatives are all designed to encourage, inspire, inform and reassure a wide range of stakeholders.



Appendix 4 Construction Surface Water Drainage Calculations

Unit 5, Newton Business Park
 Newton Chambers Road
 Sheffield S35 2PH

East Anglia
 EA2 / EA1N
 Construction Basin 30 YR



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XP Solutions

Source Control 2018.1

Summary of Results for 30 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m³)	Status
15 min Summer	12.685	0.185	15.6	2673.7	O K
30 min Summer	12.744	0.244	16.9	3550.6	O K
60 min Summer	12.807	0.307	17.2	4476.7	O K
120 min Summer	12.887	0.387	17.2	5679.3	O K
180 min Summer	12.939	0.439	17.2	6448.0	O K
240 min Summer	12.976	0.476	17.2	7013.7	O K
360 min Summer	13.028	0.528	17.2	7811.6	O K
480 min Summer	13.064	0.564	17.2	8351.7	O K
600 min Summer	13.089	0.589	17.2	8744.0	O K
720 min Summer	13.109	0.609	17.2	9043.8	O K
960 min Summer	13.136	0.636	17.2	9466.5	O K
1440 min Summer	13.167	0.667	17.2	9945.9	O K
2160 min Summer	13.184	0.684	17.2	10199.8	O K
2880 min Summer	13.187	0.687	17.2	10248.6	O K
4320 min Summer	13.176	0.676	17.2	10090.4	O K
5760 min Summer	13.161	0.661	17.2	9852.8	O K
7200 min Summer	12.500	0.000	0.0	0.0	O K
8640 min Summer	12.500	0.000	0.0	0.0	O K
10080 min Summer	12.500	0.000	0.0	0.0	O K
15 min Winter	12.707	0.207	16.6	2994.6	O K
30 min Winter	12.773	0.273	17.1	3977.9	O K
60 min Winter	12.843	0.343	17.2	5016.5	O K
120 min Winter	12.933	0.433	17.2	6366.2	O K
180 min Winter	12.990	0.490	17.2	7230.9	O K
240 min Winter	13.032	0.532	17.2	7867.8	O K
360 min Winter	13.091	0.591	17.2	8768.7	O K
480 min Winter	13.131	0.631	17.2	9381.5	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m³)	Discharge Volume (m³)	Time-Peak (mins)
15 min Summer	68.360	0.0	1013.2	19
30 min Summer	45.480	0.0	1341.1	34
60 min Summer	28.760	0.0	2630.5	64
120 min Summer	18.335	0.0	2890.2	124
180 min Summer	13.940	0.0	2882.0	184
240 min Summer	11.420	0.0	2854.4	244
360 min Summer	8.547	0.0	2790.4	364
480 min Summer	6.905	0.0	2729.2	484
600 min Summer	5.826	0.0	2672.4	604
720 min Summer	5.058	0.0	2619.0	724
960 min Summer	4.026	0.0	2519.4	962
1440 min Summer	2.898	0.0	2341.3	1442
2160 min Summer	2.063	0.0	4963.5	2160
2880 min Summer	1.618	0.0	4720.6	2880
4320 min Summer	1.152	0.0	4295.8	4320
5760 min Summer	0.910	0.0	9703.4	4968
7200 min Summer	-0.008	0.0	-156.9	0
8640 min Summer	-0.007	0.0	-156.9	0
10080 min Summer	-0.006	0.0	-156.9	0
15 min Winter	68.360	0.0	1157.6	19
30 min Winter	45.480	0.0	1420.7	34
60 min Winter	28.760	0.0	2813.9	64
120 min Winter	18.335	0.0	2907.3	122
180 min Winter	13.940	0.0	2877.4	182
240 min Winter	11.420	0.0	2838.7	242
360 min Winter	8.547	0.0	2763.6	360
480 min Winter	6.905	0.0	2693.7	480

Unit 5, Newton Business Park
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Summary of Results for 30 year Return Period

