



**AQUIND Limited**

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# **AQUIND INTERCONNECTOR**

## **Onshore Outline Construction Environmental Management Plan**

The Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure)

Regulations 2009 – Regulation 5(2)(q)

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**AQUIND Limited**

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**DATE: 28 APRIL 2023**

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# CONTENTS

<b>1.</b>	<b>INTRODUCTION</b>	<b>1-1</b>
<hr/>		
1.1.	PURPOSE OF THE ONSHORE OUTLINE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN	1-1
1.2.	LEGAL COMPLIANCE	1-3
1.3.	STRUCTURE OF THE ONSHORE OUTLINE CEMP	1-3
<b>2.</b>	<b>SITE INFORMATION AND THE PROPOSED DEVELOPMENT</b>	<b>2-5</b>
<hr/>		
2.1.	SITE AND THE SURROUNDING AREA	2-5
2.2.	SUMMARY OF KEY ENVIRONMENTAL RECEPTORS	2-7
2.3.	TIMING OF ACTIVITIES	2-11
<b>3.</b>	<b>ROLES AND RESPONSIBILITIES</b>	<b>3-14</b>
<b>4.</b>	<b>GENERAL ENVIRONMENTAL REQUIREMENTS</b>	<b>4-18</b>
<hr/>		
4.1.	REQUIREMENTS AND CONSENTS	4-18
4.2.	COMPETENCE, TRAINING AND AWARENESS	4-21
4.3.	INTERNAL COMMUNICATION	4-22
4.4.	EXTERNAL COMMUNICATION	4-23
4.5.	METHOD STATEMENTS	4-26
4.6.	ENVIRONMENTAL INCIDENTS	4-26
<b>5.</b>	<b>GENERAL ENVIRONMENTAL CONTROL MEASURES</b>	<b>5-29</b>
<hr/>		
5.1.	INTRODUCTION	5-29
5.2.	LANDSCAPE AND VISUAL AMENITY	5-29
5.3.	ONSHORE ECOLOGY	5-30
5.4.	SOILS AND AGRICULTURAL LAND USE	5-35
5.5.	GROUND CONDITIONS	5-36
5.6.	GROUNDWATER	5-37
5.7.	SURFACE WATER RESOURCES AND FLOOD RISK	5-40

5.8.	HERITAGE AND ARCHAEOLOGY	5-43
5.9.	TRAFFIC AND TRANSPORT	5-46
5.10.	AIR QUALITY	5-48
5.11.	NOISE AND VIBRATION	5-54
5.12.	SOCIO-ECONOMICS	5-56
5.13.	WASTE AND MATERIAL RESOURCES	5-59
5.14.	CARBON AND CLIMATE CHANGE	5-61
<b>6.</b>	<b>LOCATION SPECIFIC CONSTRUCTION ENVIRONMENTAL CONTROL MEASURES</b>	<b>6-64</b>
<hr/>		
6.2.	GENERAL	6-64
6.3.	SECTION 1 – LOVEDEAN (CONVERTER STATION AREA)	6-91
6.4.	SECTION 2 – ANMORE AND SECTION 3 – DENMEAD/KINGS POND MEADOW	6-94
6.5.	SECTION 4 – HAMBLEDON ROAD TO FARLINGTON AVENUE	6-98
6.6.	SECTION 5 - FARLINGTON	6-99
6.7.	SECTION 6 – ZETLAND FIELD AND SAINSBURY’S CAR PARK	6-99
6.8.	SECTION 7 – FARLINGTON JUNCTION TO AIRPORT SERVICE ROAD	6-99
6.9.	SECTION 8 – EASTERN ROAD (ADJACENT TO GREAT SALTERNS GOLF COURSE) TO MOORINGS WAY	6-101
6.10.	SECTION 9 – MOORINGS WAY TO BRANSBURY ROAD	6-103
6.11.	SECTION 10 – EASTNEY (LANDFALL)	6-104
<b>7.</b>	<b>MONITORING</b>	<b>7-105</b>
<hr/>		
7.1.	MONITORING AND REVIEW	7-105
	<b>REFERENCES</b>	<b>7-1</b>
<hr/>		

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## ***TABLES***

<b>Table 2.1 – Key Environmental Receptors during Construction</b>	<b>2-7</b>
<b>Table 2.2 – Onshore working hours</b>	<b>2-11</b>
<b>Table 3.1 – Roles and Responsibilities</b>	<b>3-14</b>
<b>Table 5.1– Summary Table of Dust risk Results per Onshore Cable Corridor Section 5-48</b>	
<b>Table 5.2 – IAQM Mitigation Resulting from the Construction Dust Assessment</b>	<b>5-49</b>
<b>Table 6.1 – Summary of Watercourses Within the Order Limits</b>	<b>6-79</b>
<b>Table 7.1 – AQUIND Onshore Monitoring Plan</b>	<b>7-106</b>

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## ***PLATES***

<b>Plate 4.1 – A safe system of work (HSE, 2014)</b>	<b>4-19</b>
<b>Plate 4.2 – Emergency Spill Response Procedure</b>	<b>4-28</b>
<b>Plate 6.1 – Example noise screening solutions</b>	<b>6-85</b>
<b>Plate 6.2 – Denmead Meadows Mitigation Strategy Map</b>	<b>6-95</b>

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## ***APPENDICES***

<b>Appendix 1 – Site Drawings and Environmental Constraints</b>
<b>Appendix 2 – Relevant Legislation</b>
<b>Appendix 3 – Outline Site Waste Management Plan</b>
<b>Appendix 4 – Outline Materials Management Plan</b>
<b>Appendix 5 – Outline Soil Resources Plan</b>
<b>Appendix 6 – Preliminary Piling Risk Assessment</b>
<b>Appendix 7 – UK Source Protection Zone 1 Generic Method Statement</b>
<b>Appendix 8 – Farlington Fields Method Statement</b>

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# 1. INTRODUCTION

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## 1.1. PURPOSE OF THE ONSHORE OUTLINE CONSTRUCTION ENVIRONMENTAL MANAGEMENT PLAN

- 1.1.1.1. This Onshore Outline Construction Environmental Management Plan ('CEMP') has been prepared on behalf of AQUIND Limited ('The Applicant') to support the application for a Development Consent Order ('DCO'). The application for the DCO is made in respect of the UK elements of AQUIND Interconnector Project which will operate between France and the UK.
- 1.1.1.2. The DCO Application for the UK elements covers the parts of the Project located onshore in the UK ('Onshore Components'); and in the UK Marine area, defined as all of that part of the Project from the Mean High Water Spring ('MHWS') mark in the UK out to the limit of the UK/France Exclusive Economic Zone ('Marine Components'). Together the Onshore Components and the Marine Components comprise the 'Proposed Development', in respect of which the DCO Application is made. References to the Order Limits and the Site in this document, and within any of the appendices or plans enclosed within, are only in relation to the Order Limits and the Site, as applicable, to the Onshore Components of the Proposed Development.
- 1.1.1.3. This Onshore Outline CEMP covers the Onshore Components:
- Works at the existing National Grid Lovedean substation in Hampshire to facilitate the connection of the Project to the Great Britain electrical transmission network, the National Grid;
  - Underground High Voltage Alternating Current ('HVAC') Cables each of which is paired with a smaller diameter fibre optic cables, connecting the National Grid Lovedean substation to the proposed Converter Station;
  - The construction of a Converter Station comprising a mix of buildings, outdoor electrical equipment and telecommunications equipment and a Works Compound and Laydown Area; Access Road, associated haul roads, attenuation features and landscaping;
  - Up to two Telecommunications Buildings (one for each circuit) to be located outside the main Converter Station security fence;
  - Two pairs of underground High Voltage Direct Current ('HVDC') Cables each of which is paired with a smaller diameter fibre optic cables to run from the Converter Station to the Landfall site in Eastney (near Portsmouth); and

- Infrastructure to join the Onshore and Marine HVDC Cables together at the Landfall, and two Optical Regeneration Stations ('ORS') (one for each cable circuit).

1.1.1.4. The purpose of a CEMP is to establish good management practices to ensure that the construction work considers aspects of environmental protection within the context of compliance with local legislation and minimise impacts on both the general public and the environment. The CEMP will set out the overarching principles for environmental management of the onshore construction of the Proposed Development. The Environmental Constraints Plans in Appendix 1 illustrate the relevant environmental constraints for the Proposed Development.

1.1.1.5. Assuming the DCO is granted, the Applicant will appoint a Contractor (or lead contractor for each work package) who will have demonstrated that they are competent in managing the effects of construction on the environment. This is important as it will be the duty of the appointed contractor and its subcontractors to follow the environmental management and mitigation arrangements prescribed in the relevant CEMP, to minimise environmental risks and ensure compliance with relevant requirements of the DCO.

1.1.1.6. This Onshore Outline CEMP reflects environmental requirements, which have been identified for action as part of the DCO Application. CEMPs would be produced in accordance with this Onshore Outline CEMP for each of the relevant parts of the Proposed Development. Each CEMP would explain how the activities of contractors and sub-contractors would comply with its requirements, including where necessary the production of subsidiary plans in relation to specific construction matters.

1.1.1.7. Once a contractor is appointed and during construction for the relevant part of the Proposed Development, CEMPs will be live documents and will be periodically reviewed and updated by the appointed contractor every six months, or as required, to satisfy all contractual and legislative requirements and ensure environmental risks are managed and mitigated throughout. In particular, it will be updated to take account of the following:

- Changes in detailed design;
- Changes in external factors such as regulations and standards;
- Any unforeseen circumstances as they arise such as new protected species or new archaeological finds and provide a mitigation framework for this;
- Good construction practices and ensure these are adopted and maintained throughout;
- The results of audits and inspections; and
- Learning points from environmental near misses and accidents.



1.1.1.8. This Onshore Outline CEMP is solely for the environmental management associated with the Onshore Components, with a separate Outline CEMP provided for the Marine Components in the Marine Outline CEMP (APP-488).

1.1.1.9. The Onshore Outline CEMP outlines mitigation that will be applied in some cases 'where practicable'. The final routing of the Onshore Cable Route within the order limits will be determined following the grant of the DCO, due to routing constraints associated with environmental constraints, including utilities. For example, in some instances it may prove not possible to avoid certain tree root protection areas. However, measures which are "practicable" must be applied where they reasonably can be applied.

## 1.2. LEGAL COMPLIANCE

1.2.1.1. Relevant legislation applies to the works to be undertaken. The expectation is that all relevant legislation, including requirements for licences, permits and/or consents shall be identified and information provided on how compliance is to be achieved, as part of the construction process, through the use of a Project Consents Register.

1.2.1.2. The relevant applicable legislation and regulations will be identified from, but not limited to, the list provided in Appendix 2. The list of relevant legislation and its applicability to the Site and the construction works will be reviewed and updated whenever necessary.

## 1.3. STRUCTURE OF THE ONSHORE OUTLINE CEMP

1.3.1.1. This Onshore Outline CEMP is based on established good management practice through British Standards and Construction Industry Research and Information Association ('CIRIA') guidance, and includes the following information:

- **Site Information and the Proposed Development:** including site and the surrounding area and a summary of the key environmental receptors associated with the construction of the Proposed Development.
- **Roles and Responsibilities:** An outline of the project roles and responsibilities required as part of a CEMP.
- **General Environmental Requirements:** Requirements for audits and inspections, consents and health and safety, competence, training and awareness, internal and external communication including communication with the Client, statutory authorities and other stakeholders, public relations, complaints procedures, method statements and incident response.
- **General Environmental Control Measures:** General methods for managing environmental risks, including mitigation, relevant and current environmental legislation, good practice.

- **Location Specific Environmental Control Measures** – Location specific methods for managing environmental risks, including mitigation, and objectives, targets and commitments outlined in the 2019 Environmental Statement (APP-116 to APP-145, the ES Addendum (REP1-139) and ES Addendum 2 (REP7-067).
- **Monitoring:** Framework for monitoring receptors and environmental impacts.

## 2. SITE INFORMATION AND THE PROPOSED DEVELOPMENT

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### 2.1. SITE AND THE SURROUNDING AREA

- 2.1.1.1. The Order Limits have been defined as the limits within which the Authorised Development may be carried out.
- 2.1.1.2. The Onshore Components are described in sections. The sections are broken down further to provide a description of different options, where relevant.
- 2.1.1.3. The current baseline of the sections of the Site includes:
- Section 1, the Converter Station Area, located to the west of the existing National Grid Lovedean Substation, a rural area and surrounded by agricultural fields. The section is located within the administrative boundaries of Winchester City Council and East Hampshire District Council.
  - Section 2 is a predominantly rural area comprising agricultural land. The section is located wholly within the administrative boundary of Winchester City Council.
  - Section 3 is a predominantly rural area comprising open land, located to the east of the settlement of Denmead and west of the settlement of Anmore with a number of dispersed rural properties. The majority of the area forms part of the Denmead Gap (a planning policy designation to prevent the coalescence of Denmead and Waterlooville), with the area immediately south of Anmore Road referred to as Denmead Meadows which includes both Kings Pond Meadow and Soake Farm Meadows Sites of Importance for Nature Conservation ('SINCs'). The section is located wholly within the administrative boundary of Winchester City Council.
  - Section 4 is a predominantly urban area encompassing the B2150 Hambledon Road and A3 London Road running southwards. At the southern end, the section includes the junction of the A3 London Road and the B2177 Portsdown Hill Road as well as land between this junction and the northern part of Farlington Avenue, including the Portsdown Hill Road Car Park which also incorporates the northern area of the Meadow West of Farlington Avenue SINC. The section spans the administrative areas of Winchester City, Havant Borough and Portsmouth City Councils.

- Section 5 is located within the urban areas of Drayton and Farlington, suburbs of Portsmouth, and encompasses the highway of Farlington Road, Eveleigh Road (south of Solent Infant School), Havant Road, the area of open land known as Scoutlands (between Eveleigh Road and Havant Road), and the northernmost section of Eastern Road. The section is located wholly within the administrative boundary of Portsmouth City Council.
- Section 6 is located within the urban area of Portsmouth and includes the A2030 Eastern Road and the western half of Zetland Field, and western edge of the Sainsburys Car Park to the north of the railway line. The section is located wholly within the administrative boundary of Portsmouth City Council.
- Section 7 is located within the urban area of Portsmouth and includes a large area of Farlington Playing Fields on the mainland. The Onshore Cable Corridor then extends south-westerly across Langstone Harbour (a SSSI, SPA, SAC and Ramsar site) to the yard south of Kendalls Wharf before extending further south around Baffins Rovers football ground re-joining at the northern edge of the southern football pitch. The section is located wholly within the administrative boundary of Portsmouth City Council.
- Section 8 is within the urban area of Portsmouth and comprises the A2030 Eastern Road running south with Great Salterns Golf Course to the west and Langstone Harbour to the east towards the northern edge of Milton Common. The Corridor then takes multiple route options across Milton Common, a designated SINC and public open space, to Moorings Way encompassing the southern edge of Milton Common to the junction with Furze Lane. The section is located wholly within the administrative boundary of Portsmouth City Council.
- Section 9 continues south around the built edges of the University of Portsmouth Langstone Campus to Locksway Road and the Thatched House Public House (incorporating the western edge of the Milton Locks Conservation Area and the full extent of Milton Locks SINC). The Onshore Cable Corridor then continues southwest encompassing the south-eastern area of Milton Allotments to the Kingsley Road open space, and onwards to Bransbury Park routing south to Henderson Road in Eastney. The section is located wholly within the administrative boundary of Portsmouth City Council.
- Section 10 runs south-westerly along Fort Cumberland Road to the Fort Cumberland Road Car Park, adjacent to the Land West of Fort Cumberland SINC (further east lies Fort Cumberland SINC and Scheduled Ancient Monument). From the Car Park the route runs south to the Marine Section of the Cable Corridor and incorporates a section of Eastney Beach, a designated SINC. The section is located wholly within the administrative boundary of Portsmouth City Council.

2.1.1.4. The current environmental conditions are described in Chapter 3 (Description of the Proposed Development) of the Environmental Statement ('ES') Volume 1 (APP-118). For further details of the baseline description, please see Chapters 6 to 28 of the ES Volume 1 (APP-121 to APP-143).

## 2.2. SUMMARY OF KEY ENVIRONMENTAL RECEPTORS

2.2.1.1. A summary of the key environmental receptors for the Site are contained within Table 2.1 below and are shown in Appendix 1 Figure 2.

**Table 2.1 – Key Environmental Receptors during Construction**

Topic	Key Environmental Receptors
<b>Landscape and Visual Amenity</b>	<p><b>Converter Station</b></p> <ul style="list-style-type: none"> <li>• Landscape character, associated landscape features and the setting of the South Downs National Park; and</li> <li>• Visual receptors: residents, recreational and transport within 8 km study area.</li> </ul> <p><b>Onshore Cable Route</b></p> <ul style="list-style-type: none"> <li>• Landscape character and associated features; and</li> <li>• Visual receptors): residents, recreational, transport, commercial/ retail/ industrial/ education/ church/ religious facilities and public house facilities within the 120 m buffer on either side of the Onshore Cable Route.</li> </ul> <p><b>Landfall</b></p> <ul style="list-style-type: none"> <li>• Landscape character and associated features of the Landfall; and</li> <li>• Visual amenity of surrounding visual receptors, including from residential properties and recreational users within 300 m study area of the Landfall.</li> </ul>
<b>Onshore Ecology</b>	<ul style="list-style-type: none"> <li>• Chichester and Langstone Harbour SPA; Wintering Intertidal Birds;</li> <li>• Solent Waders and Brent Goose Strategy Sites;</li> <li>• Crabdens Copse and Crabdens Row SINC;</li> <li>• Stoneacre Copse Ancient Woodland;</li> <li>• Denmead Meadows comprising;               <ul style="list-style-type: none"> <li>○ Kings Pond Meadows SINC;</li> <li>○ Soake Farm Meadows SINC;</li> <li>○ Unimproved grassland;</li> </ul> </li> <li>• Milton Common SINC;</li> </ul>

Topic	Key Environmental Receptors
	<ul style="list-style-type: none"> <li>• Broadleaved trees;</li> <li>• Species-rich hedgerows with/without trees;</li> <li>• Species-poor hedgerows with/without trees;</li> <li>• Semi-improved neutral and calcareous grassland;</li> <li>• Unimproved grassland;</li> <li>• Badgers;</li> <li>• Bats;</li> <li>• Reptiles;</li> <li>• Hedgehog; and</li> <li>• Wildlife and Countryside Act Schedule 9 plants.</li> </ul>
<b>Soils and Agricultural Land Use</b>	<ul style="list-style-type: none"> <li>• Agricultural land, including that classed as best and most versatile ('BMV') defined as land classified as Grades 1,2, and 3a of the Agricultural Land Classification ('ALC') system associated with the Converter Station Area and Onshore Cable Corridor Sections 1, 2, 3 and 4;</li> <li>• Farmable land area and farming businesses associated with the Converter Station Area and Onshore Cable Corridor Sections 1, 2, 3 and 4; and</li> <li>• Soil resources associated with non-agricultural land within Sections 6, 7 and 9.</li> </ul>
<b>Ground Conditions</b>	<ul style="list-style-type: none"> <li>• Geology (Mineral Safeguarding Area ('MSAs'));</li> <li>• Human Health (construction and maintenance workers and adjacent land users);</li> <li>• Controlled Waters (Principal, Secondary A and Secondary Undifferentiated Aquifers); and</li> <li>• Below Ground Services (potable water supply pipes and buried services).</li> </ul>
<b>Groundwater</b>	<ul style="list-style-type: none"> <li>• Head Aquifer;</li> <li>• Chalk Aquifer;</li> <li>• Water Users;</li> <li>• Lambeth Group Aquifer;</li> <li>• Portsdown Chalk Formation;</li> <li>• Spetisbury Chalk Member;</li> <li>• Tarrant Chalk Member;</li> <li>• Newhaven Chalk Formation;</li> <li>• Bognor Sand Member;</li> <li>• Wittering Formation;</li> <li>• Lambeth Group;</li> <li>• Head Deposits;</li> <li>• Undifferentiated Chalk;</li> </ul>

Topic	Key Environmental Receptors
	<ul style="list-style-type: none"> <li>• River Terrace Deposits;</li> <li>• Raised Marine Deposits;</li> <li>• Beach and Tidal Flats Deposits;</li> <li>• Portsmouth Sand Member;</li> <li>• Tidal Flat Deposits;</li> <li>• Storm Beach Deposits;</li> <li>• Groundwater Source Protection Zones;</li> <li>• Lovedean Source (Public Water Supply) and;</li> <li>• Havant and Bedhampton Source (Public Water Supply).</li> </ul>
<b>Surface Water Resources and Flood Risk</b>	<ul style="list-style-type: none"> <li>• Surface Water Drainage Patterns;</li> <li>• Public Foul Sewer Networks;</li> <li>• Public Water Supply Network;</li> <li>• Surface Waterbodies;</li> <li>• Surface water drainage patterns;</li> <li>• Public Surface Water and Combined Wastewater Networks;</li> <li>• Surface waterbodies flood plains;</li> <li>• Construction Workers; and</li> <li>• Residents, users and associated infrastructure of the surrounding area.</li> </ul>
<b>Heritage and Archaeology</b>	<ul style="list-style-type: none"> <li>• Prehistoric activity in the form of isolated pits and enclosure ditches with possibility for burials;</li> <li>• Roman settlement activity;</li> <li>• Early Medieval activity;</li> <li>• Cropmark evidence of a later medieval field systems visible as cropmarks or ridge and furrow cultivation;</li> <li>• Prehistoric activity;</li> <li>• Roman activity;</li> <li>• Roman settlement activity and remains of Roman road;</li> <li>• Early medieval burials;</li> <li>• Palaeoenvironmental remains (Raised Marine Deposits);</li> <li>• Roman remains;</li> <li>• Prehistoric activity relating to exploitation of intertidal resources; and</li> <li>• Below ground remains associated with the early 19th century Portsmouth and Arundel Canal.</li> <li>• Above Ground Heritage Assets adjacent or close to the Order Limits, including curtilage of listed buildings (i.e. associated boundary walls)</li> </ul>
<b>Traffic and Transport</b>	<ul style="list-style-type: none"> <li>• Highway network impacted by the Converter Station Construction Traffic;</li> </ul>

Topic	Key Environmental Receptors
	<ul style="list-style-type: none"> <li>• Highway network impacted by the Onshore Cable Corridor;</li> <li>• Highway Network impacted by Traffic Redistribution;</li> <li>• Local Highway Network (Hampshire County Council ('HCC'));</li> <li>• Local Highway Network (Portsmouth City County ('PCC'));</li> <li>• Public Transport Services; and</li> <li>• Pedestrians and Cyclists.</li> </ul>
<b>Air Quality</b>	<ul style="list-style-type: none"> <li>• Human Health receptors up to 250 m from the Onshore Cable Corridor;</li> <li>• Ecological Receptors.</li> <li>• Human Receptors</li> </ul>
<b>Noise and Vibration</b>	<p><b>Converter Station Area</b></p> <ul style="list-style-type: none"> <li>• The Haven and Old Mill Cottage;</li> <li>• Hillcrest;</li> <li>• Millfield Farm;</li> <li>• Kimberley House;</li> <li>• Little Denmead Farm;</li> <li>• Holme and Highfield Cottages;</li> <li>• Lower Chapters;</li> <li>• The Arrows;</li> <li>• Broadways;</li> <li>• Broadway Farm House;</li> <li>• Broadway Farm Cottages;</li> <li>• Hinton Daubnay;</li> <li>• Ludmore Cottages;</li> <li>• Old Mill House and The Shieling; and</li> <li>• The Ranch.</li> </ul> <p><b>Onshore Cable Corridor Sections 2 - 10</b></p> <ul style="list-style-type: none"> <li>• Residential properties and other sensitive receptors up to 280 m from the Onshore Cable Corridor (e.g. schools, hospitals etc).</li> </ul>
<b>Socio-economics</b>	<ul style="list-style-type: none"> <li>• Local residents and commercial businesses;</li> <li>• Community facilities; and</li> <li>• Recreation, leisure facilities and open space.</li> </ul>
<b>Human Health</b>	<ul style="list-style-type: none"> <li>• Population within Winchester, East Hampshire, Havant and Portsmouth;</li> <li>• Residents, users of community facilities and greenspace within the population of Winchester, East Hampshire, Havant and Portsmouth; and</li> </ul>



Topic	Key Environmental Receptors
	<ul style="list-style-type: none"> <li>Site users and adjacent site users within Winchester, East Hampshire, Havant and Portsmouth.</li> </ul>
<b>Waste and Material Resources</b>	<ul style="list-style-type: none"> <li>Primary materials sources; and</li> <li>Landfill capacity.</li> </ul>
<b>Carbon and Climate Change</b>	<ul style="list-style-type: none"> <li>Atmospheric Greenhouse Gas</li> <li>Components of the Proposed Development</li> </ul>

## 2.3. TIMING OF ACTIVITIES

### 2.3.1. WORKING HOURS

2.3.1.1. The description of the assumed programme for the construction of the Proposed Development is based on the working hours in Table 2.2.

**Table 2.2 – Onshore working hours**

Activity	Working hours per day	Working days per week
<b>Converter Station Area Construction</b>	08:00 - 18:00 (Monday - Friday), 08:00 - 13:00 (Saturday)	6 days*
<b>Marine Cable Installation</b>	24 hour shifts	7 days
<b>Onshore Cable Installation</b>	07:00 - 17:00 (Monday - Friday); 08:00 - 13:00 (Saturday)	6 days*
<b>Landfall Installation (including HDD-1, TJB and ORS)</b>	12 hour shifts	7 days
<b>HDD-2, HDD-5 and HDD-6 Installation</b>	07:00 - 19:00	6 days*
<b>HDD-3 and HDD-4 Installation</b>	12 to 24 hour shifts	7 days

\*Day 6 is Saturday working which is typically a 5-hour shift 08:00 to 13:00.

- 2.3.1.2. No working hours within this table preclude:
- (a) start-up and shut down activities up to an hour either side of the core working hours; and
  - (b) the receipt of oversized deliveries to the site, the arrival and departure of personnel to and from the site, on-site meetings or briefings, and the use of welfare facilities and non-intrusive activities.
- 2.3.1.3. Start-up and shut-down activities means at the start of the working day the opening up of the site, the arrival of site staff and contractors, changing into appropriate PPE wear, pre-shift briefings, site inductions, tool box talks, and all associated site safety checks and at the end of the working day the cleaning and tidying of work areas, changing out of PPE wear, post-shift debrief, the departure of site staff and contractors, and closing and securing the sites.
- 2.3.1.4. The following Onshore Cable Installation operations may take place outside the working hours detailed above, subject to agreement with the Local Planning Authority ('LPA'):

#### **Trenched Areas**

- Section 4 – a c.90 m section of the A3 London Road in Purbrook near Stakes Road:
  - 08:00 to 18:00, Saturday and Sunday, for eight weekends (four per circuit which could be consecutive or non-consecutive).
- Section 5 – Havant Road near Drayton between Farlington Avenue and Eastern Road:
  - Between Saturday sunrise until Sunday sunset, with the noisiest activities (road cutting/breaking and re-surfacing) not to be carried out at night (22:00-07:00), for one weekend per circuit (two weekends in total which could be consecutive or non-consecutive); or
  - 07:00 to 22:00 for two weekends per circuit (up to four weekends in total which could be consecutive or non-consecutive).
- Section 6 – Sainsbury's Car Park:
  - Works within the car park will only be permitted between 18.30 and 07.00.
  - The noisiest activities (road cutting/breaking and re-surfacing) not to be carried out at night (22.00 – 07.00). Refer to section 6.2.8 for further detail regarding the road cutting/breaking and re-surfacing restriction.
  - Seasonal restrictions will apply with no works during an Easter and Christmas embargo.
- Section 8 – Eastern Road between Airport Service Road and the north of Milton Common (c.350 m south of Tangier Road):

- Up to 24 hour working, seven days per week for up to six weeks per circuit. Noisiest activities (road cutting/breaking and re-surfacing) will not be carried out at night (22:00-07:00) outside the Harbourside Caravan Park and the residential flat above the Great Salterns Mansion Harvester. Refer to section 6.2.8 for further detail regarding the road cutting/breaking and re-surfacing restriction.
- Section 8 – Eastern Road between HDD-6 and Eastern Avenue
  - There is a potential for seven day working between 07:00-17:00 if cable ducts are required to be installed within the Eastern Road between HDD-6 and Eastern Avenue.

### 2.3.2. PUBLIC EVENTS

2.3.2.1. Public activities and events that are planned in proximity to the Converter Station site and Onshore Cable Corridor, including but not limited to the following;

- School term time (as required);
- Football season;
- Coastal Waterside Marathon;
- Cowes Week;
- Great South Run; and
- Victorious Festival.

2.3.2.2. These will be taken into consideration by the appointed contractor during the phasing of the of construction works for the Proposed Development.

## 3. ROLES AND RESPONSIBILITIES

- 3.1.1.1. Personnel with defined environmental responsibilities are detailed in Table 3.1 below.
- 3.1.1.2. Each assigned responsible individual will sign to confirm that they understand and accept their designated duties and responsibilities. A signed copy of each CEMP will be retained and made available on request. All personnel will sign a project induction which will confirm the acceptance of their environmental/sustainability responsibilities.

**Table 3.1 – Roles and Responsibilities**

<b>Role</b>	<b>Responsibilities</b>
<b>Client</b>	<ul style="list-style-type: none"> <li>Ensures that the construction project is set up so that it is carried out from start to finish in a way that adequately controls the risks to the health and safety of those who may be affected.</li> </ul>
<b>Principal Contractor</b>	<ul style="list-style-type: none"> <li>Manages the Construction Stage of a Project. This involves liaising with the Client and Principal Designer throughout the project, including during the pre-Construction Stage.</li> <li>Required to adhere to all measures detailed within the Outline CEMP and FTMS. They will also be responsible for managing the working activities and the gangs working along the route; which aligns with the Health and Safety responsibility under CDM regulations.</li> </ul>
<b>Project Manager/ Director</b>	<ul style="list-style-type: none"> <li>Overall environmental management of the Proposed Development, ensuring that all works are carried out in accordance with the CEMP.</li> </ul>
<b>Environmental Advisor/Manager</b>	<ul style="list-style-type: none"> <li>Responsible for the review and authorisation of the detailed management plans from contractors, including the CEMP, to ensure compliance with the Development Consent Order Requirements and the framework/outline management plans. This is to ensure a consistent, coordinated and compliant approach. This will include ensuring relevant reviews and approvals from LPAs and other stakeholders are undertaken.</li> <li>Work with programme planners and project managers to ensure consents are embedded within the programme.</li> <li>Monitor submission of consent applications and ensure their timely delivery.</li> <li>Provide input to consultation with consent granting bodies, commitment holders and other third parties.</li> <li>Co-ordinate and manage all required scheduled consents and property notifications.</li> </ul>

Role	Responsibilities
	<ul style="list-style-type: none"> <li>• Ensure environmental consents are obtained in line with the programme.</li> <li>• Maintain and update the consents register in line with requirements and ensure review of individual deliverables by project specialists.</li> <li>• Monitor and report progress on consents and commitments.</li> <li>• Monitoring construction works including the sub-contractors for compliance against Environmental Risk Assessment and method statement control measures.</li> <li>• Co-ordination of all environmental documentation.</li> <li>• Monitoring environmental training, consultation and implementation of sub-contractor procedures.</li> <li>• Attending site Health and Safety Executive ('HSE') committee meetings.</li> <li>• Monitoring of all site environmental incidents and ensuring they are reported and investigated.</li> <li>• Undertaking site inspections.</li> <li>• Accompanying HSE Managers and Environment Agency ('EA') inspections.</li> <li>• Compliance with duty of care, the Site Waste Management Plan ('SWMP') or any permits and/or exemptions.</li> <li>• Monitoring and measurement of waste.</li> <li>• Communicate sustainability good practice, innovation and targets to the project team and supply chain.</li> <li>• Keep a record of key performance indicators ('KPIs').</li> <li>• Act as the main point of contact on environmental matters relating to the Proposed Development.</li> <li>• Will have the overall responsibility for the implementation and management of the Communication Strategy as outlined in 4.4.3. This will include liaison with the Public Relations Officer defined below.</li> </ul>
<b>Environmental Clerk of Works<sup>1</sup></b>	<ul style="list-style-type: none"> <li>• Support the Environmental Manager in delivering the environmental component of the Proposed Development.</li> <li>• Monitor construction activities and performance to ensure control measures are effective.</li> <li>• Maintain full records of the progress of the Environmental Works.</li> <li>• Implement an auditable environment record filing system.</li> </ul>

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<sup>1</sup> The Environmental Clerk of Works role may be covered by a suitably experienced and qualified Landscape Clerk of Works with an arboriculturalist called in to cover specific issues associated with trees and RPAs.

Role	Responsibilities
	<ul style="list-style-type: none"> <li>• Maintain regular contact and liaison with the Environmental Specialists.</li> <li>• Carry out further monitoring as required by the CEMP.</li> </ul>
<b>Ecological Clerk of Works</b>	<ul style="list-style-type: none"> <li>• Monitoring and management of the ecological-related control measures.</li> <li>• Pre-construction ecological checks for habitats and species.</li> <li>• Implement and maintain exclusion zones.</li> <li>• Oversee provision of ecological mitigation measures.</li> <li>• Provide ecological information for site inductions, tool-box talks and meetings.</li> </ul>
<b>Public Relations Officer</b>	<ul style="list-style-type: none"> <li>• To track complaints from members of the public and respond within reasonable time frames.</li> <li>• To liaise with members of the public regarding issues such as any specific anticipated nuisance.</li> <li>• Report to the Environmental Manger for the implementation of the Communication Strategy.</li> </ul>
<b>Engineering Manager</b>	<ul style="list-style-type: none"> <li>• Raise innovation at team meetings.</li> <li>• Capture good ideas/innovations/lessons learnt.</li> <li>• Track progress of improvements and support if needed.</li> <li>• Grow the culture of innovation by effective means of communication e.g. presentations, site visits, engagement with our supply chain.</li> <li>• Ensure environmental issues and constraints are included in individual designs, in accordance with environmental design procedures.</li> </ul>
<b>Planning Manager</b>	<ul style="list-style-type: none"> <li>• Plan works to avoid sensitive times of year.</li> <li>• Plan works to avoid working unsociable hours.</li> <li>• Plan into the project consents/surveys required and the time scales in which they take to obtain.</li> </ul>
<b>Construction Manager</b>	<ul style="list-style-type: none"> <li>• Advising appointed contractor representative on the implementation of the EMS.</li> <li>• Monitoring construction works including the sub-contractors for compliance against the various environmental risk assessment and any method statement control measures.</li> <li>• Monitoring environmental training, consultation and implementation of sub-contractor procedures.</li> <li>• Accompanying site Environment Inspections where required and any environmental authority inspections.</li> </ul>

Role	Responsibilities
	<ul style="list-style-type: none"> <li>• Attending Environmental co-ordination meetings.</li> </ul>
<b>Works Supervisors/Site Manager</b>	<ul style="list-style-type: none"> <li>• Ensuring that all site work is carried out in accordance with method statements, task briefings and activity briefings.</li> <li>• Ensure that staff under their supervision is aware of their environmental responsibilities.</li> <li>• Ensure key risks are identified and brief operatives on environmental topics.</li> <li>• Carry out site inspections to identify any environmental issues.</li> </ul>
<b>General Operatives</b>	<ul style="list-style-type: none"> <li>• Ensuring environmental mitigation measures are carried out during the course of their duties, in line with work package plans, task briefings and activity briefings.</li> <li>• Working considerately with a good working ethic in order to minimise adverse environmental impacts and follow all site rules communicated during briefings and project training sessions.</li> <li>• Informing their line management of any environmental issues they have on site, so that these can be communicated to the project management team for further investigation.</li> <li>• Attending the project induction prior to commencing work where details of the site environmental rules will be provided.</li> </ul>
<b>Waste Champion</b>	<ul style="list-style-type: none"> <li>• The effective communication of the Site Waste Management Plan ('SWMP') to their operatives and ensures enforcement of the SWMP at an operational level e.g. identifying areas for improvement where segregation is not being followed.</li> <li>• For the delivery of relevant toolbox talks where necessary.</li> </ul>

# 4. GENERAL ENVIRONMENTAL REQUIREMENTS

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## 4.1. REQUIREMENTS AND CONSENTS

4.1.1.1. The Proposed Development shall be carried out within the requirements (but not limited to) of the relevant legislation (see Appendix 2).

## 4.1.2. AUDITS AND INSPECTIONS

4.1.2.1. Regular inspections of the Site shall occur to ensure compliance with each CEMP, check compliance with the legal and contractual requirements and to minimise the risk of damage to the environment. All environmental incidents shall be reported to the Environmental Manager.

4.1.2.2. The Environmental Manager shall carry out weekly inspections and complete an assessment of the works' environmental performance measured against KPIs, environmental standards, relevant legislation and the CEMP objectives.

4.1.2.3. Document control shall be in accordance with a Quality Management System and copies of all environmental audit reports, consents and licences shall be maintained by the appointed contractor's Environmental Advisor/Manager. They will be held on Site for review at any time.

4.1.2.4. The Project Manager shall be responsible for investigating and addressing any non-conformances raised by the inspection within an agreed time frame and ensuring that corrective and preventative actions have been fully implemented and closed out.

4.1.2.5. The Environmental Manager and the Client representative shall be responsible for updating and reviewing each CEMP on a regular basis to ensure continual improvements.

## 4.1.3. CONSENTS AND HEALTH AND SAFETY

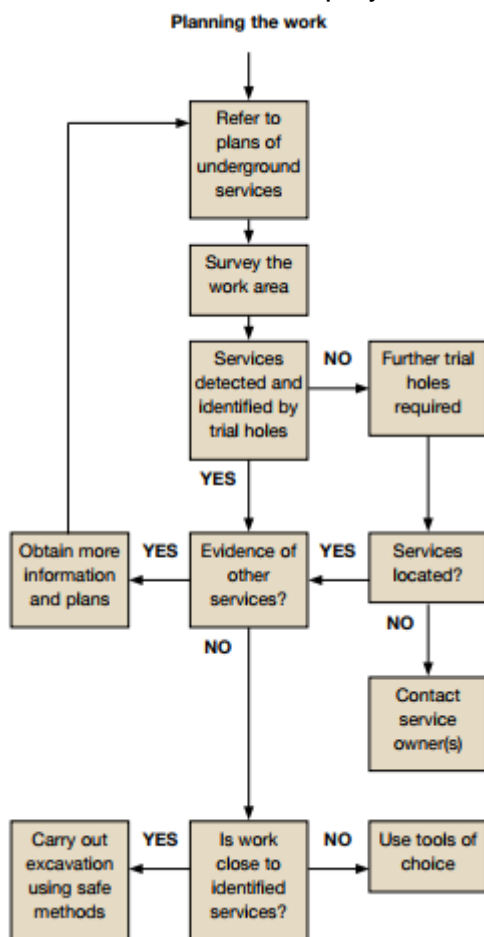
4.1.3.1. All staff employed must have regard to the Health and Safety at Work Act 1974 – that all persons employed will take reasonable care for the health and safety of themselves and other persons who may be affected by their acts or omissions.

### Electricity Safety

4.1.3.2. National Grid Electricity Safety Rules are mandatory. All staff who works on or near to the transmission system at the Lovedean Substation must understand and be familiar with the detail of the safety rules and appropriate supporting documents (National Grid UK Electricity Transmission Plc , 2018) (Fifth Edition).



- 4.1.3.3. Works at Section 1 Lovedean (Converter Station Area) will be undertaken in line with the overarching legal framework Electricity Safety, Quality and Continuity Regulations (Health and Safety Executive, 2002), and the *Third-party guidance for working near National Grid Electricity Transmission equipment* (National Grid, 2016).
- 4.1.3.4. Before works are undertaken on site, all relevant site staff will be made aware of and made sure they understand the HSE Guidance Note “*Avoiding danger from underground services*” (HSE, 2014).
- 4.1.3.5. Works will be planned to avoid underground services. Where this is not possible, plans will be developed to minimise the risk of damage to those services in the work area.
- 4.1.3.6. When carrying out excavations in the vicinity of electricity assets, the safe system of work will be employed:



**Plate 4.1 – A safe system of work (HSE, 2014)**

- 4.1.3.7. Minimum clearances from the Overhead Line Clearance Technical Specification 43-8 will be adhered to onsite in relation to overhead lines (Energy Networks Association, 2004) (as amended). Plant, machinery, equipment, buildings or

scaffolding will not encroach within the minimum clearance specified (dependent on-site conditions) of any high voltage conductors when those conductors are under their worse conditions of maximum “sag” and “swing” and overhead line profile (maximum “sag” and “swing”) drawings should be obtained.

### **Electric and Magnetic Fields**

- 4.1.3.8. The Onshore Cable Route alignment considered the advice provided by the National Radiological Protection Board on recommending the adoption in the UK of public exposure guidelines published in 1998 by the International Commission on Non-Ionizing Radiation Protection (International Commission on Non-Ionizing Radiation Protection, 1998) in terms of the 1999 EU Recommendation (The Council of the European Union, 1999) when the time of exposure is significant.
- 4.1.3.9. The relevant electrical infrastructure of the Proposed Development at Operational Stage will comply with the current public exposure guidelines, and in line with Appendix 3.7 (Onshore Electric and Magnetic Field Report) of the ES Volume 3 (APP-361) will include:
- Earthed shielding of the HVAC Cables and HVDC Cables along the Onshore Cable Route;
  - Earthed perimeter fencing at the Converter Station compound;
  - The Converter Station electrical equipment must be designed to meet the guideline levels; and
  - The electrical field within the Converter Station at 1 m above ground level will not exceed 10 kV/m.
- 4.1.3.10. The assessed components of the Proposed Development produce field strengths which are less than the public exposure limit.
- 4.1.3.11. The electric and magnetic fields generated by the HVAC and HVDC cables will comply with public exposure guidelines.
- 4.1.3.12. The Engineering Manager will ensure through design and verification that the Proposed Development complies with guidelines and the Code of Practice (Department of Energy & Climate Change , 2012).

### **Register of Consents**

- 4.1.3.13. A register of consents covering: planning, highway and environmental has been prepared within Other Consents and Licences (REP6-024) which will be reviewed and the need for any further consents or licenses tracked by the appointed contractor to keep track of any progress. This will enable the project team to plan for consents to be applied for and obtained prior to the relevant works activity commencing.
- 4.1.3.14. The progress of the preparation, submission and internal approval of the consents identified as being required will be tracked using a consents register.

### Health and Safety File

- 4.1.3.15. The Health and Safety File will be prepared by the Client, with information supplied from the Principal Contractor. The Client and Principal Contractor will take responsibility for the Health and Safety File.
- 4.1.3.16. The Health and Safety File will include information about all the following topics, where they may be relevant to the health and safety of any future construction work. The level of detail to be provided would be proportional to the likely risks involved.
- Details of the project – Brief description of the work carried out;
  - Residual hazards and how they have been dealt with including:
    - Details of all areas at risk of flooding, their form and detail of the associated danger;
    - If maintenance activities need to be undertaken in areas at risk of flooding staff should be signed up to flood warnings (rainfall, tidal, fluvial, reservoir) and check the weather forecast to be able to plan ahead and avoid attending site if there is a risk of flooding; or
    - If flooding is identified when out on site: – an appropriate level of training to staff should be in place to ensure staff are aware to stay away from flood water, abandon any work that needs to be undertaken in flooded areas and report the incident or request appropriately trained operatives to work if a maintenance activity needs to be undertaken.
  - A detailed management plan for future maintenance and entry to below ground access chambers will be required (e.g., personal gas alarms, emergency recovery hoists, etc.) particularly in locations where there is a risk of the presence of ground gases such as at Milton Common.
  - Key structural principles incorporated in the detailed design of the structures;
  - Information regarding the removal or dismantling of installed plant and equipment;
  - The nature, location and marking of significant services, including firefighting services; and
  - Information and as built drawings of the structure, its plant and equipment.

## **4.2. COMPETENCE, TRAINING AND AWARENESS**

- 4.2.1.1. The Project Manager shall identify the training needs of their employees and subcontractors so that they can implement the requirements of this Onshore Outline CEMP into the induction, start of shift briefings, Toolbox talks, Construction Phase Plan and construction method statements.

- 4.2.1.2. Specific training needs will be developed for individuals to reflect the work to be carried out on the Proposed Development and the significant risks and opportunities identified.
- 4.2.1.3. The requirement is for all personnel to be aware of their general environmental management responsibilities, and for those whose work may cause, or have the potential to cause, a significant impact on the environment, to receive specific environmental awareness briefings. Environmental awareness will be reinforced through information, such as poster campaigns, environmental/sustainability performance indicator reports and environmental alerts available onsite notice boards.
- 4.2.1.4. All contractors are responsible for ensuring the competency of their environmental staff. In the event that environmental training is needed for staff, a contractor is responsible for ensuring this requirement is fulfilled. Any training provided to members of the project team will be logged via a Project Training Matrix and any certification documents will be produced by the relevant members of staff as evidence that they hold the required competencies.

### **4.3. INTERNAL COMMUNICATION**

- 4.3.1.1. Communication on environmental issues within the project team will take place through face-to-face conversations, e-mails and telephone calls. The project management team will be made aware of all environmental issues at the earliest possible opportunity. Communication on environmental matters will be maintained through construction meetings chaired by the Environmental Advisor/ Manager or a senior manager.
- 4.3.1.2. Environmental issues identified by any member of the project team will be communicated to the relevant personnel to ensure any required actions are carried out. Dissemination of information will take place in several forms, as appropriate, including meetings to discuss particular project issues, method statements, task/activity briefings, toolbox talks, inductions, environmental notices and environmental alerts. Records that these have been carried out and who received them will be documented via the use of attendance logs or distribution lists. The Environmental Advisor/Manager will notify Works Supervisors of any legislation changes which may affect working practices on Site.
- 4.3.1.3. Any unexpected finds/occurrences by site staff are to be reported to their Works Supervisors, which will then give notification to the relevant member of the Environmental team (described in Section 4) who will advise on the course of action to be taken.

## **4.4. EXTERNAL COMMUNICATION**

### **4.4.1. COMMUNICATION WITH THE CLIENT**

4.4.1.1. The Planning Manager will liaise regularly with the Client and its representatives regarding the programme of works, nature of the operations and methods to be employed to minimise adverse environmental impacts. This will include progress meetings as well as the production and submission of progress reports which will cover environmental/sustainability issues. The Environmental Manager will also supply all relevant supporting information and documentation to the Client for matters concerning consents and the environment in accordance with the appropriate timescales.

### **4.4.2. STATUTORY AUTHORITIES AND OTHER STAKEHOLDERS**

4.4.2.1. In the event of stakeholder liaison being required with local authorities or other stakeholders, the Environmental Manager will identify the requirement and seek authorisation from the Client to undertake the task. Where consultation is required, a representative from the Client will be invited to attend alongside the relevant appointed contractor personnel.

4.4.2.2. Project staff will keep an archive of any e-mail correspondence between themselves and statutory authorities and other stakeholders concerning the activities taking place. In the event that any complaints are received a log of correspondence and complaints will be kept up to date by the Environmental Manager.

### **4.4.3. PUBLIC RELATIONS**

4.4.3.1. It is good practice to inform interested parties when works are due to commence. The Public Liaison Officer will not communicate with residents unless approval has been granted by the Client. A member of the appointed contractor's team will be provided with the Public Relations Officer role (see Section 3).

4.4.3.2. Regular stakeholder and traffic management meetings will be held as part of project governance requirements.

4.4.3.3. Any letters issued to interested parties will be drafted and issued by the Client, with inputs from the Public Relations Officer.

#### **Communications Strategy**

4.4.3.4. A Communications Strategy will be developed for the Construction Stage of the Proposed Development. The Communications Strategy will provide the framework for engaging and communicating with stakeholders in relation to the associated construction works of the Proposed Development. The strategy will consider both onshore and marine stakeholders, taking into account preferred communication channels depending on the location and stakeholder. Stakeholder engagement will

be comprehensively and regularly measured throughout the Construction Stage. The strategy will be implemented and managed by the Environmental Manager.

4.4.3.5. The Strategy will identify the key stakeholders and confirm agreed methods for engagement and communication. Key stakeholders include, but are not limited to Local Planning Authorities and Parish Councils, emergency services, residents, businesses, developers, community groups and recreational users where they are potentially affected by the works, and also consultees such as Coastal Partners ('CP') (formally East Solent Coastal Partnership ('ESCP')), EA and Portsmouth Water ('PW'). A 'Register for Updates' service would also be made available for any individual to request that they be informed of works in certain geographical area(s).

4.4.3.6. The purpose of the Communications Strategy is to provide a framework to:

- Be clear, timely, meaningful, open, honest, consistent, and accountable;
- Promote and raise awareness of the construction period (including timings, disruptions and diversions) and the methods for contacting the Applicant;
- Ensure transparency by providing access to technical information related to construction, where required;
- Use plain language;
- Be equally accessible to all;
- Continue to review the strategy against any change in general situation e.g. Covid-19, etc;
- Use best practice engagement methods;
- Engage with the community; and
- Explain how the Applicant plans to respond to stakeholder queries and feedback.

4.4.3.7. In delivering the Communications Strategy, all communications will be accessible and in non-technical language. Where necessary, communications will provide a hotline and email address should anyone wish to provide feedback or raise a query regarding construction works. Communication will be targeted to the specific stakeholders identified, and the appropriate mode of communication would be adopted depending on the specific needs of the particular stakeholder. Wider communication would predominantly consist of:

- Media releases;
- Public notices in local papers;
- Targeted letters to residents (including regular Community Update Newsletter(s) containing relevant information split geographically into Section 1-10 of the Proposed Development, or similar;

- Signposting; and
- Updates on a dedicated 'Construction' section of the website.

4.4.3.8. The Communications Strategy will also include information on the following key matters:

- Concerns over health and wellbeing from electric and magnetic fields (see paragraphs 4.1.3.8 to 4.1.3.12);
- Access to properties (see Section 5.9 Traffic and Transport);
- Open space restoration timescales (see Section 6.2.9 Socio-economics);
- Public Rights of Way ('PRoW') diversions (see Section 6.2.9 Socio-economics); and
- Recreational impacts (see Section 6.2.9 Socio-economics).

4.4.3.9. In order to evaluate the Communications Strategy, the established objectives will be regularly reviewed by the Client against a number of metrics, including:

- Enquiries received via email / freephone / freepost;
- Visits to the 'Construction' section of the Proposed Development website;
- Enrolments through 'Register for updates' website form (and similar requests via email / freephone / freepost); and
- Readership of monthly/bi-monthly Community Update Newsletter(s).

#### 4.4.4. COMPLAINTS PROCEDURE

4.4.4.1. As part of the Site set-up process, site notice boards will be erected, maintained and clearly visible to third parties. A telephone number for environmental complaints will be published local to the Site. The Public Relations Officer will be responsible for liaising with appropriate individuals forming part of the project team to address any complaints and will have the appropriate authority to resolve any issues that may occur. Should it be required, an 'out of hours' telephone number will be available.

4.4.4.2. The Environmental Manager/ Advisor will maintain a close liaison with the relevant LPA Environmental Health Officer ('EHO') at all times and should any complaints regarding environmental nuisance (e.g. dust or noise) be received by the Public Relations Officer the details will be passed to the EHO for verification purposes.

4.4.4.3. Should any unforeseen event occur within the construction site that has the potential to cause off-site pollution then the Environmental Advisor/ Manager will immediately notify the EHO by phone and e-mail. As timely as possible, notice will be issued to the EHO for dealing with any unforeseen activity which may give rise to a particular problem.

4.4.4.4. During any site work, if any complaints are received directly to the appointed contractor or its subcontractors, the Client will be notified as soon as is practicable but within twelve hours of the complaint being received. It will be the responsibility of the Site Manager to brief any staff responsible for unacceptable working conduct in relation to worksite neighbours whilst working on this project.

## **4.5. METHOD STATEMENTS**

4.5.1.1. The implementation of Method Statements for the different activities of the Proposed Development works shall be completed by the Site Manager and General Operatives) and/ or subcontractor by trained staff or other appropriate experienced personnel, in consultation with specialists. Their production shall include a review of the environmental/ health and safety risks and commitments, so that appropriate control measures are developed and included within the construction process.

4.5.1.2. Method Statements will be reviewed and approved by the appointed contractor's Project Manager and, where relevant, by an appropriate environmental specialists. Where appropriate, and if required or necessary, method statements will be submitted to the regulatory authorities (EA, Natural England, the relevant LPA EHOs and Emergency Planning Officer etc.), as required.

4.5.1.3. Method statements must contain as a minimum:

- Location and duration of the activity, and vehicular access/egress arrangements (if applicable);
- Work to be undertaken and methods of construction;
- Plant and materials to be used;
- Labour and supervision requirements;
- Health, safety and environmental considerations (including relevant control measures); and
- Permit or consent requirements.

4.5.1.4. Deviation from approved method statements (where this is a statutory requirement) will be permitted only with prior approval from the LPA, and other relevant parties. This will be facilitated by formal review before any deviation is undertaken.

## **4.6. ENVIRONMENTAL INCIDENTS**

4.6.1.1. The Environmental Manager will respond to any reported incidents within 24 hours, or as soon as reasonably practicable. In the event of working practices being deemed dangerous either by the Council or the HSE, immediate remedial action will be taken.

4.6.1.2. A formal procedure for handling Environmental Incidents will be developed and agreed by the Project Manager, Environmental Advisor and appointed

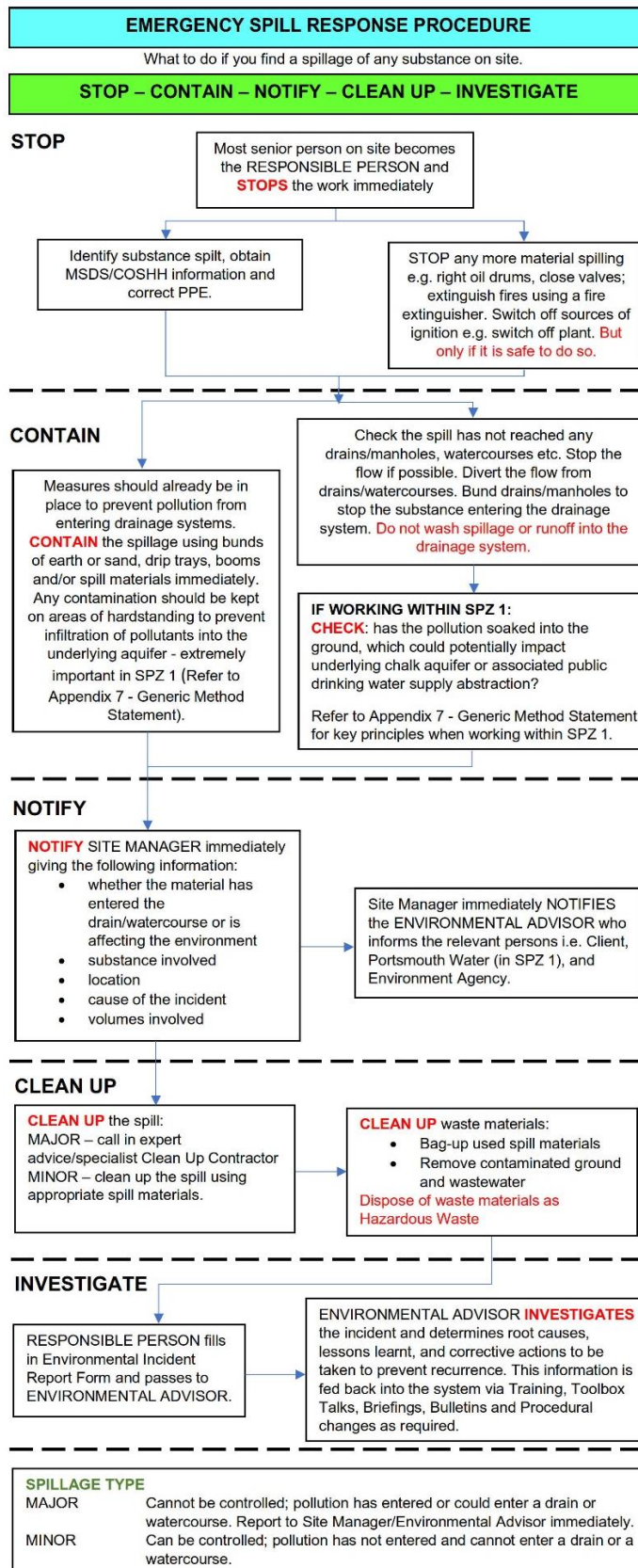


contractor/Construction Manager, which may include a procedure similar to that detailed below:

- Environmental Incidents are to be reported to the Construction Manager;
- The Construction Manager (or nominated representative) will record full details of the Environmental Incident and ensure that they are responded to as soon as reasonably practicable (preferably within one hour but always within 24 hours; and
- The Construction Manager (or nominated representative) will undertake an investigation to assess what corrective and preventative action, or further investigation is necessary to avoid recurrence of the Environmental Incident.

#### **4.6.2. EMERGENCY POLLUTION AND SPILL RESPONSE PLAN**

- 4.6.2.1. In the event of a spill or leak, the following process shown in Plate 4.2 will be followed. This will be briefed to the workforce and displayed on site notice boards.



**Plate 4.2 – Emergency Spill Response Procedure**

# 5. GENERAL ENVIRONMENTAL CONTROL MEASURES

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## 5.1. INTRODUCTION

5.1.1.1. This section sets out the environmental control measures to be adopted during construction. The appointed contractor will ensure that all sub-contractors adhere to the environmental good practice guidelines for implementation during all site activities.

## 5.2. LANDSCAPE AND VISUAL AMENITY

5.2.1.1. The following measures must be considered during construction works to ensure protection of the existing landscape setting and views to the construction site:

- Temporary screening for sensitive visual receptors through implementation of solid construction hoardings whilst using natural existing screens (topsoil and existing vegetation). Hoardings would be attractive (visually recessive and sensitive in design), used to screen low level “clutter” and reduce noise;
- Appropriate location, organisation and phasing of construction activities;
- Maintenance of a tidy and contained site compound to reduce visual clutter;
- Large plant /equipment would be located away from most sensitive receptors where there are viable alternatives; and
- Measures to control working hours in specific locations to avoid disturbance to residential receptors both in terms of light and noise.

5.2.1.2. The hoarding to be erected around the Converter Station will visually contain many of the construction activities from the surrounding character areas in terms of influencing their visual setting.

5.2.1.3. Hoardings would be well lit in poorly lit walkways and any gates should be positioned to minimise noise transmitted to nearby sensitive receptors.

## 5.2.2. LIGHTING SCHEME

5.2.2.1. The appointed contractor will develop a Lighting Scheme for the Construction Stage of the Converter Station Area. This will, after consultation with the South Downs National Park Authority, be submitted for approval to the relevant Local Planning Authority. The Lighting Scheme will be developed in accordance with the SDNPA Technical Advice Note 2018, Dark Skies. The general principles will include, but not be limited to consideration of:

- Angle lights downwards – no unnecessary light above or near the horizontal;
- Lamps above 500 lumens should be installed in dark sky friendly fixtures that prevent unnecessary upward light;
- Point where the light is needed not in a direction that causes a nuisance to neighbours or wildlife;
- Switch off lighting when not needed. Consider the use proximity sensors and avoid dusk-till-dawn sensors;
- Light to the appropriate illuminance;
- Avoid bright white and cooler temperature LED's; and
- Install at the lowest possible height to achieve required lighting levels.

5.2.2.2. For the HDD compounds the Engineering Manager will undertake a lighting assessment to manage light impacts. Temporary site lighting will be restricted to meet on-site safety and security requirements.

### **5.3. ONSHORE ECOLOGY**

5.3.1.1. The following measures will be taken during construction works to ensure ecological disturbance is minimised:

- Where practicable, any mature trees and hedgerows which are within the site boundary will be retained. Measures in relation to trees are outlined in section 5.3.4 below.
- Where trees and hedgerows are removed the contractor will consider creating habitat log piles, where practicable. This will only be where suitable land is available after the Construction Stage.
- During the construction period, care should be taken to avoid creation of artificial habitats and temporary resting places within works areas, such as turf, spoil and rubble piles. Stored materials are best located away from areas of vegetation on hardstanding or bare ground. Stored materials can be raised off the ground by using storage bags on pallets;
- Water sprays will be used to manage dust and prevent it drifting from the construction site to surrounding areas where sensitive habitats are present;
- No waste or waste water should be discharged into the watercourses and management procedures to avoid contamination and pollution of waterways should be following and implemented at all times;
- Standard best practice methods that minimise the risk of pollution through accidental spillage of materials or surface runoff during construction works will be implemented. These measures will follow those within measures are

described in the “Pollution Prevention for Businesses” guidance published by the UK Government. When working near water, pollution prevention methods will be incorporated into site-specific guidance notes provided to the site operatives as part of their site induction. All vehicles will carry spill kits and all staff be trained in how to use emergency response equipment. A contingency plan in the event of contamination of watercourses will be established and strictly adhered to in such an event. Where appropriate, site compound, HDD compounds and any storage of soil stockpiling or plant must be in accordance with measures outlined in Section 5.7 below. Potentially contaminating materials will be stored appropriately in accordance with current guidelines to minimise pollution risk, including bunding fuel and chemical storage areas and generators. Site procedures will be carefully managed to avoid discharges to watercourses, in particular those involving cement and concrete;

- Restriction of night working – construction work will be restricted to daylight hours between dawn and dusk within areas without public street lighting (e.g. Denmead Meadows, Farlington Playing Fields and the Converter Station Area) during the bat active season (April to October) to avoid disturbance effects of noise and lighting on bats;
- Surveys have identified and assessed potential impacts and their effects on ecological features. However, the mobile nature of many protected and notable species is acknowledged. The Environmental Clerk of Works will monitor the site and be aware of the possibility of unexpected finds of protected and notable species. With support of appropriately experienced technical specialists, the Clerk of works will monitor the Proposed Development for species including badgers, water voles and otters that are known to be present in the wider area. In the event of an unexpected find of such a species, an ecologist will advise the Clerk of Works on a course of action to offset potential effects and maintain legislative compliance;
- Wildlife and Countryside Act Schedule 9 plants are present close to the Proposed Development, specifically Japanese knotweed that was recorded on the boundary of the Order Limits at allotments at Lock Lake (Section 9). It is an offence to cause Schedule 9 plants to grow in the wild. Prior to vegetation clearance within the Order Limits a survey for Schedule 9 plants will be undertaken to identify their locations, and appropriate control measures to either remove and eradicate them, or localise them (e.g. fencing), will be put in place. Regular checks of the works area by the Ecological Clerk of Works will be undertaken to ensure risks associated with Schedule 9 plants are controlled and works will not cause their spread in the wild. Appendix 16.2 (Preliminary Ecological Appraisal) of the ES Volume 3 (APP-410) notes the location; and

- Any required scrub, hedgerow and/or tree clearance should be timed to avoid the main nesting season for birds between 1 March and 31 August. If scheduled within this period, a suitably experienced ornithologist will be present to advise on any necessary protective measures and confirm that the works are not likely to cause disturbance to nesting birds.

### 5.3.2. PRECAUTIONARY METHODS TO AVOID EFFECTS ON HEDGEHOGS

- To avoid killing or injury to hedgehogs that may be present hedgehogs, scrub and other dense vegetation within Sections 1-3 where suitable habitat is present will be hand search for hedgehogs prior to its clearance. Piles of cut vegetation such as brush piles will also be searched as the can harbour sheltering hedgehogs.
- Hedgehogs found will be moved to a suitable release site away from the development within scrub, hedgerow or other dense cover.
- In addition, open excavations will be fitted with mammal ladders (planks of wood at either end) to allow animals to climb out if they fall in and prevent the trapping of animals including hedgehogs.

### 5.3.3. PRECAUTIONARY METHODS TO AVOID EFFECTS ON REPTILES AND STAG BEETLES

5.3.3.1. To avoid killing or injury to reptiles that may be present, a Precautionary Method of Works ('PMoW') will precede vegetation clearance and earthworks in habitats which could support these animals. created which will detail how working methods during the Construction Stage of the Proposed Development can minimise the risk of killing or injury to reptiles.

5.3.3.2. Such working methods likely to feature in a PMoW may include, but are not limited to, the following:

- Two stage vegetation clearance of fields, whereby areas of suitable habitat for reptiles are cut down to a height of 300 mm, left for a period to enable reptiles to disperse, and then cut to ground level under ecological supervision;
- Removal of natural refugia by hand where safe to do so, or otherwise undertaken methodically using plant under ecological supervision;
- Plant and machinery to be kept to defined access routes around the survey area which are unsuitable for reptiles, until suitable habitat in the works area has been removed; and
- Open excavations will be fitted with mammal ladders (planks of wood at either end) to allow animals to climb out if they fall in and prevent the trapping of animals including reptiles.

5.3.3.3. Stag beetles are primarily a woodland species associated with dead wood namely fallen trees. Whilst not identified within the Order Limits, on a precautionary basis to avoid mortality of this species should they incidentally be found within the Onshore Cable Corridor, the above methodology of removal of natural refugia will apply.

5.3.3.4. The appointed contractor will comply with relevant legislation and should maintain habitats intact and undisturbed, where practicable. If protected species are unexpectedly discovered, work should cease and advice should be sought immediately from a suitably qualified ecologist.

5.3.3.5. Implementation of the measures identified will be monitored by an Environmental Clerk of Works with the power to stop work and change site practices as required.

### **5.3.4. ARBORICULTURE**

5.3.4.1. The constraints associated with trees and hedges shall be considered during all stages of design and construction. Design and construction work shall seek to avoid adverse arboricultural impacts.

5.3.4.2. No tree or hedge on land owned by a Local Authority (HCC Highways, PCC Highways or the relevant PCC Department in respect of non-highway trees) shall be removed unless it can be clearly demonstrated that:

- The application of protection measures described within British Standard BS 5837:2012 does not provide sufficient mitigation for sustainable retention; or,
- The costs associated with sustainable retention exceed its agreed CAVAT value.

5.3.4.3. Local Authority owned trees and hedges shall only be removed with prior written approval of the relevant Local Authority department.

5.3.4.4. It is agreed in principle that CAVAT payments will be made to mitigate the impacts of the loss of trees in Local Authority ownership. In instances where hedgerows within Local Authority ownership are to be removed, in whole or in part, then financial compensation will be agreed on a case by case basis. Payment will be made in lieu of any obligation to replant or otherwise replace. PCC trees for which CAVAT scheme will be used to mitigate impacts on affected trees applies to trees which are within the DCO Land and which is in the ownership of the Council.

5.3.4.5. The Local Authority will retain responsibility for any mitigatory planting deemed to be required. The Local Authority will undertake mitigatory planting using the compensatory monies provided through CAVAT or, in the case of hedgerows, as otherwise agreed.

5.3.4.6. Third-party mitigation planting will not be undertaken within the boundary of any highway owned by HCC or PCC nor will it take place on any other land owned by the Local Authority. In instances where third-party trees are to be removed then suitable opportunities for mitigatory planting will be agreed as necessary with landowners.

Planting sites will be determined once the scope of third-party tree removal has been confirmed.

5.3.4.7. In instances where trees or hedges may be at risk during construction then the following mitigation hierarchy will be applied:

- Unless a tree is dead or is so structurally impaired or diseased that it would need to be removed for sound arboricultural management within the next ten years. Then cable trenching and any associated construction work, storage and traffic will be excluded from the Root Protection Area (RPA) or canopy spread, whichever is largest. In instances where this cannot be achieved then,
- A precautionary approach to tree protection will be adopted and an Arboricultural Method Statement (AMS) provided which clearly demonstrates that construction activities can be undertaken with minimal risk of adverse impact to trees which are to be retained. The AMS shall adhere to the principles described within BS 5837:2012, shall be produced by a suitably qualified and experienced arboriculturist and shall be approved by the Local Authority prior to commencement of work. The AMS shall be implemented in full and shall only be varied following technical review by an arboriculturist and approval by the Local Authority. The AMS shall be supported by a Tree Protection Plan where required. In instances where an AMS does not provide sufficient certainty over sustainable retention then:
- Permission will be sought from the Local Authority to remove tree or hedge and an agreement for compensation will be reached at the appropriate CAVAT value. The CAVAT value must be agreed with the Local Authority prior to tree removal or the commencement of any construction work within the RPA (or crown spread where this is greater). Construction work includes enabling activities, site clearance and storage of materials or machinery.

#### **Converter Station Area**

5.3.4.8. Under no circumstances should any construction works, or storage take place within 15-metres of ancient woodland. When storing materials, particularly liquids, slopes and drainage channels must be considered to prevent spillages and flow into the buffer zone. The 15 m buffer around the ancient woodland will be marked with suitable exclusion fencing and signage to ensure the 15 m buffer is clear to site operatives. The only activity permitted within the 15 m buffer is woodland management in relation the management of ash dieback as outlined in the OLBS.

#### **Onshore Cable Corridor**

5.3.4.9. The Onshore Cable Corridor, within the highway, is constrained by buildings, under and over ground services, street furniture and traffic considerations. Therefore, options for avoiding trees will need to be carefully considered.



5.3.4.10. The general design principles for working around trees are as follows:

- Onshore Cable Route will be diverted around or under RPAs, where practicable.
- Onshore Cable Route will preferentially avoid higher value trees as indicated in the Arboriculture Report of the Environmental Statement Appendix 16.3 (APP-411). In particular, Category A trees will be avoided.
- Onshore Cable Route will avoid existing soft landscape areas containing RPA of arboricultural features, where practicable. In accordance with the required standoff for overhead and underground cables, the use of soft landscape resources such as grass verges, particularly in highway, will limit any future mitigatory tree planting opportunities and can permanently detrimentally affect the local landscape.
- Tree roots are likely to be infrequent within the carriageway construction due to lack of soil available for root growth. However, roots may persist at greater depths where conditions are favourable. Where practicable, cable routing in the carriageway to avoid tree roots will be undertaken.
- Significant tree roots are likely to be frequent within footway, verge areas and other soft landscape where trees are present. Where present, works in these areas shall be avoided, where practicable.

## 5.4. SOILS AND AGRICULTURAL LAND USE

5.4.1.1. Development of a Soil Resources Plan ('SRP'). A SRP is prepared prior to the commencement of construction and confirms the different soil types and depths (based on the soil surveys already undertaken); the most appropriate re-use for the different types of soils within the detailed design; and the proposed methods for handling, storing and replacing soils on site. For the Onshore Cable Corridor, the SRP will confirm the different soil types and depths to be disturbed, the proposed methods for handling, storing and replacing soils, and provide specifications for the restored soil profiles to match the original profiles as closely as possible. An Outline SRP has been prepared (see Appendix 5 of this Onshore Outline CEMP).

5.4.1.2. Mitigation to ensure that the temporary requirement for land will not affect the ability to farm other land within the holding that is not affected by construction works will form part of each relevant CEMP. This would include the continuation of farm access to temporarily severed land, as required for normal agricultural activities, the replacement of temporarily severed water supplies, and the installation of temporary stockproof fencing, as required.

## 5.5. GROUND CONDITIONS

### 5.5.1.1.

The following methods should be implemented during construction to ensure the safety of construction workers, visitors and to avoid any potential pollution of surface and groundwater:

- The Proposed Development will adhere to Environment Agency ('EA') pollution prevention guidance and best practice during the construction works which will be incorporated into and managed through the CEMP.
- All construction personnel would be required to wear appropriate PPE and to only undertake work following a Health and Safety risk assessment and a Health and Safety Induction. Hygiene and welfare facilities would need to be provided for use by construction personnel during the works. A watching brief would be implemented during excavation to ensure that any unexpected contamination within the Made Ground (if present) is rapidly identified, risk assessed and dealt with appropriately.
- An earthwork watching brief as per the Earthworks Management Plan would be implemented during excavation to ensure that any unexpected contamination within the Made Ground (if present) is rapidly identified, risk assessed and dealt with appropriately.
- Regular monitoring visual inspections during construction.
- If remediation is deemed necessary, requirements will be assessed on a site-specific basis and the works carried out, supervised, validated and verified in accordance with current best practice. All decisions to remediate and validate works will be made under the management of an Environmental Manager and appropriate specialists.
- A site-specific risk register shall be produced prior to works commencing, this shall include geotechnical and ground risks which shall be considered when agreeing methods of working and where necessary suitable control measures/mitigation incorporated.
- Good working practices and housekeeping during construction such as sealing or covering stockpiles of contaminated soils and treating water removed from excavations prior to discharge are considered likely to reduce identified impacts.
- Water/surfactant will be sprayed onto material being worked to damp down any potentially contaminated dust and prevent it from becoming airborne. Chemicals and surfactants will be Centre for Environment Fisheries and Aquaculture Science (CEFAS) rated products and included within the contractor's method statements. Temporary surface water drainage and vehicle wheel washes will further reduce the risk of dust generation. Precautions should also be taken while

transporting excavated materials off-site to ensure that any risk of fugitive dust emissions are prevented. Construction Stage dust monitoring will be used to check the effectiveness of the damping down of the dust on site. The monitoring would be agreed with the relevant Environmental Health Officer by the Environmental Manager. This is anticipated to be through deposition pads and directional pads during high risk activities as per Table 5.1 (Row 9 to 12)..

- Vehicle movements will be restricted to an agreed travel plan and construction activities on site will not exceed standard working hours.
- Water removed from any excavations will be disposed of or discharged in accordance with EA requirements.
- The reuse of soil on Site will be governed by the production of a Materials Management Plan ('MMP') in which chemical criteria are specified for the import of soils/fill material from off-site and for the reuse of site won material (see Appendix 4 for the Outline MMP). The stripping, storage and reuse of subsoil should be carried out in accordance with BS 8061:2013.
- Foundations for structures at the Converter Station (Section 1) will require piles that will extend down into the chalk groundwater aquifer. A Preliminary Piling Works Assessment ('PRA') has been prepared in Appendix 6 Preliminary Piling Risk Assessment, following accepted, best practice EA Guidance 'Piling and Penetrative Ground Improvement Methods on Land Affected by Contamination: Guidance on Pollution Prevention' (Environment Agency, 2001) ). This PRA will ensure that piling operations do not form a pathway for the migration of contamination at the surface (either existing contaminants, those that form part of the piling process or those that might be introduced during the operation of the Converter Station) to the aquifer. Piling for the launch pit of the Kings Pond Horizontal Directional Drilling ('HDD') will not interact with the Chalk and therefore the aquifer is not at risk from these specific piling operations.
- Construction activities should also be undertaken in accordance with appropriate CIRIA guidance. Specifically, this should include:
  - CIRIA C741. Environmental Good Practice on site (4th Edition): (CIRIA C741, 2015); and
  - CIRIA C532. Control of Water Pollution from Construction Sites (CIRIA C532, 2001).

## 5.6. GROUNDWATER

- 5.6.1.1. Standard mitigation measures, including a variety of good environmental site practices, will be undertaken at the Proposed Development during the site preparation, earthworks and installation phases to minimise the risk of site runoff

transmitting contaminants and sediment into surface water and groundwater bodies water and groundwater bodies via the surface water drainage system.

5.6.1.2.

A variety of good environmental site practices will be implemented to avoid or minimise impacts at the source. Such measures include, but are not limited to, the following:

- Working areas shall be clearly defined to ensure the disturbance of soils is minimised as far as practicable;
- Haul routes and accesses shall be clearly defined to minimise the risk of accidents. Construction vehicles will be regularly inspected and maintained to reduce the risk of hydrocarbon contamination associated with leaks and spillage and will only be active when required;
- The cleaning of vehicle wheels prior to leaving site;
- Dust suppression (i.e. damping down);
- Installation of systems such as silt traps and swales designed to trap silty water including adequate maintenance and monitoring of these to ensure effectiveness, particularly after adverse weather conditions;
- Designated areas for the storage of hazardous materials, fuels and chemicals. All designated areas will be appropriately bunded to at least 110% capacity and all filler points/valves will be located within the extent of bund or appropriate drip trays provided;
- On-site availability of oil spill clean-up equipment including absorbent material and inflatable booms for use in the event of an oil spill or leak;
- Use of drip trays under mobile plant;
- Provision of environmental awareness training for site workers;
- Use of inert, uncontaminated material during construction; and
- The Karstic Dissolution Feature Watching Brief will be implemented during construction within the SPZ 1 (as part of the Earthworks Management Plan) to ensure that any unanticipated karst dissolution features are rapidly identified, and that works are temporarily paused so that any risk to groundwater, is minimised as far as possible. Work will continue when the issue is deemed to be sufficiently mitigated. Portsmouth Water to be notified of any instances of karst dissolution features being identified;
- Specific training for drilling contractor/teams on the importance of the Source Protection Zones/Principal Aquifer and protecting them for the duration of the works.

- 5.6.1.3. The risk of pollution to surface and groundwater can be significantly reduced by the adoption of good working practices and strict adherence to guidance provided by the EA on Gov.uk. The current guidance on gov.uk explains how to:
- Report an environmental incident;
  - Get permission to discharge to surface water and groundwater;
  - Manage business and commercial waste;
  - Store oil and any oil storage regulations;
  - Discharge sewage with no mains drainage; and
  - Work on or near water and manage water on land
- 5.6.1.4. Guidance is also available in the following CIRIA publications;
- C532 - Control of Water Pollution from Construction Sites;
  - C698 Site handbook for the construction of Sustainable Drainage System ('SuDS'); and
  - C648 - Control of Water Pollution from Linear Construction Projects.
- 5.6.1.5. Additional guidance regarding the protection of groundwater is provided by the EA in their publication 'Groundwater Protection Position Statements, February 2018, Version 1.2', and will be consulted.
- 5.6.1.6. Best practice recommendations for the prevention of contamination will be outlined in the relevant CEMP or equivalent and agreed with relevant statutory consultees prior to commencement of construction works. This will include measures to comply with relevant legislation and guidance (including the EA's Guidance online) and best practice measures in line with the Considerate Contractors Scheme and 'Site handbook for the construction of SUDS' (CIRIA C698). It will include an erosion prevention and sediment control plan to reduce the quantity of sediment entrained in runoff.
- 5.6.1.7. It is recommended that surface runoff from the various construction areas within the site is managed by the use of temporary bunding and settlement ponds to protect the receiving water environment. Settlement ponds are beneficial in that they allow for isolation and on-site treatment of sediment laden or chemically contaminated surface water runoff prior to discharge, following agreement with the appropriate authority, or use of other appropriate means of disposal.
- 5.6.1.8. Movement of materials around the site will be managed under an appropriate MMP.
- 5.6.1.9. A UK Source Protection Zone 1 Generic Method Statement, which forms Appendix 7 of this Onshore Outline CEMP, will be implemented. This method statement outlines the construction principles for the approved contractor when working within the Source Protection Zone 1 (SPZ1).

## 5.7. SURFACE WATER RESOURCES AND FLOOD RISK

### 5.7.1. GENERAL PRINCIPLES

5.7.1.1. Consents or exemptions are expected to be required for the following consents/permits, which should be further reviewed and confirmed during detailed design process:

- Temporary dewatering consent;
- Ordinary watercourse consent;
- Flood risk activities permit – environmental permits; and
- Discharges to surface water and groundwater: environmental permits.

5.7.1.2. Activities expected to require the above noted additional permits and consents are summarised below:

- Works within 16m and 8m of tidal and fluvial flood defences;
- Works within the flood plain;
- Works through, under or above a watercourse;
- Works requiring diversions or alterations to Ordinary Watercourses or extreme event surface water overland flow routes; and
- Works requiring temporary dewatering of surface water or groundwater.

5.7.1.3. The overarching principles required to obtain these approvals are summarised below, however specific methodologies are not defined to allow flexibility for the appointed contractor to conduct works in accordance with their preferred practices.

5.7.1.4. Measures to be undertaken include:

- The appointed contractor (and any sub-contractors) must take precautions during the Construction Stage to protect all surface water bodies including watercourses and drainage patterns from erosion, siltation or pollution in accordance with industry best practice. To prevent fine sediment entering the watercourses, construction activities should take place away from the watercourses and extreme event overland flow routes, where practicable. Should vegetation clearance be required, the extent should be limited to the areas necessary to reduce the amount of sediment released during clearance and the potential release of sediment from bare ground following clearance. Further pollution prevention mitigation measures for adoption include:
  - All operatives to be made aware of the need to protect the watercourse from contamination, including EA guidance and legal obligations.
  - When construction activities, including stock piling (not permitted within fluvial flood zone 2 or 3 unless otherwise agreed with EA) and plant and vehicle

washing, occur in close proximity to a watercourse they should be separated from the watercourse with barriers (e.g. sediment fences) to prevent surface water runoff from these sites entering the watercourse.

- Geotextile-material silt fences should be installed to filter suspended solids from runoff.
- Timing of works should be carefully considered around areas at risk of flooding and adjacent to watercourses. Where practicable, construction should be carried out during periods of low flow and rainfall (typically during summer months) to reduce the risk of pollution and erosion.
- The works should be carried out in accordance with established best practice and environmental permitting requirements.
- Pollution spill kits should be kept on site. In the event of an incident these would be used.
- Any soils contaminated will be removed immediately to a suitable landfill site or appropriately managed/ reinstated in accordance with ground contamination/ remediation requirements.
- Waste facilities to be provided on site for debris away from areas at risk of flooding.
- Cleaning of tools and shuttering will be carried out in water not draining directly to the watercourse.
- In any event of expected heavy rain pouring concrete and other activities which increase the risk of contaminating runoff should not be undertaken.
- The control on invasive non-native species should be managed through best practice guidance and by implementing the Wildlife Law: Control of Invasive Non-native Species HC1039 (Law Com No. 342).
- The appointed contractor (and any sub-contractors) must obtain approval through appropriate consents and permits to undertake any construction activity or appropriate exception prior to commencement of that activity and is responsible for agreeing the construction methodologies in association to these consents and permits based on the principles defined hereafter.
- The appointed contractor (and any sub-contractors) must ensure that existing Main River, Ordinary Watercourses, extreme event surface water overland flow routes are maintained within no increase to flood risk, on or off site, through appropriate temporary works and subject to approval or exemption of relevant environmental permits (flood risk activities permit/ ordinary watercourse consent).

- The appointed contractor (and any sub-contractors) must ensure any works over, under or directly adjacent to watercourses/watercourse structures (culvert/ sewer) and flood defences are subject to approval or exemption of environmental permits (flood risk activities permit/ordinary watercourse consent), where the contractor will need to develop appropriate design and construction methodologies to ensure that flood risk is not increased, the integrity of these features (e.g. flood defence or structure) are not negatively impacted, flow conveyance is not impacted and there is suitable pollution prevention measures in place during construction and operation.
- The appointed contractor (and any sub-contractors) will manage any potential surface water ingress or groundwater emergence that is deemed of a quantity unsafe to work in or that may create a pollution pathway. Any temporary dewatering or discharge of water must be in accordance with an exemption or Environmental Permit and discharged at a controlled discharge rate to an agreed discharge location through an appropriate pollution treatment mechanism. Dewatering quantities for trench construction will be determined at detailed design. The designer must ensure the discharge quantities are accurate or conservative to ensure no flood risk is not increased due to surplus groundwater being encountered during construction.
- Best practice methodology, in accordance with EA, Lead Local Flood Authority ('LLFA') guidance and other recommendations, should be implemented during construction to minimise the potential impacts of the Proposed Development on flood risk and potential contamination of surface waters.
- All construction activities will be undertaken in accordance with legislation and the gov.uk/EA Environmental Permits, Regulatory Position Statements and Guidance and other relevant documentation.
- The appointed contractor (and any sub-contractors) must ensure that works within flood zone 2 or 3 do not introduce significant structures (i.e. temporary site compounds) or spoil storage in the fluvial flood plain.
- The appointed contractor (and any sub-contractors) for works within flood zone 2 or 3, or directly adjacent to, should ensure a flood warning/ evacuation plan will be in place to halt works and make safe if there is an immediate risk of flooding.
- If the appointed contractor decides to use temporary bunds to protect the trench or construction works, these would be in small localised areas and any impacts on existing drainage regime will need to be managed to ensure the impact of flooding is not increased subject to approval or exemption of relevant environmental permits (flood risk activities permit/ordinary watercourse consent).



- The detailed design of the HDDs is proposed to be developed post application and any specific provisions to protect the HDD construction works from the tidal flood risk will be developed by the contractor prior to works, if required. Any pathways under a flood defence created through the HDD during construction and operation will require appropriate bunding to the same standard of protection (e.g. defence crest level) to ensure a pathway is not created around the flood defence subject to approval or exemption of a flood risk activities permit. HDD alignments should pass below or avoid, with appropriate clearance, any below ground features (e.g. sheet piling, concrete structures) associated to flood defences.
- Site earthworks and site clearance (including vegetation clearance) activities must ensure that impacts to the current drainage regime in relation to surface water drainage, water quality and flood risk are appropriately managed through proportionate temporary and permanent drainage measures in accordance with industry best practice. This may include pre-construction surveys, temporary surface water management, pollution control and post-construction reinstatement works.
- Prior to construction and excavation works a full utility search including a request for as-built information of all known culverts within the Order Limits will be undertaken in consultation with relevant authorities/ statutory undertakers. This information will be used to progress detailed design in relation to any crossings and where appropriate trial holes will be carried out to confirm that as-built information is correct prior to construction.
- The general design principles for crossing existing Portsmouth Water underground assets shall be in accordance with following guidance;
  - Guidance for working near Distribution Apparatus; and
  - Guidance for working near or over Trunk Water Main.

## **5.8. HERITAGE AND ARCHAEOLOGY**

5.8.1.1. The archaeological and cultural heritage mitigation outlined here comprises high-level general measures to minimise or reduce adverse effects arising from disturbance from the works on the surrounding historical assets. Where impacts have been identified and subject to the nature of the asset and the potential impact, consideration has been given to a range of mitigation measures, these include but are not limited to:

- Archaeological monitoring during construction to ensure appropriate recording of any remains encountered; and

- Proximity to Designated Heritage Assets must be taken into consideration during construction.

5.8.1.2. When undertaking construction works the contractor should take into account nearby Designated Heritage Assets, such as listed buildings, including curtilage structures (i.e. associated assets with the property extent such as boundary walls, which may not be mentioned specifically in the listing description). The types of Designated Assets are identified in Table 2.1 above. Where the Order Limits are in close proximity to those assets, care should be taken to prevent accidental strike damage from plant movement and construction activities. The Onshore Cable Route will be located in the existing highway and not in the pavement adjacent to nearby Designated Heritage Assets where vibration could cause damage.

5.8.1.3. The mitigation strategy proposed to mitigate predicted archaeological construction related impacts identified is set out below. Three strategies are presented:

- Strategy 1: Greenfield areas (i.e. open rural or undeveloped land) – archaeological evaluation and mitigation;
- Strategy 2: Brownfield areas (i.e. Joint Bays ('JB'), Transition Joint Bays ('TJB') and HDD entry/exit points) – archaeological evaluation (where practicable) and mitigation; and
- Strategy 3: Brownfield area (i.e. along existing roads, pavements and hardstanding) – mitigation.

#### **Strategy 1: Greenfield Area Evaluation and Mitigation**

5.8.1.4. Within the greenfield areas of the Order Limits (Sections 1-3), proposed ground disturbance would be extensive due to the preliminary topsoil strip. This is assumed to be site-wide for the Converter Station Area and also within the Onshore Cable Corridor working width, along with temporary access routes and temporary compounds (approximately 23 m wide).

5.8.1.5. Within these areas, the presence, nature, date, extent and significance of any archaeological remains present would need to be clarified by trial trench evaluation as the potential for such remains, as assessed by the desk-based and Stage 1 Geophysical Survey, is uncertain. These will be targeted to geophysical anomalies of potential archaeological interest, along with any remains identified by the desk-based research but will also include sampling of 'blank areas'.

5.8.1.6. The results of the evaluation will enable the Applicant to formulate with the relevant statutory consultees an appropriate mitigation strategy for any significant archaeological remains that could be affected.

5.8.1.7. Mitigation could take the form of a targeted archaeological excavation (preservation by record) well in advance of the commencement of ground works and/or an archaeological watching brief (a programme of 'strip, map and sample) carried out

alongside the preliminary topsoil removal. This would ensure that archaeological remains were not removed without record. This would need to be programmed with adequate time for the recording of archaeological remains.

- 5.8.1.8. There is a very small chance that archaeological remains of very high (national) significance will be encountered. In the unlikely event that such remains are uncovered then design changes could be considered, through modifications to the design, e.g. modification in design of foundations and formation levels for the Converter Station, or avoidance in the adjustment of the position of the Converter Station and/or the line of the Onshore Cable Route), but only where this would accord with the consented design parameters. If it is not feasible and practicable in the design parameters however, due to engineering or other reasons (i.e. due to elevation/location), preservation by record (e.g. targeted excavation and recording) would be necessary.
- 5.8.1.9. Any archaeological work would need to be undertaken in consultation with the relevant Archaeological Advisor, in accordance with an approved archaeological Written Scheme of Investigation ('WSI') outlining the scope and method of investigation, along with the post-excavation reporting and dissemination strategy.

### **Strategy 2: Brownfield Area Evaluation and Mitigation**

- 5.8.1.10. JB's, TJB's and HDD compounds in brownfield areas would entail more than the localised disturbance of the proposed cable trench, with the excavation of larger and deeper trenches, approximately 15 m x 5 m, to a depth of 3 m (JB's) and up to 1.75 mbgl. For such areas, archaeological trial trench evaluation may be appropriate depending on the depth of modern made ground.
- 5.8.1.11. As with the greenfield evaluation, this would aim to clarify the presence, nature, date, extent and significance of any archaeological remains within the area of excavation and would enable the formulation of an appropriate mitigation strategy.
- 5.8.1.12. In areas where evaluation trial trenching is not considered feasible, the proposed strategy will revert to Strategy 3 (see below).

### **Strategy 3: Brownfield Area Mitigation of the Cable Trench**

- 5.8.1.13. The majority of the Onshore Cable Corridor passes through urban areas along existing roads, pavement and hardstanding. For these areas, the proposed archaeological impact would be highly localised and restricted to the approximate 1.0 m wide by 1.3 m deep cable trench, with no impacts from a 'working width' (i.e. no topsoil strip). Modern made ground is anticipated to be present, possibly to a depth of 0.5 m or greater. Archaeological remains in such areas are also likely to have been partially or wholly truncated by modern infrastructure development.
- 5.8.1.14. For this reason, the preliminary surveys proposed for the greenfield parts of the Order Limits would be neither feasible nor appropriate. In order to mitigate the localised impact of the cable trench on any potential archaeological remains, an archaeological

watching brief would be required *in areas with potential for significant surviving archaeological remains*, and where the cable corridor would divert away from existing highways (i.e. on adjacent roadside verges/hardstanding). This would ensure that any archaeological assets were not removed without record.

- 5.8.1.15. The archaeological watching brief would be carried out during the Construction Stage during the excavation of the cable trench, with work halted to allow sufficient time to excavate, sample, and record any archaeological remains exposed.
- 5.8.1.16. The level of archaeological watching brief attendance is likely to vary depending on the predicted sensitivity along the Onshore Cable Corridor. The future WSI would present the approach, ranging from continuous attendance in sensitive areas to regular attendance for areas with low to moderate potential. For areas where there would be no impact (i.e. landfill zones/modern highways), no attendance would be required.
- 5.8.1.17. The archaeological watching brief would need to be undertaken in accordance with an approved archaeological WSI outlining the scope and method of investigation, along with the post-excavation reporting and dissemination strategy.

#### **Palaeoenvironmental Sampling**

- 5.8.1.18. The archaeological strategies proposed above would require an element of palaeoenvironmental sampling, where the potential for such has been identified. This might include proposed disturbance in coastal alluvial/fluviial zones adjacent to Langstone Harbour and in areas of raised marine deposits, where they would be affected.
- 5.8.1.19. This would typically entail sampling during the intrusive fieldwork discussed above (and set out in the WSI), and geoarchaeological analysis in order to develop an understanding of past environmental conditions of the local area.
- 5.8.1.20. In light of the shallow nature of the proposed impact along the Onshore Cable Corridor, deep sampling through the use of purposive geoarchaeological boreholes, along with the creation of a geoarchaeological deposit model, is not considered appropriate.

## **5.9. TRAFFIC AND TRANSPORT**

- 5.9.1.1. The construction of the Proposed Development will be required to comply with each Traffic Management Strategy ('TMS') and Construction Traffic Management Plan ('CTMP'). A Framework TMS and Framework CTMP are provided as appendices to the Environmental Statement (AS-072 and AS-074).
- 5.9.1.2. The Framework TMS provides details of traffic management measures to be deployed to facilitate construction of the Onshore HVDC Cables. The Framework TMS includes details of temporary traffic signals, lane closure and road closure requirements and a programme that aims to minimise disruptions of the construction

works through timing of works at key locations to avoid constraints such as school terms and major events. The Onshore Cable Route Construction Impacts on Access to Properties and Car Parking and Communication Strategy included in Appendix 1 of the FTMS also sets out principles for mitigation, including:

- Access to residences, businesses and community facilities - including access to driveways during and outside working hours and three-way signals for business premises with their own access onto affected highways; and maintenance of side road access; and
- A communication strategy to allow stakeholders such as residents, businesses, the emergency services and community facilities to keep up to date with construction works.

5.9.1.3. The Framework CTMP provides an overarching plan of how construction traffic and site operations will be managed across the Onshore Components of the Proposed Development. The Framework CTMP sets out the parameters within which contractors will be required to work, including hours of operation, traffic routing, safe vehicular access and requirements to minimise traffic impacts. The Framework CTMP also includes a Framework Construction Worker Travel Plan (Appendix 7 of the FCTMP) , which sets out the strategy to be employed by the Contractor to reduce the number of single-occupancy vehicle trips made to the Converter Station Area by construction workers.

5.9.1.4. A Travel Demand Management Strategy) has also been completed (REP8-055) and provides a strategy during construction works on A3 London Road and A2030 Eastern Road to reduce travel demand, or to redistribute this demand in space, mode or in time to reduce peak hour traffic levels.

5.9.1.5. Prior to commencement of works in the highway, the Project Manager will submit detailed designs for the works and associated traffic management measures and a Travel Plan for approval to the relevant Highway Authority.

5.9.1.6. The Contractor will seek to locate Joint Bays in locations off carriageway, unless (a) such positioning is unavoidable taking into account environmental and other constraints/considerations and (b) requires no different traffic management measures than are required for cable trenching in that part of the highway. No Link Pillars will be located within the carriageway.

## **5.9.2. HIGHWAY WORKING GANG RESTRICTIONS**

5.9.2.1. The construction of the Onshore Cable Route on-carriage way will be undertaken by a maximum of six gangs working concurrently. The management and separation of working gangs is secured via the FTMS (AS-072), including a series of working restrictions.

5.9.2.2. The appointed Principal Contractor for the construction of the Onshore Cable Route is required to adhere to all measures. It will also be responsible for managing the working activities and the gangs working along the route, which aligns with the Health and Safety responsibility under CDM regulations.

## 5.10. AIR QUALITY

5.10.1.1. The dust risk for each Onshore Cable Corridor section is described in Table 5.1. The mitigation measures shown in Table 5.2 are to be implemented on site dependent on the risk presented in Table 5.1 and in line with best practice, IAQM guidelines. The mitigation required is commensurate with the assessed level of dust risk for each section.

5.10.1.2. The contractor must implement those measures which are 'highly recommended' by the IAQM guidelines at High and Medium Risk sites as outlined in Table 5.2. The requirement for those measures described as 'Desirable' by the IAQM guidelines at High and Medium Risk Sites, the contractor will agree the required implementation of these measures with the LPA as part of the approval of the detailed CEMP for those works as per Requirement 15 of the dDCO.

**Table 5.1– Summary Table of Dust risk Results per Onshore Cable Corridor Section**

Section	Overall Dust Risk
1 Lovedean (Converter Station Area)	High
2 Anmore	High
3 Denmead/Kings Pond Meadow	High
4 Hambledon Road to Farlington Avenue	High
5 Farlington	High
6 Zetland Field to Sainsbury's Car Park	High
7 Farlington Junction to Airport Service Road	High
8 Eastern Road (adjacent to Great Salterns Golf Course) to Moorings Way	High
9 Moorings Way to Bransbury Road	Medium
10 Eastney (Landfall)	Medium

**Table 5.2 – IAQM Mitigation Resulting from the Construction Dust Assessment**

Mitigation Measure	High Risk Site Sections 1 to 8	Medium Risk Site Sections 9 to 10
<b>Communications</b>		
1. Develop and implement an Air Quality Stakeholder Communication plan (including a specific plan for the emergency services) that includes community engagement before work commences on site.	Highly Recommended	Highly Recommended
2. Display the name and contact details of person(s) accountable for air quality and dust issues on the site boundary. This may be the environment manager/engineer or the site manager.	Highly Recommended	Highly Recommended
3. Display the head or regional office contact information.	Highly Recommended	Highly Recommended
4. Develop and implement a Dust Management Plan ('DMP'), which may include measures to control other emissions, approved by the Local Authority. The level of detail will depend on the risk and should include as a minimum the highly recommended measures in the IAQM Guidance. The desirable measures should be included as appropriate for the site. In London additional measures may be required to ensure compliance with the Mayor of London's guidance. The DMP may include monitoring of dust deposition, dust flux, real-time PM <sub>10</sub> continuous monitoring and/or visual inspections.	Highly Recommended	Highly Recommended
<b>Site Management</b>		
5. 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.	Highly Recommended	Highly Recommended
6. Make the complaints log available to the local authority when asked.	Highly Recommended	Highly Recommended
7. 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.	Highly Recommended	Highly Recommended
8. Hold regular liaison meetings with other high-risk construction sites within 500m of the site boundary, to ensure plans are co-ordinated and dust and particulate matter emissions are minimised. It is important to understand the interactions of the off-site transport/deliveries which might be using the same strategic road network routes.	Highly Recommended	Not required
<b>Monitoring</b>		
9. Undertake daily on-site and off-site inspection, where receptors (including roads) are nearby, to monitor dust, record inspection results, and make the log available to the local authority when asked. This should include regular dust soiling checks of surfaces such as street furniture, cars and window sills within 100m of site boundary, with cleaning to be provided if necessary.	Highly Recommended	Desirable

Mitigation Measure	High Risk Site Sections 1 to 8	Medium Risk Site Sections 9 to 10
10. Carry out regular site inspections to monitor compliance with the DMP, record inspection results, and make an inspection log available to the local authority when asked.	Highly Recommended	Highly Recommended
11. 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.	Highly Recommended	Highly Recommended
12. Agree dust deposition, dust flux, or real-time PM <sub>10</sub> continuous monitoring locations with the Local Authority. Where practicable, commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences. Further guidance is provided by IAQM on monitoring during demolition, earthworks and construction.	Highly Recommended	Highly Recommended
<b>Preparing and Maintaining the Site.</b>		
13. Plan site layout so that machinery and dust causing activities are located away from receptors, as far as is practicable.	Highly Recommended	Highly Recommended
14. Erect solid screens or barriers around dusty activities or the site boundary that are at least as high as any stockpiles on site.	Highly Recommended	Highly Recommended
15. Fully enclose site or specific operations where there is a high potential for dust production and the site is active for an extensive period.	Highly Recommended	Highly Recommended
16. Avoid site runoff of water or mud.	Highly Recommended	Highly Recommended
17. Keep site fencing, barriers and scaffolding clean using wet methods.	Highly Recommended	Highly Recommended
18. Remove materials that have a potential to produce dust from site as soon as possible, unless being re-used on site. If they are being re-used on-site cover as described below.	Highly Recommended	Highly Recommended
19. Cover, seed or fence stockpiles to prevent wind whipping.	Highly Recommended	Highly Recommended
<b>Operating vehicle/machinery and sustainable travel</b>		
20. Ensure all on-road vehicles comply with the requirements of the London Low Emission Zone and the London Non-Road Mobile Machinery ('NRMM') standards, where applicable.	Highly Recommended	Highly Recommended
21. Ensure all vehicles switch off engines when stationary – no idling vehicles.	Highly Recommended	Highly Recommended



Mitigation Measure	High Risk Site Sections 1 to 8	Medium Risk Site Sections 9 to 10
22. Avoid the use of diesel- or petrol-powered generators and use mains electricity or battery powered equipment where practicable.	Highly Recommended	Highly Recommended
23. Impose and signpost a maximum-speed-limit of 15 mph on surfaced and 10 mph on unsurfaced haul roads and work areas (if long haul routes are required these speeds may be increased with suitable additional control measures provided, subject to the approval of the nominated undertaker and with the agreement of the local authority, where appropriate).	Highly Recommended	Desirable
24. Produce a Construction Logistics Plan to manage the sustainable delivery of goods and materials.	Highly Recommended	Highly Recommended
25. Implement a Travel Plan that supports and encourages sustainable travel (public transport, cycling, walking, and car-sharing).	Highly Recommended	Desirable
<b>Operations</b>		
26. 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.	Highly Recommended	Highly Recommended
27. Ensure an adequate water supply on the site for effective dust/particulate matter suppression/mitigation, using non-potable water where practicable and appropriate.	Highly Recommended	Highly Recommended
28. Use enclosed chutes and conveyors and covered skips.	Highly Recommended	Highly Recommended
29. Minimise drop heights from conveyors, loading shovels, hoppers and other loading or handling equipment and use fine water sprays on such equipment wherever appropriate.	Highly Recommended	Highly Recommended
30. 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.	Highly Recommended	Highly Recommended
<b>Waste management</b>		
31. Avoid bonfires and burning of waste materials.	Highly Recommended	Highly Recommended
<b>Measures Specific to Hard Surface Removal (e.g. asphalt)</b>		
33. Ensure effective water suppression is used during Hard Surface Removal operations. Hand held sprays are more effective than hoses attached to equipment as the water can be directed to where it is needed. In addition, high volume water suppression systems, manually controlled, can produce fine water droplets that effectively bring the dust particles to the ground.	Highly Recommended	Highly Recommended
34. Avoid explosive blasting, using appropriate manual or mechanical alternatives.	Highly Recommended	Highly Recommended

Mitigation Measure	High Risk Site Sections 1 to 8	Medium Risk Site Sections 9 to 10
35. Bag and remove any biological debris or damp down such material before Hard Surface Removal.	Highly Recommended	Highly Recommended
<b>Measures Specific to Earthworks</b>		
36. Re-vegetate earthworks and exposed areas/soil stockpiles to stabilise surfaces as soon as practicable	Highly Recommended	Desirable
37. Use Hessian, mulches or trackifiers where it is not possible to re-vegetate or cover with topsoil, as soon as is practicable.	Highly Recommended	Desirable
38. Only remove the cover in small areas during work and not all at once.	Highly Recommended	Desirable
<b>Measures Specific to Construction</b>		
39. Avoid scabbling (roughening of concrete surfaces) if possible.	Highly Recommended	Desirable
40. Ensure sand and other aggregates are stored in bunded 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.	Highly Recommended	Highly Recommended
41. 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.	Highly Recommended	Desirable
42. For smaller supplies of fine powder materials, ensure bags are sealed after use and stored appropriately to prevent dust.	Desirable	Desirable
<b>Measures Specific to Trackout</b>		
43. Use water-assisted dust sweeper(s) on the access and local roads, to remove, as necessary, any material tracked out of the site. This may require the sweeper being continuously in use.	Highly Recommended	Highly Recommended
44. Avoid dry sweeping of large areas.	Highly Recommended	Highly Recommended
45. Ensure vehicles entering and leaving sites are covered to prevent escape of materials during transport.	Highly Recommended	Highly Recommended
46. Inspect on-site haul routes for integrity and instigate necessary repairs to the surface as soon as reasonably practicable.	Highly Recommended	Highly Recommended
47. Record all inspections of haul routes and any subsequent action in a site log book.	Highly Recommended	Highly Recommended
48. Install hard surfaced haul routes, which are regularly damped down with fixed or mobile sprinkler systems, or mobile water bowsers and regularly cleaned.	Highly Recommended	Highly Recommended

Mitigation Measure	High Risk Site Sections 1 to 8	Medium Risk Site Sections 9 to 10
49. Implement a wheel washing system (with rumble grids to dislodge accumulated dust and mud prior to leaving the site where reasonably practicable).	Highly Recommended	Highly Recommended
50. Ensure there is an adequate area of hard surfaced road between the wheel wash facility and the site exit, wherever site size and layout permits.	Highly Recommended	Highly Recommended
51. Access gates to be located at least 10 m from receptors where practicable.	Highly Recommended	Highly Recommended

## 5.11. NOISE AND VIBRATION

### 5.11.1. BEST PRACTICABLE MEANS

- 5.11.1.1. At all stages of the construction, Best Practicable Means ('BPM'), as defined in the Control of Pollution Act 1974 must be followed. This will comprise employing reasonably practicable noise and vibration mitigation measures, with simultaneous regard to local conditions and circumstances (e.g. proximity of sensitive receptors) and current technical knowledge (e.g. utilising quietest equipment available) and to financial implications. Details of specific BPM to be employed during the construction works are included below and in Appendix 24.2 of Chapter 24 (Noise and Vibration).
- 5.11.1.2. The BPM measures below may be reviewed and supplemented by location or activity specific mitigation measures following the appointment of a contractor and the production of detailed works plans.
- 5.11.1.3. The following mitigation measures should be adopted at all times during construction activities. These measures will be most important to observe at the following times:
1. Where works are being undertaken close to the extremities of the Order Limits and, therefore, closest to sensitive receptors; and
  2. When works are being undertaken during periods when surrounding sensitive receptors are highly sensitive to noise (e.g. at night-time for residential receptors).
- 5.11.1.4. Those responsible for the preparation of Construction Environmental Management Plans must refer to Other Consents and Licenses (REP6-024), and in particular row 8 of Table 2.1 of this document. Applications for consent pursuant to Section 61 of the Control of Pollution Act 1974 must be carefully considered, particularly for any works which may require night-time working as detailed in section 6.2.8.

### 5.11.2. BPM MEASURES TO BE EMPLOYED DURING ALL CONSTRUCTION ACTIVITIES

#### General

- 5.11.2.1. The contractor will comply with the requirements of the Control of Pollution Act 1974 (with particular reference to Part III), the Health and Safety at Work Act 1974, the Control of Noise at Work Regulations 2005 and the Control of Vibration at Work Regulations 2005.
- 5.11.2.2. The appointed contractor(s) for construction should consider registering their site(s) under the Considerate Constructors Scheme, which is recognised by industry and the Government for encouraging construction firms to be sensitive to the environment.
- 5.11.2.3. Site personnel should be instructed on Best Practice Mitigation Measures to reduce noise and vibration as part of their site induction training. See section 4.2 for further information.

5.11.2.4. Shouting and raised voices shall be kept to a minimum. Use of radios is to be limited to where two-way communication is required for safety reasons.

5.11.2.5. Deviation from approved method statements will only be permitted with prior approval from the appointed contractor and other relevant parties. This will be facilitated by formal review before any deviation is undertaken. See section 4.5 for further information

### **Community Liaison**

5.11.2.6. Correspondence (e.g. letter drop) should be sent to occupiers of all sensitive receptors likely to be affected by construction activities well in advance of construction activities taking place. The correspondence should contain the following information:

- A brief description of the proposed activities and reasons why the works are required.
- The dates and times of proposed construction activities, and in particular when the loudest activities will take place. This includes the specific timings of road cutting/breaking activities for out-of-hours works in the Onshore Cable Corridor (see Section 6.2.8).
- Contact details (phone number and emails address) for the Client and contractor undertaking the works, which can be used by the public to ask questions or raise complaints.

5.11.2.7. Should works be delayed or re-programmed, local residents should be informed of the revised programme of works as soon as possible.

5.11.2.8. Further information on public relations and the communications strategy is contained in section 4.4.3.

5.11.2.9. Any noise complaints received by the public relations officer, Environmental Health Officer or Environmental Manager will be reported to the appointed contractor and immediately investigated, including a review of mitigation measures for the activity that caused the complaint. Temporary noise monitoring could be employed as one of the means for investigating and resolving valid noise complaints. Where necessary, mitigation measures will be revised to ensure BPM is being followed. Further information on the complaint's procedure is contained in section 4.4.4.

### **Equipment**

5.11.2.10. Modern, silenced and well-maintained plant will be used at all times, conforming to standards set out in EU Directives.

5.11.2.11. Consideration will be given to avoiding the use of percussive plant where non-percussive methods are available for a given activity.

5.11.2.12. Pneumatic tools will be fitted with silencers or mufflers.

- 5.11.2.13. Equipment and vehicles should be shut down or turned off when not in use so that plant is not left running unnecessarily.
- 5.11.2.14. Engine covers will be kept closed when machines are in use.
- 5.11.2.15. Stationary plant and equipment will be positioned to minimise the noise/vibration impact at sensitive receptors.
- 5.11.2.16. Plant which is known to emit noise directionally will be orientated, where possible to direct noise away from the nearest sensitive areas.

### **Deliveries**

- 5.11.2.17. Where practicable, construction plant should access construction areas via arterial roads or main carriageways, in order to minimise noise and vibration at dwellings on the rural or local road network.
- 5.11.2.18. Unless agreed in advance, all deliveries will be during the agreed construction working hours for each activity and on a “just-in-time” basis to minimise idling vehicles.
- 5.11.2.19. Loading and unloading of vehicles, dismantling of equipment such as scaffolding or moving equipment or materials around the construction sites will be conducted in such a manner as to minimise noise.

### **Screening**

- 5.11.2.20. Where necessary, any noise screening around construction compounds would be constructed as early as possible in the construction programme.
- 5.11.2.21. Semi-static equipment is to be sited and oriented as far away as is reasonably practicable from noise sensitive receptors and will utilise localised screening if feasible and required.
- 5.11.2.22. Further information on location specific screening is contained in section 6.2.7.

## **5.12. SOCIO-ECONOMICS**

### **5.12.1. EMPLOYMENT GENERATION**

- 5.12.1.1. Measures should be put in place, where practicable, to maximise the potential for the workforce and Proposed Development’s supply chain to be sourced locally. These measures could include:
  - Working with local people and local business to ensure that, investment in the South East, stays in the South East.
  - Engaging with Jobcentre Plus to ensure local job opportunities are advertised to local unemployed people and identifying opportunities to help people get back into employment through work placements, education and skills training.
  - Upskill people working on the Proposed Development that, through experience, training and development programmes.

## **5.12.2. DISRUPTION TO BUSINESSES AND RESIDENCES**

- 5.12.2.1. Measures must be put in place to reduce disruption to businesses during the construction period. These include:
- Businesses, residents and community facilities who are likely to be impacted during construction will be consulted about access requirements. Local Ward Councillors will be notified in line with the Communications Strategy in Section 4.4. above.
  - Where construction activities impact on the ability for customers to determine whether or not a business is still open, signage will be erected such as 'Business as Usual signs' to publicise that the business is still open.
- 5.12.2.2. A Framework CTMP has been produced to reduce effects from construction traffic outlining:
- Construction traffic routing and embargoed routes;
  - Types of construction vehicles to be used for different purposes;
  - Avoidance of peak commuting hours;
  - Site access and designated parking; and
  - Management of loading, waste management and abnormal loads.
- 5.12.2.3. The appointed contractor must develop these measures so that communication methods are effective during construction.
- 5.12.2.4. There will be occasions where vehicular access to residential or commercial properties would be needed at different times and in this situation, road plates can be used to bridge the longitudinal excavations to open the carriageway to provide access with full vehicular access being reinstated overnight. This will be determined by the appointed contractor on a case-by-case basis.

## **5.12.3. DISRUPTION TO COMMUNITY FACILITIES**

- 5.12.3.1. Similar to the mitigation applied above, Community Facilities must be consulted prior to construction where access arrangements will be directly affected. Traffic management systems and diversion routes should be put in place to maintain accessed to identified community facilities.
- 5.12.3.2. Vehicular access will be maintained at all times to community facilities which perform emergency service activities. Specific measures are outlined in the Framework Traffic Management Strategy and include road plates.
- 5.12.3.3. Works adjacent to Solent Infant School on Eveleigh Road and Mooring Way Infant School, Moorings Way will be programmed within school holidays, in accordance with the Framework Traffic Management Strategy.

#### **5.12.4. EFFECTS ON USERS OF RECREATIONAL AND OPEN SPACE, LEISURE FACILITIES AND PEDESTRIAN ROUTES**

5.12.4.1. To ensure that negative effects on amenity value and disruption are reduced as far as practicable during the Construction Stage of the Proposed Development, the following mitigation measures can be implemented:

- The community groups who utilise the areas of recreational and open space which will be impacted by the construction of the Proposed Development will be informed of the nature, timing and duration of particular articular activities during the Construction Stage;
- If alternative routes or spaces are required to be utilised in and around areas of open and recreational space, directions will be clearly communicated at the appropriate place; and
- