



Vattenfall Wind Power Ltd

Thanet Extension Offshore Wind Farm

Code of Construction Practice (CoCP)

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Vattenfall Wind Power Ltd

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THANET OFFSHORE WIND FARM CODE OF CONSTRUCTION PRACTICE

1 SUMMARY

- 1.1.1 This Code of Construction Practice (CoCP) (Document Ref: 8.1) sets out the in-principle management measures which will be implemented by Vattenfall Wind Power Ltd (VWPL) and their contractors to manage the potential environmental impacts of construction of the Thanet Extension Offshore Windfarm (Thanet Extension). These measures will form the basis or minimum requirements of management plans to limit the disturbance from the construction activities such as site preparation, material delivery and removal, works activities and site reinstatement as far as is reasonably practicable.
- 1.1.2 This CoCP defines the principles that will inform the Construction Environmental Management Plan (CEMP) and other subject specific management plans which are outlined in this document. These plans are related to specific aspects of the development and will be submitted for approval, as required, for each stage of the proposed works.
- 1.1.3 Where no subject specific management plan is proposed for a specific environmental topic, the management measures to be implemented will be included within section 4 of this document which outlines the general provisions of construction.

2 INTRODUCTION

2.1 Overview

- 2.1.1 VWPL is submitting an application to the Planning Inspectorate (PINS), on behalf of the Secretary of State for Energy and Climate Change, for a DCO for the Thanet Extension Offshore Wind Farm (Thanet Extension) under the Planning Act 2008.
- 2.1.2 VWPL is a subsidiary of Vattenfall AB, a Swedish state-owned utility and one of Europe's largest generators of electricity and also one of the largest players in the global offshore wind sector. It is Vattenfall's ambition to be at the forefront of the low-carbon energy transition, and the company is committed to significant growth in wind energy, both onshore and offshore. Vattenfall has invested nearly £3 billion in the UK in onshore and offshore wind farms since 2008, and it is the company's ambition that the UK will continue to be a growth market for Vattenfall.
- 2.1.3 VWPL has world leading experience in offshore wind, as owner of Kentish Flats, Kentish Flats Extension, Ormonde and Thanet Offshore Wind Farms (OWFs), which are currently operational in the UK. The VWPL owned Aberdeen OWF, also known as the European Offshore Wind Deployment Centre, received a Final Investment Decision in July 2016 and is currently under construction. VWPL has started developing plans for the northern half of the former East Anglia Round 3 zone, which is split into two proposed offshore wind projects; Norfolk Vanguard has submitted and consulted on Preliminary Environmental Information, and a second project, Norfolk Boreas, is in the early stages of development.

2.2 Purpose of the CoCP

- 2.2.1 This CoCP sets out the management measures which will be taken by VWPL and their contractors to manage the potential environmental impacts of onshore construction of Thanet Extension and limit the disturbance from construction activities such as site preparation, material delivery and removal, work activities and site reinstatement as far as reasonably practicable.
- 2.2.2 This document also sets out the principle measures that will be secured in the Construction Environmental Management Plan (CEMP) and associated subject specific management plans (SSMPs) for each stage of works in the post-consent phase and submitted to the relevant planning authorities for approval. Compliance with the measures in this CoCP are secured by way of requirements in the draft DCO.

- 2.2.3 The draft DCO allows for the requirements to be discharged in stages and as a result, it may be that in discharging the relevant requirement for a particular stage it is not necessary or appropriate for all of the key elements of the CoCP to be included. If this is the case, the CEMP or SSMPs submitted to the relevant planning authority for that stage will make it clear why any key element is not included.
- 2.2.4 The CEMP and relevant SSMP will be produced by the contractor appointed to undertake the Thanet Extension works and agreed with the relevant local authorities prior to the start of relevant phases of work in accordance with the draft DCO.
- 2.2.5 For the purpose of the CoCP, the term ‘contractor’ refers to the principle contractor and/ or any sub-contractors appointed by VWPL to the Thanet Extension project. The term ‘site manager’ refers to the employee(s) appointed by the contractor to oversee site operations on a day to day basis, including but not limited to, safety and quality standards.

2.3 Scope of the CoCP

- 2.3.1 This CoCP relates to the onshore elements of the Thanet Extension, landward of Mean Low Water. Although this document does not relate to offshore works seaward of Mean Low Water, or any works above Mean Low Water that are principally marine activities, such as HDD exit pits and the offshore export cable installation, it has been drafted to tie in with the approach that will be taken in those works.
- 2.3.2 Offshore works are covered within the Construction Method Statement and the conditions in the deemed Marine Licences.
- 2.3.3 In respect of the intertidal area (the area between mean high water springs and mean low water) as there is an overlap in jurisdiction between the relevant planning authority and the Marine Management Organisation (MMO) the Applicant's discharge of the relevant draft DCO requirements will be coordinated with the discharge of the relevant conditions of the deemed marine licence (which forms part of the draft DCO) to ensure that the onshore and offshore works are co-ordinated and the intertidal area is properly protected. Onshore and offshore stages of works will take place over varying programmes and the discharge of each stage may be at different times.

2.3.4 This CoCP sets out, in a single overarching document, the environmental management controls that will form the basis of post-consent management plans for the onshore works. It also secures commitments made to the relevant planning authorities and statutory consultees in the ES.

2.4 Structure of the CoCP

2.4.1 This CoCP addresses:

- A brief overview of the project;
- General provisions and construction principles; and
- Guiding principles of the Construction Environment Management Plan (CEMP) and subject-specific management plans.

2.4.2 For each of the plans referred to within Table 1.1, appropriate information, in the form of principle measures, provided to inform the plans produced by the contractor at each relevant stage of works. These principle measures are in lieu of indicative outline plans at this stage in the application. This approach is taken in order to reduce the number of high level outline plans whilst presenting the necessary level of detail, and in turn comfort to the stakeholders, whilst also managing overall document numbers and flow of information. The description of each plan with respect to the CoCP can be seen in Figure 1.

Table 1.1: Summary of DCO Management Plan principle measures provided in this CoCP document

Name:	Description	Section
Construction Environmental Management Plan (CEMP)	<p>Includes environmental mitigation measures for each topic area from the ES and systems related to implementation and management of those measures</p> <p>CEMP to include measures regarding:</p> <ul style="list-style-type: none"> • Health, safety and environmental legislation and compliance; • Dust and air quality control and management; • Local community liaison responsibilities; • Screening, fencing and site security; • Biosecurity measures; • Lighting; • Flood risk management; • Waste management; and • Soil management. 	5
Surface Water and Drainage Management Plan (SWDMP)	Sets out the procedures and mitigation measures which will be undertaken during construction.	1
Contaminated Land and Groundwater Plan (CLGP)	Sets out the procedures and mitigation measures which will be undertaken during construction.	1
Construction Noise and Vibration Management Plan (NVMP)	Sets out the approach to minimising noise impacts and detail the method that will be used during construction.	7.1.23
Construction Traffic Management Plan (CTMP)	Sets out the standards and procedures for managing the impact of construction traffic during the construction period.	1

Name:	Description	Section
Landscape and Ecological Management Plan (LEMP) <i>(Outline LEMP (Document Ref: 8.7))</i>	Sets out the landscape and ecological mitigation measures which will be undertaken prior to, during and post-construction of the onshore infrastructure.	9.1.6

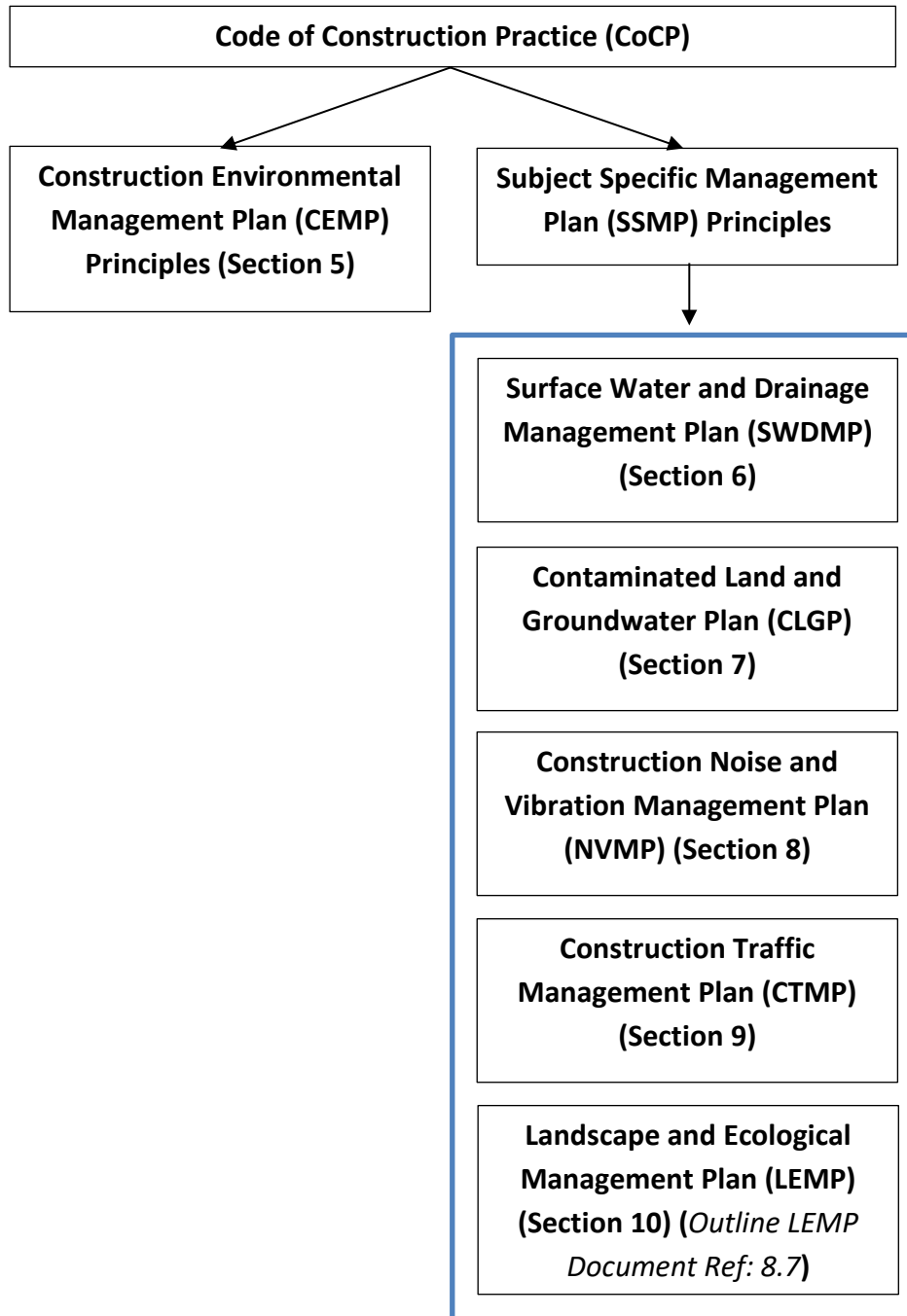


Figure 1: Schematic to show relationship between CoCP and DCO management plan principles stated in this document.

2.5 Contractor and Construction Supervision

- 2.5.1 VWPL will ensure that all contractors are aware of their requirement to comply with the principles and commitments set out in the CoCP through the construction works contracts entered into with VWPL. VWPL will have overall responsibility to ensure contractors are aware of this compliance. The contractor will ensure that the commitments are met, audited and any remedial actions recorded.

3 PROJECT DESCRIPTION

3.1 Offshore Aspects

3.1.1 Thanet Extension will comprise of wind turbine generators (WTGs) and all the infrastructure required to transmit the power generated to the national grid. A maximum of 34 WTGs will be installed with a power output of 340 MW. The project will install up to four offshore export cables and may require the installation of one Offshore Substation (OSS), Met Mast, Floating LiDAR system and wave buoys.

3.1.2 The key offshore components of Thanet Extension include:

- Offshore WTGs;
- OSS (if required);
- Met Mast (if required);
- Floating LiDAR (if required);
- Foundations;
- Subsea inter-array cables linking individual WTGs;
- Subsea export cables from the OWF to shore; and
- Scour protection around foundations and on inter-array and export cables (if required).

3.1.3 The array area will have a maximum size of 69 km² and surrounds the existing Thanet Offshore Wind Farm (TOWF). It is located approximately 8 km Northeast of the Isle of Thanet, situated in the County of Kent.

3.2 Landfall

3.2.1 Electricity generated will be carried via a maximum of four high voltage subsea cables to the landfall site, situated at Pegwell Bay, Kent, northwest of the River Stour. Cables will reach landfall via open-cut trenching through a short area of saltmarsh and intertidal mud or horizontal directional drilling (HDD) beneath the saltmarsh.

- 3.2.2 The cables transition to land at the Country Park situated behind the sea defences which separate the tidal and non-tidal domains. The Country Park sits approximately 1.5 - 5 m above the saltmarsh and is located on a historic landfill site which ceased being operational in the 1970's. This means trenching and other excavation works may have limitations due to the uncertainty associated with the landfill contents, and potential contaminants present. Therefore, above ground cable installation is also included as a potential construction solution should other forms of mitigation and control not be feasible. This may require the sea defence to be extended seaward to ensure there is minimal interaction with the landfill area whilst the offshore cable is taken from below ground within the saltmarsh, to ground level within the Country Park. Each offshore cable will be connected to the onshore cable via a transition joint box, which as with the cable infrastructure will be located either below or above ground within the Country Park depending on the final design and reporting of the necessary site investigation works. If HDD is the preferred option, cables will pass under the sea defence from inside the country park and emerge in the intertidal area.
- 3.2.3 More details on the landfall and transition design can be found in Volume 3, Chapter 1: Project Description (Onshore) (Document Ref: 6.3.1).

3.3 Onshore Cable Specification, Route and Connection

- 3.3.1 Up to four High Voltage Alternating Current (HVAC) export cables (up to 220 kV), in addition to the 400 kV HVAC substation interconnecting cables and will be approximately 2.6 km in length from landfall to the National Grid connection point. The main onshore export cable corridor connects the landfall to the substation location at Richborough Port. Subsequently the substation interconnecting cable route corridor connects the substation to the National Grid Electricity Transmission's substation at Richborough Energy Park.

3.4 Construction Programme

- 3.4.1 Construction periods for various stages of the onshore construction for Thanet Extension are shown in Table 1.2. The dates shown are dependent on a number of factors such as agreement on connection dates with the National Grid, date that development consent is awarded and lead times associated with procuring and installing components.

Table 1.2: Indicative construction periods for the onshore components of Thanet Extension

Thanet Extension component	Pre-construction and construction work duration	Indicative dates	Works include
Total Duration	30 months	Sept 2020 – Feb 2023 (subject to change in design phase)	Including pre-construction and construction works. It is important to note that the package-specific durations listed below may overlap, and so the total duration is not simply the sum of these activities. It is also important to note that works may not necessarily be continuous during these periods, and there may be significant gaps within the construction period where works are not occurring, for example during a certain time of year.
Package-specific maximum durations			
Landfall works (TJB's)	5 months	Indicative Q1 2021 – Q3 2021 (subject to seasonal constraints)	This covers all associated works including: <ul style="list-style-type: none"> • Site mobilisation including erection of fencing and welfare and plant delivery; • Earthworks and drainage works; • TJB construction, cable pulling, cable jointing and commissioning; and • Demobilisation and landscaping.

Thanet Extension component	Pre-construction and construction work duration	Indicative dates	Works include
Onshore cable circuits	18months	Q1 2021 – Q2 2022	<p>This covers all associated works including:</p> <ul style="list-style-type: none"> • Site mobilisation including erection of fencing and welfare and plant delivery; • Earthworks and drainage works; • Cable duct installation; • Cable pulling, joint bay construction, cable jointing and commissioning; and • Demobilisation and landscaping.
Substation works	<p>24 months This is likely to be split into:</p> <ul style="list-style-type: none"> • 9 months for the civil construction works; • 9 months for mechanical and electrical works. This work would mainly take place inside the substation building, but would involve discrete large scale works such as the installation of transformers. 	<p>Q3 2020 – Q2 2022 *Final commissioning to be completed in-line with offshore commissioning in 2023.</p>	<p>This covers all associated works including:</p> <ul style="list-style-type: none"> • Site mobilisation including erection of fencing and welfare and plant delivery; • Earthworks and drainage works; • Substation construction; and • Commence commissioning; demobilisation and landscaping.

Thanet Extension component	Pre-construction and construction work duration	Indicative dates	Works include
National Grid connection works	3 months	Q2 2022 – Q3 2022.	This covers all works associated with the installation of the 400 kV connection from the VPWL onshore substation to the grid connection works, including HDD and cable pull, and commissioning. This excludes National Grid’s own works to facilitate the connection.
Onshore commissioning and demobilisation works at the substation site	6 months	Q2 2022 – Q3 2022	Commissioning; and Demobilisation and landscaping.

*Some of the commissioning works on the onshore substation site is required to be undertaken simultaneously and retrospectively with the commissioning of individual offshore WTGs. Due to the need to align the final commissioning of the onshore substation with the commissioning of the offshore array, the 6-month commissioning period will not be complete until 2023, when offshore commissioning is due to take place. This will take place after the heavy construction works at the substation are complete, and will mainly be restricted to small indoor electrical works, involving only light vehicles at the transition between the construction and O&M phases.

4 GENERAL PROVISIONS AND SITE OPERATIONS

4.1 Construction Principles

- 4.1.1 Thanet Extension will be constructed in an environmentally sensitive manner and will meet the requirements of all relevant legislation, codes of practice and standards, including those identified in the ES and in this CoCP (or updated versions as appropriate).

4.2 General Construction Management

Emergency contacts

- 4.2.1 An emergency plan will be produced by the contractor and communicated as part of the site induction process. The plan will set out procedures and contacts in the event of an incident requiring an emergency response. All relevant emergency contact details will be included in the CEMP for each stage of works. The emergency contact list will be updated regularly and displayed on site.
- 4.2.2 The requirement to call for any emergency services will be decided by the Construction Site Manager. Site security will make the call without delay, giving all relevant information and obtaining confirmation that the site location is known to the emergency services. The requirement for security to call the emergency service shall not be a prohibitive factor where life is at risk but after contacting the emergency service, security shall be informed immediately.
- 4.2.3 The Construction Site Manager will contact the relevant persons to inform them of any incident. VWPL senior management will be informed of incidents as defined in the Emergency Plan without delay and when safe to do so. All incidents (irrespective of severity) will be recorded in an accident/ incident book.

Landowner liaison

- 4.2.4 Landowner liaison will be carried out both prior to and during construction to ensure sufficient notice is given of construction activities. See section 5.4 of the Construction Environmental Management Plan (CEMP) Principles for details on communication.

General Pollution Prevention Measures

- 4.2.5 All employees, contractors, suppliers and visitors to the site will be notified via a site induction of the requirements on site for pollution prevention.
- 4.2.6 All construction workers will be briefed on the importance of water quality, the location of surface water features and the location and use of accidental spill kits and drip trays (or hydrocarbon absorbing alternatives) for static plant or parked up plant.
- 4.2.7 The risks from accidental spillages/ leaks during handling and storage of chemicals, oils, including transformer oil, and fuels will be mitigated by the COSHH Regulations 2002 and the Management of Health and Safety at Work Regulations 1999, and for Controlled Waters by pollution prevention measures and good working practices, in accordance with the Guidance for Pollution Prevention (GPPs) guidelines (EA, 2017);
- 4.2.8 The contractor will be responsible for overseeing and enforcing pollution prevention procedures such that potential adverse impacts to human health or the environment from any activities involving handling of potential pollutants are avoided or mitigated.
- 4.2.9 All fuel and chemical storage will comply with relevant storage regulations, including the Oil Storage Regulations (2001).
- 4.2.10 The following measures will be implemented on site for the storage of materials:
- Spill kits and drip trays will be provided for relevant equipment and at locations where any liquids are stored and dispensed;
 - Bunding of at least 110% of container volume;
 - Storage facilities will be provided for solid materials to prevent deterioration of the materials and their escape;
 - Storage facilities will be kept secure to prevent acts of vandalism that could result in leaks or spills;
 - All containers of any size will be correctly labelled indicating their contents and any hazard warning signs;
 - Vehicles and plant provided for use on the site will be in good working order and regularly inspected/ maintained to ensure optimum fuel efficiency, and be free from leaks. Plant with integral bunding and/or drip trays may be specified;

- All valves, pumps and trigger guns will be turned off and locked when not in use. All caps on fill pipes would be locked when not in use;
- Suitable precautions will be taken to prevent spillages from equipment containing small quantities of hazardous substances (for example, chainsaws and jerry cans);
- Ensure that site-specific procedures are in place for bulk deliveries such as delivery points and vehicle routes are clearly marked; emergency procedures are displayed and a suitably sized spill kit is available at all delivery points; staff are trained in these procedures and the use of spill kits; Tank capacities and current contents levels will be checked prior to accepting a delivery to ensure that they are not overfilled and all deliveries are supervised throughout the delivery operation;
- All spillages occurring during dispensing and handling activities are cleared up and reported via the appropriate site manager and are dealt with in accordance with the relevant construction management plans for the site; and
- All flammable and hazardous substances will be kept in line with the relevant UK regulations.

Waste handling and storage

- 4.2.11 All waste will be handled and stored in accordance with the approved waste management principles within the CEMP principles in section 5.9.

Animal and Human Remains

- 4.2.12 In the event of uncovering remains which have the potential to be of human origins the contractor shall cease work and contact the Police for further advice. In the event of uncovering potential historic animal remains the contractor shall cease work and contact Historic England for further advice. Animal remains which are not deemed historic shall be logged by the site manager and disposed of following the relevant guidance from DEFRA and outlined in section 5.9.

Construction of Temporary Construction Compounds (TCC)

4.2.13 Where a Temporary Construction Compound (TCC) is to be constructed in association with the Thanet Extension works, the following provisions will apply:

- Any existing services in the area will be crossed or diverted in a manner agreed with the services owner.
- TCCs will be drained appropriately and in accordance with the Surface Water and Drainage Management Plan to be approved under the DCO.
- Each TCC will be fenced using Heras fencing or its equivalent and there will be onsite security at all times.
- Any lighting used within TCCs will comply with the approved Light management measures set out in section 5.7 and the Outline LEMP (Document Ref: 8.7).
- Material and non-static plant for the installation of the onshore cable will be stored at each compound and transported out to the active cable installation sites.
- Where a TCC borders on important habitat, such as saltmarsh southeast of the Baypoint Club along the River Stour, the habitat will be protected from incursion by construction machinery and workforce through the use of signage, fencing and workforce briefings. The mitigation measures provided in the LEMP and advice from the Ecological Clerk of Works (ECoW) shall be implemented where appropriate.
- The TCCs shall be serviced by temporary construction offices and necessary welfare facilities, plus facilities for mobile construction teams either at the intertidal area or along the cable corridor, in compliance with CDM 2015 (or updated as appropriate).
- Each compound would be removed at the end of the project and the land reinstated to its former condition in accordance with the Outline Landscape and Ecology Management Plan (LEMP) (Document Ref: 8.7).

Temporary haul road

4.2.14 The temporary haul road which is to be constructed along the cable route, to be used as access to the cable installation work sites, will be constructed from a range of different materials depending on its intended use and ground conditions.

4.2.15 Depending upon the ground conditions and weather conditions it may not be necessary to construct a designated haul road. Where the ground is sufficiently firm enough it may be acceptable to drive directly on the sub-soil.

- 4.2.16 Where a haul road is required, it may be constructed from stone, matting or a specialist trackway depending on the location.
- 4.2.17 The stone haul road will be constructed by placing successive layers of stone compacted on a layer of geo-textile membrane which provides additional ground stability and allows the stone material to be removed more readily. The specification of any stone haul road laid must be suitable for the anticipated ground conditions and they will only be installed on sub-soil on completion of topsoil removal.
- 4.2.18 The installation easement corridor will be fenced on all sides, with stock-proof fencing used where livestock management practices require, prior to works starting. This is only anticipated to be necessary within the Pegwell Bay Country Park or Stonelees Nature Reserve where it is recognised that highland cattle graze. At designated points along the route, gated crossing points will be provided to facilitate access across the easement for PRow and where necessary livestock (see the Outline Access Management Strategy (Document Ref: 8.4)).
- 4.2.19 The haul roads will be removed at the end of the installation process and the land reinstated to its previous condition and levelled out in accordance with the Outline LEMP (Document Ref: 8.7).

Permanent access roads

- 4.2.20 Permanent access roads are to be constructed as part of the Substation to allow access to those structures during the operational phase of the development. A further permanent access will also be installed at the Bay Point Club however; it is this that will be limited to an accessible gateway.

Site speed limit

- 4.2.21 The site speed limit shall be 15 mph on all site access roads within the Red Line Boundary and must be adhered to at all times. Any further changes required will be agreed with the relevant authority. Appropriate speed limits within the TCCs will be set. Speed limit signs shall be installed on all construction roads and site access roads.
- 4.2.22 Vehicles on site shall be fitted with visual and audible warning devices for reversing where appropriate.
- 4.2.23 Banksman will be used when reversing HGV's in the compounds and on the temporary haul road is required.

Surface water drainage

- 4.2.24 As set out in the DCO, any watercourse or public sewer or drain can be used with respect to the construction and maintenance of the project as long as consent has been approved from the appropriate body.
- 4.2.25 No works should be carried out on any public sewer or drain unless in accordance with plans approved by the owner or if the works are overseen by the owner.
- 4.2.26 All reasonable steps must be undertaken to ensure that any water discharged into a water course or public sewer or drain is free from gravel, soil or other solid substances, oil or matter in suspension.
- 4.2.27 More detail on surface water drainage can be found in section 1 of this document which provides the principles of the Surface Water and Drainage Management Plan (SWDMP).

Flood risk

- 4.2.28 Construction will not be undertaken during very extreme wet weather where erosion of sediments and risk from flooding may increase.
- 4.2.29 Site safety precautions, environmental emergency and contingency procedures will be developed, implemented and provided as appropriate prior to construction. They will include:
- An emergency response plan which would identify responsible persons and roles, lines of communication, site evacuation procedures and exclusion zones;
 - Emergency Flood Response strategies; and
 - A pollution response plan.
- 4.2.30 Consult section 5.8 of this document which provides more detail on flood risk management principles required within the CEMP.

Public Rights of Way

- 4.2.31 An Outline Access Management Strategy (Document Ref: 8.4) has been developed for the project and contains further detail with respect to PRoW and wider access routes.
- 4.2.32 In summary PRoW will be diverted as appropriate and reinstated on completion. Access to the Country Park, west of the landfall site will remain as will access to the Sustrans route, and a number of lower order managed paths present within the Country Park and wider route, it outlines how the PRoW diversions will be managed, and the broad principles that will ensure the use of PRoW during construction is managed safely and that any disruption caused to the general public is minimised.

Crossings:

watercourses

- 4.2.33 Where small scale drainage ditches, are to be crossed, temporary damming and culverting of the drainage ditch may be employed. A single drainage ditch requires crossing to allow construction traffic to access/egress the construction/laydown compound within the Country Park adjacent to Sandwich Road. The drainage ditch at the vehicle crossing location appears to rarely have a distinct flow of water and as such temporary crossings are considered to be straightforward and of low risk.
- 4.2.34 The drainage ditch may be dammed at either side of the access track using sandbags or straw bales and ditching clay with water flow pumped or piped across the dammed section during periods of waterflow within the ditch. Reinstatement of the trench is conducted to the pre-construction depth of the watercourse and the dams removed. Alternatively, ducts will be installed to ensure the installed cables do not impede the flow of drainage waters.
- 4.2.35 The Minster Stream is currently culverted, it may be necessary to undertake works to remove and replace the existing culvert if it is not considered robust enough to be subject to the necessary cable installation works.
- 4.2.36 If applicable, where new culverts are to be installed, they would be appropriately designed and sized to maintain existing flow conveyance.

- 4.2.37 Crossing of the Minster Stream would be further defined in the detailed design stage post-consent in liaison with the relevant authorities. An environmental permit from the EA will be required prior to works commencing within 8m of the Minster Stream and 16 metres of the River Stour.

Roads and other infrastructure

- 4.2.38 Trenchless installation methods such as HDD, micro-tunnelling or auger boring may be employed where open-cut trenching is not suitable due to the nature of the feature being crossed. Trenchless installation is proposed to be employed across the A256 to minimise the impact to this main road.
- 4.2.39 With trenchless methods, the depth at which the ducts are installed depends on the topology and geology at the crossing site as well as the infrastructure to be avoided and length of the crossing.
- 4.2.40 Where trenchless crossing activities are to be conducted, a temporary works area will be required to store equipment, facilities etc. The dimensions of the temporary works areas will be fully determined by site-specific constraints in the detailed-design stage.

4.3 Environmental Management

- 4.3.1 Thanet Extension will be built, where reasonably practicable, in accordance with current best practice for minimising the adverse effects of construction on the environment and the local community.
- 4.3.2 VWPL will review the environmental procedures and performance of the contractors as part of the tender selection process.

4.4 Health and Safety Principles

- 4.4.1 Appropriate industry standards will be adopted and implemented for the health, safety and welfare of the construction staff on Thanet Extension. Health and Safety principle measures are outlined further in section 5.2 which provides the principles measures for the Construction Environmental Management Plan (CEMP).

4.5 Working Hours

4.5.1 The proposed construction working hours would be controlled by the DCO, which states:

“26 — Construction work for the connection works must only take place between 0700 hours and 1900 hours Monday to Saturday, with no activity on Sundays or bank holidays, except as specified in paragraph (2).

(1) Outside the hours specified in paragraph (1), construction work may be undertaken for essential and non-intrusive activities including but not limited to:

- (a) continuous periods of operation that are required as assessed in the environmental statement, such as concrete pouring;*
- (b) fitting out works associated with the onshore substation comprised within Work No. [13];*
- (c) delivery to the connection works of abnormal loads that may cause congestion on the local road network;*
- (d) connection works carried out on the foreshore;*
- (e) daily start up or shut down;*
- (f) works required that may necessitate the temporary closure of roads;*
- (g) electrical installation; and*
- (h) non-destructive testing.*

(3) Outside the hours specified in paragraph (1), construction work may be undertaken in relation to any horizontal directional drilling.”

4.5.2 In addition to the controls on construction hours set out within the draft DCO, the undertaker will comply with the following constraints imposed by this CoCP. These are:

- It may be necessary to undertake trenchless works outside these hours in very specific circumstances (e.g. a trenchless drilling operation must be undertaken in one continuous operation). However, night time working will be avoided wherever possible and the relevant Local Authority will be notified of any works that are necessary outside of the above hours prior to works taking place; and
- Trenchless works will be completed in the shortest reasonably practical timescale.

4.5.3 Any variation to the construction hours are to be agreed in advance with the relevant planning authority, as secured through the DCO, will be addressed within the CEMP and the Construction Noise and Vibration Management Plan (CNVMP) submitted for the relevant stage of works, or subsequently agreed in writing with that authority.

4.6 General Site Layout and Good Housekeeping

4.6.1 A good housekeeping policy will be applied to the construction areas at all times. As far as reasonably practicable the following principles will be applied:

- All working areas will be kept in a clean and tidy condition;
- The site will be secured to prevent unauthorised access;
- Wheel washing facilities will be cleaned frequently;
- Open fires will be prohibited at all times;
- All necessary measures will be taken to minimise the risk of fire and the contractor will comply with the requirements of the local fire authority;
- Adequate welfare facilities will be provided for construction staff;
- Waste from the construction areas will be stored securely to prevent wind blow; and
- Waste will be removed at frequent intervals.

4.7 Crane Arcs

4.7.1 Cranes will be operated in accordance with UK regulations.

4.8 Utilities

4.8.1 Where the construction works will be in close proximity to existing utilities, or any works affecting existing drains, sewers or chambers will be undertaken in a manner agreed with the relevant statutory authority.

4.8.2 Information on the type and location of underground services will be collected and verified as part of the pre-construction activities. Where these services are identified, manual trench excavation will be employed within 1 m (or the agreed distance requirement of the asset owner if applicable) of these locations to uncover the services in a controlled and safe manner.

4.8.3 The exposed services will be supported as necessary to prevent damage and the cable ducts installed at a suitable depth above or below the asset. Crossing of the services will be made at a perpendicular angle where practicable to do so to minimise crossing length.

- 4.8.4 All potentially affected utility providers will be contacted and the location of existing services will be accurately identified on the ground prior to construction or intrusive ground investigations.

4.9 Traffic Management

- 4.9.1 For details on the principles of traffic management, including the Staff Travel Plan, see section 1 which provides the principles of the Construction Traffic Management Plan (CTMP).

4.10 Clearance of Site on Completion

- 4.10.1 TCCs and accesses will be cleared as work progresses and when they are no longer required for the construction. On completion of construction work, all plant, temporary buildings and vehicles will be removed.

- 4.10.2 Following completion of works the area will be reinstated to its previous condition. This will include:

- Reinstatement of intertidal area;
- Reinstatement of topsoil and subsoil, including loosening or ripping of compacted soil (see section 5.10 of the CEMP within this document which details soil management);
- Reinstatement of land drainage systems, where necessary post construction drains may be installed, typically parallel to the cable route;
- Reseeding of any fields of grassland, grass margins and ditch banks (as approved through the Outline LEMP (Document Ref: 8.7));
- Reinstatement of any drains or ditches crossed using open cut method;
- Where possible, replanting of any hedgerows or felled shrubs or trees as detailed in the Outline LEMP (Document Ref: 8.7);
- Restoration or repair of fences, gates, tracks or hard standing; and
- Reinstatement of PRow where temporary diversions have been put in place during construction (see Outline Access Management Strategy (Document Ref: 8.4)).

5 CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN (CEMP)

5.1 Overview

- 5.1.1 The measures set out below will be incorporated and expanded upon (where required) in the CEMP for each relevant stage of works. The CEMP is secured through the DCO and will be subject to consultation and approval prior to construction.
- 5.1.2 This CEMP identifies the principle objectives and management measures for Thanet Extension to minimise environmental impacts during construction. Many of those principle management measures appear within the principles of the relevant management plan which are provided within this CoCP.
- 5.1.3 Where duplication can be avoided, appropriate cross references are made to those management plan principles within this section. Where no detailed management plan is required for a specific environmental topic, detailed principles of the management measures to be implemented within the CEMP are included in this section.
- 5.1.4 A CEMP will be developed and submitted for each stage of the Thanet Extension works once a contractor is assigned and in accordance with the draft DCO.

5.2 Health, Safety and Environmental Legislation and Compliance Principles

- 5.2.1 VWPL and its contractors fully understand their duties under health and safety legislation including the Health and Safety at Work etc Act 1974, the Construction (Design and Management) Regulation 2015 (CDM 2015) and the Management of Health and Safety at Work Regulations 1999. VWPL understand their obligations and will assess the competence of all potential contractors to ensure they have the relevant skills, experience and training to be able to meet the requirements of these regulations.
- 5.2.2 VWPL and its contractors are committed to protecting employees, other contractors and third parties (including visitors and the general public) from ill health, injury or harm arising from construction of the onshore works and appropriate management controls will be developed to manage and control risk, provide safe systems of works and reduce the consequences of failures and harm to people.

- 5.2.3 Exposure to contaminants would be mitigated by the Control of Substances Hazardous to Health (COSHH) Regulations 2002 and the Management of Health and Safety at Work Regulations 1999, and controlled through good construction practices such as site induction, good hygiene practices, dust suppression (especially in loading/ unloading bays and tracks), requirement for Personal Protective Equipment (PPE) suitable to prevent exposure and/ or restricted access during higher risk activities.

5.3 Dust and Air Quality Control and Management

- 5.3.1 The following principles are to reduce dust emissions, where appropriate and therefore any impact on health and safety and the environment. Where applicable, all contractors are expected to follow relevant guidelines, including the following IAQM guideline recommendations below.

Site management:

- A record of all dust and air quality complaints will be maintained, identifying cause(s), appropriate measures to reduce emissions in a timely manner, and record the measures taken;
- The complaints log will be made available to the local authority when asked; and
- Any exceptional incidents that cause dust and/ or air emissions, either onsite or offsite and the action taken to resolve the situation will be recorded in the log book.

Monitoring:

- Inspections will be undertaken, where receptors (including roads) are nearby, to monitor dust. Inspection results will be recorded and made available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100 m of the Red Line Boundary, with cleaning to be provided if necessary;
- The frequency of site inspections are to be determined by the person accountable for air quality and dust issues on site with consideration of activities with a high potential to produce dust are being carried out and during prolonged dry or windy conditions; and
- Where required baseline monitoring will commence at least three months before work commences on site or, if it is a large site, before work on a phase commences.

Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.

Preparing and maintaining the site:

- Site layout (layout of the works taking place onsite) is planned so that machinery and dust causing activities are located away from receptors, as far as possible;
- Measures to avoid site run off of water or mud are to be implemented;
- Keep fencing, barriers and scaffolding clean using wet methods where required;
- Materials that have a potential to produce dust are to be removed from site as soon as possible, unless being reused on site. If they are being reused onsite cover appropriately and when necessary; and
- Seed or fence stockpiles are to be covered to prevent wind whipping.

Operating vehicles/ machinery and sustainable travel:

- Ensure all vehicles switch off engines when stationary – no idling vehicles;
- Avoid the use of diesel or petrol-powered generators where possible and use mains electricity or battery powered equipment where practicable; and
- Adhere to the travel plan detailed in section 9.1.3.

Construction:

- Cutting, grinding or sawing equipment is required to be 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;
- 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;
- Ensure sand and other aggregates are stored in contained areas and are not allowed to dry out, unless this is required for a particular process, in which case ensure that appropriate additional control measures are in place;

- Ensure bulk cement and other fine powder materials are delivered in enclosed tankers and stored with suitable emission control systems to prevent escape of material and overfilling during delivery; and
- For smaller supplies of fine powder materials ensure bags are sealed after use and stored appropriately to prevent dust.

Specific to Earthworks

- Within Stonelees Nature Reserve topsoil will be reinstated as soon as practicable, further information is provided in section 5.10.6.

Specific to Trackout

- Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of site;
- Avoid any dry sweeping of large areas;
- Ensure vehicles transporting fine powder materials entering and leaving sites are covered to prevent escape of materials during transport; and
- Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).

Implementation and Management

- 5.3.2 As part of the air quality management regime, the responsible person will keep a site logbook documenting the maintenance of effective emission control methods and details of any complaints or incidents, and actions taken.
- 5.3.3 The responsible person shall liaise regularly with the local authorities.
- 5.3.4 Emissions control procedures and equipment will only work satisfactorily if carried out or used appropriately. The responsible person shall maintain good housekeeping and ensure that all equipment is well maintained and used appropriately.

5.3.5 It is important that all site personnel are aware of the requirement for the control of environmental impacts, and appropriate training shall be given to all site personnel, covering:

- Health and environmental impacts of emissions to air;
- The benefits of controlling emissions to air;
- Emission control measures;
- Method statements; and
- Importance of good communication.

5.4 Local Community Liaison

5.4.1 An identified member of the Thanet Extension project team will be responsible for communication with local residents, businesses, local councils and highways authorities.

5.4.2 There will be an information line with a single point of contact and an email address for a single point of contact. Both the telephone and email will be widely communicated on newsletters, press releases and signs along the cable route both ahead of and throughout construction activity. These measures will ensure that there is ongoing liaison with statutory and non-statutory consultees, stakeholders and the general public.

5.4.3 The following objectives shall govern VWPL's communications with the local community and interested parties during the construction of the Thanet Extension:

- Communicate effectively and to all relevant parties that works will be taking place, when, where and for how long;
- Inform local communities, business, leisure and other organisations of any impact our works will have on them;
- Inform local communities, business, leisure and other organisations how VWPL will maximise any positive impacts (e.g. contract awards) and minimise any potential disruptive impacts;
- Provide a means of contact for people with questions about VWPL's construction activities; and
- Provide regular updates on activity via letters, newsletters, media coverage or drop-in sessions.

5.5 Screening, Fencing and Site Security Principles

Screening and Fencing

- 5.5.1 Temporary fencing will be installed around the construction compounds and will also be provided for sections of the cable route as appropriate with allowances for private land access, stock crossing and relevant ecological constraints.
- 5.5.2 The type of fencing will be selected to suit the location and purpose and will be agreed with the relevant Local Authority. All boundary fences/ screens will be installed prior to the commencement of works and maintained in a tidy condition and fit for purpose.
- 5.5.3 All construction areas will remain fenced at all times during construction. All temporary screening and fencing will be removed as soon as reasonably practicable after completion of the works.

Site Security

- 5.5.4 Adequate security of the TCCs will minimise the opportunity for unauthorised entry, protect the public, and prevent theft from and damage to the works. Site gates will be secured when there is no site activity and appropriate security measures will be implemented. Where possible, access to construction areas will be limited to specified entry points and all personnel entries/ exits will be recorded for security and health and safety purposes.

5.6 Principle Biosecurity Measures

- 5.6.1 Measures contained in relevant Department of the Environment, Food and Rural Affairs (DEFRA) and Environment Agency (EA) best practice guidance on the control and removal of invasive weed species will be implemented.

5.7 Lighting Principles

- 5.7.1 The following section outlines the mitigation measures with regard to onshore lighting for the construction of Thanet Extension. Principles within the Outline LEMP (Document Ref: 8.7) are applicable with respect to lighting and should be implemented where appropriate.

- 5.7.2 External lighting of the construction areas, including TCC, will be designed and positioned to:
- Provide the necessary levels for safe working;
 - Minimise light spillage or pollution; and
 - Avoid disturbance to adjoining residents and occupiers.
- 5.7.3 No fixed lighting will be required along the Onshore Cable Corridor during construction.
- 5.7.4 At construction compounds and on the Onshore Cable Corridor, temporary lighting may be required during working hours in the winter months.
- 5.7.5 During the approximate months from September to March, it is likely that lighting will be required at the beginning and end of the working 12 hour day for a short duration.
- 5.7.6 Construction works at the Substation site will typically not require night time working. However, in winter, some illuminations may be required in the early evening. Illuminations may also be needed for occasional activities which require continuous working during night time. This may occur where continuous working is necessary for matters such as concrete pours. Low level security lighting may also be required at night throughout the construction period.
- 5.7.7 Lighting may be required for 24 hour working at the construction compounds associated with the use of trenchless techniques. As far as is reasonable, appropriate task lighting will be used for specific works to direct light towards the working areas during the night time. Such task lighting would be positioned at low level on posts around the trenchless techniques site and directed to most frequently used areas of work to provide the necessary levels for safe working and avoid causing glare or annoyance to road users. Lighting would be designed to balance the requirements for safe access and specific tasks against minimising light pollution and impact on amenity. However, some flood lighting will be required for accesses and walking routes.
- 5.7.8 Site lighting shall be positioned and directed to minimise nuisance to footpath users, residents, to minimise distractions to passing drivers on adjoining public highways and to minimise skyglow, so far as is reasonably practicable.

- 5.7.9 Lighting will be placed as far from linear features (potentially suitable for foraging and roosting) as is conducive with security and engineering requirements. Those lights closest to features will take into account the following:
- Light intensity will be as low as is permissible;
 - Light spills towards any retained linear features will be reduced to a minimum (using cowls as necessary);
 - Lighting spillage will be avoided to minimise impacts on ecological resources, including nocturnal species; and
 - Construction lighting will be low intensity and appropriately located/directed in order to minimise lighting disturbance for bats and birds.
- 5.7.10 Temporary construction buildings, equipment and lighting shall be sited so as to minimise visual intrusion and light spillage, in so far as is consistent with the safe and efficient operation of each worksite.
- 5.7.11 So far as practicable, all power to temporary lighting shall 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 generators.
- 5.7.12 Details of the all floodlighting to be used during the construction of the project, together with measures to limit obtrusive glare to nearby residential properties, will be set out in the CEMP for any stage of the works which require lighting.

5.8 Flood Risk Management Principles

- 5.8.1 A Surface Water Drainage Scheme will be agreed with, and submitted as part of the Surface Water and Drainage Management Plan in section 1. The following section provides the principles that will inform flood risk management during the construction phase.
- 5.8.2 All flood risk management agreed mitigation measures, including those to ensure the requirements of the Water Framework Directive (WFD) are achieved, and will be implemented.

- 5.8.3 No works within 3 m of any watercourse (other than for watercourse crossings). Any works within 8 m of an Ordinary Watercourse would be subject to consent from KCC (or the IDB if within the IDB District, which none of the proposed development currently is). Any works within 8 m of a non-tidal Main River (e.g. Minster Stream) or 16 m for a tidal Main River (e.g. River Stour) would be subject to provision of a FRAP from the Environment Agency.
- 5.8.4 Appropriate industry best practice and published guidelines will be followed to reduce pollutant and sediment movement during all aspects of construction through a stage specific CEMP or similar document. Guidelines include, but are not limited to:
- Defra & Environment Agency (2016b) Guidance 'Pollution prevention for businesses;
 - Control of Water Pollution from Construction Sites – Guidance for Consultants and Contractors CIRIA (C532); and
 - CIRIA – SuDS Manual.
- 5.8.5 Construction materials and spoil materials will be positioned in a manner that does not constrain potential flood waters unduly or direct flood waters towards population or industrial centres of high sensitivity.
- 5.8.6 Construction will not be undertaken during very extreme wet weather where erosion of sediments and risk from flooding may increase.

5.9 Waste Management Principles

- 5.9.1 All contractors producing waste on site will carry out their own assessment of their activities to ensure that their waste as generated has been minimised and that they have considered opportunities for the waste to be reused or recycled in preference to seeking disposal (e.g. returning empty wooden pallets to suppliers rather than scrapping them). Adequate storage arrangements for waste local to the work areas will need to be in place to prevent uncontrolled collections of waste on site occurring during the day and a suitable frequency of transfer of any gathered wastes to the main waste management area shall be maintained by contractors to prevent windblown rubbish etc.

5.9.2 It is the responsibility of individual contractors, to ensure that all their hazardous waste is collected at the point of generation and stored in suitable secure containers, prior to authorised disposal. All personnel working on the Thanet Extension project are expected to incorporate a “clean as you go” regime into their work plans for all wastes which will allow the project to maintain a high standard of housekeeping, reducing risks and minimise the amount of waste present in the work place.

5.9.3 All companies working on site shall ensure that all reasonable steps are to be taken to ensure:

- Waste materials are removed promptly from the immediate work area;
- Waste is stored only in suitable containers or skips, including signage or labelling;
- Waste storage and subsequent removal are to be adequately designed to reduce any impacts of odour;
- Waste is only removed from site via the approved disposal routes, agreed by the contractor;
- All waste disposal carriers used will be licensed and waste is disposed in compliance with UK legislation;
- Any wastewater is either treated to an appropriate standard for discharge or otherwise removed from site;
- Wastewater (e.g. oily water) is contained prior to any treatment and any subsequent disposal; and
- Waste materials are contained within the project boundaries to prevent escape into the general environment.

5.9.4 In addition, the contractor will ensure:

- A waste transfer note or, for hazardous waste, a consignment note, is produced and a copy is retained for the required period of time;
- The project site is registered with the Environment Agency as a producer of hazardous waste (if required); and
- When waste is passed to someone else a declaration is required on the waste transfer note, or consignment note for hazardous waste, that the waste management hierarchy has been applied.

- 5.9.5 Site supervisory personnel for individual contractors shall monitor compliance through routine site inspections and will report any breach of this procedure to their appropriate manager. The VWPL environmental staff will also routinely inspect operations on site to ensure that all contractors handle their waste materials in compliance with the above procedure, UK legislation and current industry best practice. Responsibilities will include:
- All waste carriers used are to be registered with the Environment Agency; and
 - All destinations for waste must have the appropriate waste management licence, permit or exemption in place.
- 5.9.6 A statement to confirm that the waste hierarchy has been followed is required before the removal of the wastes. There is also a requirement to include the 2007 Standard Industrial Classification (SIC) (42.22) code of the person transferring the waste. On hazardous waste consignment notes it is necessary to continue to use the 2003 SIC code (45.21/3).
- 5.9.7 The contractor will maintain a waste management spreadsheet and will be responsible for keeping all records relating to the ultimate disposal of all waste.
- 5.9.8 The CEMP will describe the waste types expected to be produced during the project and identifies the waste management action proposed. Estimates of the quantities to be produced will be inserted into the waste management spreadsheet and data updated as the work progresses and information is available. Performance against the estimates will be monitored.
- 5.9.9 All efforts will be made to minimise the volume of waste removed from site for disposal and targets will be set accordingly. Management actions will further support the legally required application of the waste hierarchy.
- 5.9.10 Excavated materials to be re-used on-site would be controlled in accordance with the CL:AIRE Definition of Waste: Development Industry Code of Practice (version 2), as appropriate, as an alternative to environmental permits or waste exemptions.

Pest Control

- 5.9.11 The risk of pest/ vermin infestation will be reduced by ensuring any putrescible waste is stored appropriately and regularly collected from the construction areas, and effective preventative pest control measures are implemented in accordance with the final CEMP. Any pest infestation will be dealt with promptly and notified to the relevant Local Authority as soon as possible.

Current Waste Legislation Relevant to the Thanet Extension Construction Works:

- 5.9.12 All relevant legislation regarding waste is to be followed including, but not limited to:
- Clean Neighbourhoods and Environment Act 2005 introduces additional noise, litter and waste controls including site waste management plans;
 - The Controlled Waste (England and Wales) Regulations 2012;
 - Environmental Protection Act 1990 defines the legal framework for duty of care for waste, contaminated land and statutory nuisance;
 - Hazardous Waste (England and Wales) Regulations 2005;
 - Hazardous Waste (England and Wales) (Amendment) Regulations 2009;
 - List of Wastes (England) Regulations 2005 SI;
 - Landfill Regulations 2002;
- 5.9.13 UK waste legislation will continue to be reviewed periodically to ensure all waste management operations on site remain fully compliant with the legislation applicable to the operations.

5.10 Soil Management

- 5.10.1 All soil handling, placing, compaction and management will be undertaken in accordance with best practice (DEFRA, 2009). Mitigation measures will comprise the following:
- Stockpiles will be present for the shortest practicable timeframe, with stockpiles being reinstated as the construction work progresses.
 - Stockpiles which remain present for three months or longer will be carefully reinstated using seeding techniques (where in accordance with the Outline LEMP (Document Ref: 8.7)).
 - Stockpile gaps will be located at topographic low points to preserve existing flow paths. Where stockpiles are placed on both sides of the access routes the gaps should coincide.
 - No stockpiles will be located within 8 m of “Ordinary Watercourses”, within 8 m of a non-tidal “Main River”, and within 16 m of a tidal “Main River”;

- Soils shall be categorised on the basis of their origin, and stockpiled/ stored accordingly;
- Transportation of soils to be kept to the absolute minimum to reduce the risk of contamination between areas;
- Soils suitable for reuse as part of wider mitigation (e.g. planting areas) to be reused in a broadly similar location to their origin, and stored for the shortest amount of time permissible; and
- Any surplus soils to be disposed of in an appropriate manner offsite.

Construction mitigation

5.10.2 Before commencing work on site, where soils are to be disturbed, the contractor will be required to ensure that the construction plant being proposed is appropriate to the size of the site, the volume of soil and haul distances. The selection of appropriate equipment and work practices is important as mishandling of soil can have an adverse effect on its fertility, permeability, ecological diversity, and the performance and visual quality of vegetated areas. Mishandling can also increase the risk of flooding and offsite discharges. Multiple handling of soil materials will be minimised.

Topsoil stripping

5.10.3 Topsoil stripping will be undertaken along the working width for the cable route and at the Substation site. Stripping will generally be undertaken by an excavator positioned on the surface of the topsoil, and to the maximum topsoil depth without disturbing or removing the subsoil.

Subsoil stripping

5.10.4 Following the topsoil strip, subsoil will be excavated to the required depth from the trenches. Stripping will be undertaken by an excavator positioned on the surface of the subsoil.

Locating soil stores

5.10.5 The stripped topsoil and excavation subsoil will be stored within the working width. The ground where the soil stores will be placed will be free from vegetation and waste, and positioned away from tree crowns, watercourses and ditches. To ensure soil stores are located away from runoff, cut off ditches will be used to divert water to a suitable drainage system.

Timing of soil storage

5.10.6 Effective programming will ensure soil is stored for the minimum time possible. Where soil is to be stored for over 6 months it will be covered, to minimise erosion or allowed to re-vegetate naturally/ or through seeding to minimise soil run-off.

Formation of soil stores

5.10.7 Topsoil and subsoil will be stored separately and once stored, appropriately demarcated with signage to clearly identify the type of soil contained within each store.

Reinstatement

5.10.8 Following completion of the works, reinstatement will follow the Outline LEMP (Document Ref: 8.7).

6 SURFACE WATER AND DRAINAGE MANAGEMENT PLAN (SWDMP)

- 6.1.1 The measures set out below will be incorporated and expanded upon (where required) in the final SWDMP for each relevant stage of works. The SWDMP is secured through the DCO and will be subject to consultation and approval prior to construction.
- 6.1.2 Existing land drains, where encountered during construction, will be appropriately marked. Temporary drainage will be installed within the working width to intercept existing field drains and ditches in order to maintain the integrity of the existing field-drainage system. Such measures will also assist in reducing the potential for wet areas to form during the works, with a consequential impact on soil structure and fertility. Where necessary, existing land drains will be replaced to ensure continued agricultural use.
- 6.1.3 Effective drainage design will be implemented to ensure that run-off rates are not increased above those prevailing prior to development and that no site infrastructure introduces areas of increased surface water flooding.
- 6.1.4 Plant and traffic movements will be confined to designated routes within the construction areas to minimise the potential for soil disturbance, compaction and indirect contamination which may lead to changes in drainage. Tracked equipment will be used wherever possible to reduce compaction.
- 6.1.5 All access routes and working area construction materials are to be removed at the end of construction, reinstated with material from the soil stockpiles (to a level slightly above natural ground level to allow for settlement), and reseeded or replanted;
- 6.1.6 Cross drainage will be provided as necessary at topographic low points if practicable to avoid disrupting flow paths and to retain natural surface water flow routes;
- 6.1.7 Stone access routes and working areas will be constructed of permeable aggregate material to retain the existing infiltration characteristics and run-off rate; and
- 6.1.8 Construction compounds will be surfaced with material with a similar permeability to the existing ground cover (with the exception of fuel storage areas and similar, where pollution containment in the event of a spillage is the priority).

Waste water

- 6.1.9 Waste water will be processed in line with waste management procedures in the CEMP (section 5.9).

7 CONTAMINATED LAND AND GROUNDWATER PLAN (CLGP)

7.1.1 The measures set out below will be incorporated and refined (where appropriate) in the final CLGP for each relevant stage of works. The CLGP is secured through the DCO and will be subject to consultation and approval prior to construction.

7.1.2 Where applicable, the following legislation will be adhered to on site to reduce the risk of contamination:

- Environmental Protection (Duty of Care) Regulations 1991;
- Water Resources Act 1991;
- Hazardous Waste Regulations 2005;
- The Control of Pollution (Oil Storage) Regulations 2001;
- Groundwater Regulations 1998; and
- Water Framework Directive 2000.

7.1.3 The necessary prevention techniques outlined in Defra & Environment Agency (2016) Guidance 'Pollution prevention for businesses' will be followed on site to prevent pollution.

7.1.4 Ground investigation for geotechnical and or environmental purposes will be undertaken pre-construction at key points including the Substation and where surface water and road crossings occur. Investigations will be required as the proposed development passes through a closed landfill. Surveys for other as yet unidentified contaminant source may be required.

7.1.5 EA guidance on the assessment of risks from potentially contaminated land will be followed on a site-specific basis in line with EA (2016a) Land contamination: technical guidance.

7.1.6 The following actions shall be undertaken on a site-specific basis in line with Contaminated Land Report 11 (CLR11):

- Complete preliminary risk assessments to identify areas that require further detailed assessment;
- Design and undertake appropriate site-specific intrusive ground investigation;

- Undertake laboratory chemical and geotechnical/civil engineering soil and groundwater analysis;
 - Undertake human health and controlled water generic quantitative risk assessment;
 - Detailed quantitative risk assessment will be undertaken where identified through site-specific ground investigation;
 - Undertake remedial action, options appraisal and/or design where identified through ground investigation;
 - Implement the detailed mitigation measures or remedial works; and
 - Verify the implemented mitigation measures or remedial works.
- 7.1.7 Professional advice would only be sought from those with demonstrable specialist competency in risk-based management of land contamination.
- 7.1.8 A watching brief will be in place during demolition, ground and construction works. If unexpected contamination is encountered or suspected, the works would cease in that area and assessment by a suitably qualified land contamination specialist would be made to determine appropriate actions. Soil (soil vapour/ groundwater) samples would be collected and analysed. The risks associated with contamination would be assessed. When required, a remediation strategy would be designed and agreed with the EA and local authority before implementation.
- 7.1.9 Site-specific intrusive ground investigation would be undertaken to inform geotechnical, ground stability and civil engineering assessments. A review of baseline data would be undertaken to identify areas that require further detailed assessment, as required. The results of the investigations would be used to inform foundation design, design of temporary works and horizontal directional drill/microbore/pipe-jacking to ensure the stability of the proposed development.
- 7.1.10 Suitable foundation design, excavation and storage methods should be implemented to prevent migration of any potential/ residual contamination.
- 7.1.11 Across the whole site, piling methods would be designed to have a minimum ground disturbance and would be in accordance with “Piling and Preventative Ground Improvement Methods on Land Affected by Contamination: Guidance on pollution prevention” and “Piling into contaminated sites”.
- 7.1.12 A process would be in place to prevent mobilisation of fuel if removal of any tanks potentially present at the former Richborough Power Station is required.

- 7.1.13 A suitably qualified and experienced geo-environmental engineer will be used to supervise the ground works in areas of known or suspected contamination.
- 7.1.14 Potential risks to construction and maintenance workers arising from contamination within soil and groundwater during the construction phase(s) of the proposed development would be controlled through:
- The Construction Design and Management (CDM) Regulations 2015;
 - The requirement to work in accordance with best practice and statutory guidance; and
 - The requirement for PPE as standard working practice.
- 7.1.15 Monitoring would be undertaken of:
- Ground and surface water conditions to check for spills or uncontrolled tipped surface spoil;
 - Oil tanks and associated bunds for leaks; and
 - Plant containing oils and fuel would be inspected daily and maintained to both prevent and identify leaks.
- 7.1.16 In order to ensure mitigation against the potential release of leachate from the historic landfill at Pegwell Bay, a cofferdam or suitable alternative would be required during construction. The detailed design for the management of leachate would be confirmed following site investigation works, but the following fundamental principles would be applied during cofferdam/suitable alternative installation:
- Sheet piles would be sealed to control groundwater/ coastal ingress and leachate release; and
 - The height of the intertidal cofferdam would be determined by the contractor, but would be designed to be at least 1 m above the Highest Astronomical Tide (HAT) and up to approximately 5 m above ground level to account for storm overtopping.
- 7.1.17 For groundwater dewatered from cofferdam excavations and excavations in the landfill the following procedures would be undertaken:
- Water quality would be tested to identify any potential contamination from the landfill;

- The dewatering would be performed by pumps brought to site;
- If the water quality is found to be acceptable and subject to further consent, then dewatering would be directed onto the saltmarsh on the seaward side of the cofferdam wall;
- If the water is found to be contaminated, dewatered volumes would need to receive treatment prior to disposal. They would be carefully pumped into appropriately sized mobile tankers and transported to an off-site disposal facility that would subsequently treat contaminated water; and
- If water is to be discharged to controlled waters from excavations longer than three months or the discharge site is within 500 m of a designated site, an Environmental Permit would be required. Dewatering activities would stop if a flood alert or flood warning is in place downstream.

7.1.18 A survey (pre-site preparation survey as defined by the HSE) of potential asbestos-containing materials, and removal of asbestos-containing materials and other materials and structures contaminated with asbestos fibres, is expected to be performed by a competent/ licensed contractor prior to any demolition works.

7.1.19 Under section 5.10 of the CEMP, construction processes will take into account the principles of good soil handling and restoration set out in the relevant guidelines and management plans and the important principles will be adopted by the contractor.

Gas Monitoring and Management

7.1.20 Gas monitoring is to be undertaken in any confined spaces e.g. excavation trenches and pits. Appropriate ventilation will be installed in all confined spaces e.g. excavation trenches and pits. Ventilation spaces are to be provided between portable cabins and the ground. Gas protection measure will be implemented on top of and/ or within the landfill, as well as within the buildings/ compounds at the substation, including personal gas alarms and Respiratory Protective Equipment (RPE). Where the cable route is installed underground possibly partly in or beneath the landfill, the trench should be sealed in order to prevent the cable route acting as a preferential gas migration and leachate pathway.

7.1.21 Where required, gas resistant membranes and/ or gas alarms are to be implemented as necessary depending on the findings of the site investigations. This may include the buildings/ compounds at the substation and the part of the onshore cable that would be across the landfill.

Odour Management

- 7.1.22 The contractor should follow all relevant guidance including that from the Environment Agency and IAQM with respect to odour management.
- 7.1.23 Depending on site-specific investigations and final design of onshore cable burial, especially regarding the landfall, additional odour management principles may have to be adopted by the contractor.

8 CONSTRUCTION NOISE AND VIBRATION MANAGEMENT PLAN (CNVMP)

- 8.1.1 The measures set out below will be incorporated and expanded upon (where required) in the final CNVMP for each relevant stage of works. The CNVMP is secured through the DCO and will be subject to consultation and approval prior to construction.
- 8.1.2 Construction activity by its very nature can generate adverse noise and vibration impacts on stakeholders in close proximity to the development site. In particular noise and vibration associated with construction plant and drilling equipment are potential sources for adverse noise and vibration effects.
- 8.1.3 The landfall, other trenchless work sites, the substation and the cable route are located in semi industrial or improved grassland areas. The effects on noise sensitive receptors are predicted, at worst to be minor (as assessed in the ES).
- 8.1.4 The contractor will control and limit noise and vibration levels, so far as is reasonably practicable and to minimise disturbance to sensitive receptors.
- 8.1.5 Key control measures will be derived from the following legislation/standards:
- BS5228 - 'Code of Practice for Noise and Vibration Control on Construction and Open Sites' - Part 1: Noise and Part 2: Vibration;
 - Environmental Protection Act 1990;
 - Control of Pollution Act 1974; and
 - Noise and Statutory Nuisance Act 1993.
- 8.1.6 Measures to be implemented by the contractor include:
- Beats per minute restrictions are to be applied during construction activities to minimise noise (including vibration) at neighbouring noise sensitive properties;
 - Contractors will undertake and report noise and vibration prediction and monitoring as is necessary to assure and demonstrate compliance with the CNVMP. Monitoring data would be provided and be made available to the local authorities;
 - Prioritise the use of plant fitted with effective silencers and noise insulation;

- The use of pink noise reversing alarms where practicable to reduce the noise generated by reversing beepers on site vehicles;
- All plant is regularly serviced and maintained, and operated in accordance with manufacturer's instructions - plant that is intermittently used should be shut down in the intervening periods between work or throttled down to a minimum;
- The use of local noise screening or site hoardings to reduce noise where necessary;
- Appointment of a site contact to whom complaints/ queries about construction activity can be directed - any complaints should be investigated and action taken where appropriate;
- All construction activity to be undertaken in accordance with good practice as described in BS 5228-1:2009+A1:2014 or as updated;
- Local residents should be kept informed of construction activities, including working hours;
- Construction works will be limited to 07:00 – 19:00hrs (Mon-Sat). Essential work (e.g. trenchless works to continue a bore) is required outside of these times as defined within the DCO. More details are presented in section 4.5;
- All reasonable steps should be taken to limit the number of vehicles waiting to deliver materials to the site;
- Construction at the site boundary (which would be closest to nearby residential receptors), should be undertaken as efficiently and quickly as reasonably possible;
- With the exception of generators, pumps and electric plant, all plant and equipment should be shut down when not in use; and
- Site personnel will be informed about the need to minimise noise as well as about the health hazards of exposure to excessive noise. Their training should include advice relating to the proper use and maintenance of tools and equipment, the positioning of machinery on site to reduce noise emissions to neighbouring residents, and the avoidance of unnecessary noise when carrying out manual operations and when operating plant and equipment.

9 CONSTRUCTION TRAFFIC MANAGEMENT PLAN (CTMP)

9.1.1 The measures set out below will be incorporated and expanded upon (where required) in the final CTMP for each relevant stage of works. The CTMP is secured through the DCO and will be subject to consultation and approval prior to construction.

9.1.2 Each CTMP will include:

- Agreed routes and mitigation measures;
- Abnormal loads management measures; and
- Site management and monitoring measures.

9.1.3 The CTMP will also include a Staff Travel Plan including details on:

- Appointment of a Travel Plan Coordinator (TPC);
- Provision of a public transport information;
- Mini-bus service for transport of site staff if appropriate;
- Promotion of a car sharing scheme; and
- Car parking management to avoid parking on roadsides or verges.

9.1.4 The following will be developed as part of the CTMP for each stage of works:

- Traffic routing strategy – ensuring vehicles access the proposed development via the most appropriate route and avoid unnecessary conflict with sensitive areas;
- Traffic timing strategy – programme vehicles arrival/ departures and working hours to lessen the impact on the highway network;
- Temporary signage – in accordance with relevant Department for Transport traffic signs guidance to inform local road users of construction access points and the presence of HGVs;
- Traffic Marshals – to marshal access points and PRoW crossing whilst deliveries are taking place;
- Temporary traffic management – provided on approaches to accesses in the form of traffic warning signs, possible reductions in speed limit signs to ensure safe passage

of vehicles. All signage in accordance with the relevant Department for Transport traffic signs guidance e.g. chapter 8 (2009);

- Proposed development access locations designed in accordance with Design Manual for Roads and Bridges (1995); and
- Travel planning measures – will provide details of how staff should travel to the proposed development by alternative modes in an effort to reduce single occupancy vehicles travelling to the proposed development.

9.1.5 All access roads used to move vehicles between the local highways and the construction compounds will be reinstated once construction is complete.

9.1.6 All construction traffic will adhere to the measures in the CoCP and CTMP with regard to but not limited to speed limit, maintenance, site access and exit procedures.

10 LANDSCAPE AND ECOLOGICAL MANAGEMENT PLAN (LEMP)

10.1.1 A suitably qualified Ecological Clerk of Works (ECoW) will be employed for the duration of the construction period (and any subsequent reinstatement works), although this may not necessarily be a full-time role throughout. The ECoW will oversee the implementation of the LEMP and check that the works comply with applicable wildlife legislation and the relevant commitments made in this ES and associated management plans.

10.1.2 The Outline LEMP (Document Ref: 8.7) submitted with the application will outline the principles for landscape and ecological mitigation, and enhancements onshore.

10.1.3 The Outline LEMP will include details of:

- Habitat and species survey requirements;
- Restoration and reinstatement proposals;
- Screening proposals (onshore);
- Protected and notable species mitigation measures;
- Landscape and ecological enhancements; and
- Monitoring.

11 REFERENCES

Defra & Environment Agency (2016a). Land contamination: risk management. <https://www.gov.uk/guidance/land-contamination-risk-management>. [Accessed: March 2018].

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