Storm Event	Max Level (m)	Max Depth (m)	Max Control (l/s)	Max Volume (m ³)	Status
600 min Winter	13.160	0.660	17.2	9830.2	O K
720 min Winter	13.182	0.682	17.2	10175.8	O K
960 min Winter	13.214	0.714	17.2	10670.5	O K
1440 min Winter	13.250	0.750	17.2	11243.1	O K
2160 min Winter	13.272	0.772	17.2	11575.4	O K
2880 min Winter	13.278	0.778	17.2	11679.2	O K
4320 min Winter	13.275	0.775	17.2	11622.0	O K
5760 min Winter	13.262	0.762	17.2	11431.1	O K
7200 min Winter	12.500	0.000	0.0	0.0	O K
8640 min Winter	12.500	0.000	0.0	0.0	O K
10080 min Winter	12.500	0.000	0.0	0.0	O K

Storm Event	Rain (mm/hr)	Flooded Volume (m ³)	Discharge Volume (m ³)	Time-Peak (mins)
600 min Winter	5.826	0.0	2626.8	598
720 min Winter	5.058	0.0	2562.0	716
960 min Winter	4.026	0.0	2440.3	952
1440 min Winter	2.898	0.0	2277.1	1426
2160 min Winter	2.063	0.0	4842.9	2120
2880 min Winter	1.618	0.0	4641.5	2820
4320 min Winter	1.152	0.0	4310.6	4188
5760 min Winter	0.910	0.0	9593.8	5480
7200 min Winter	-0.008	0.0	-175.8	0
8640 min Winter	-0.007	0.0	-175.8	0
10080 min Winter	-0.006	0.0	-175.8	0

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Rainfall Details

Rainfall Model	FEH	Winter Storms	Yes
Return Period (years)	30	Cv (Summer)	0.750
FEH Rainfall Version	2013	Cv (Winter)	0.840
Site Location	GB 641300 260300 TM 41300 60300	Shortest Storm (mins)	15
Data Type	Catchment	Longest Storm (mins)	10080
Summer Storms	Yes	Climate Change %	+0

Time Area Diagram

Total Area (ha) 20.923

Time (mins)	Area
From: To:	(ha)
0	4 20.923

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Model Details

Storage is Online Cover Level (m) 13.800

Tank or Pond Structure

Invert Level (m) 12.500

Depth (m)	Area (m ²)	Depth (m)	Area (m ²)	Depth (m)	Area (m ²)
0.000	14315.0	1.000	16122.0	1.300	16684.0

Hydro-Brake® Optimum Outflow Control

Unit Reference MD-SHE-0186-1720-1000-1720
 Design Head (m) 1.000
 Design Flow (l/s) 17.2
 Flush-Flo™ Calculated
 Objective Minimise upstream storage
 Application Surface
 Sump Available Yes
 Diameter (mm) 186
 Invert Level (m) 12.500
 Minimum Outlet Pipe Diameter (mm) 225
 Suggested Manhole Diameter (mm) 1500

Control Points	Head (m)	Flow (l/s)	Control Points	Head (m)	Flow (l/s)
Design Point (Calculated)	1.000	17.2	Kick-Flo®	0.709	14.6
Flush-Flo™	0.328	17.2	Mean Flow over Head Range	-	14.5

The hydrological calculations have been based on the Head/Discharge relationship for the Hydro-Brake® Optimum as specified. Should another type of control device other than a Hydro-Brake Optimum® be utilised then these storage routing calculations will be invalidated

Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)	Depth (m)	Flow (l/s)
0.100	6.5	0.800	15.5	2.000	23.9	4.000	33.4	7.000	43.8
0.200	16.5	1.000	17.2	2.200	25.0	4.500	35.3	7.500	45.2
0.300	17.2	1.200	18.8	2.400	26.1	5.000	37.2	8.000	46.7
0.400	17.1	1.400	20.2	2.600	27.1	5.500	38.9	8.500	48.1
0.500	16.7	1.600	21.5	3.000	29.1	6.000	40.6	9.000	49.4
0.600	16.2	1.800	22.8	3.500	31.3	6.500	42.2	9.500	50.7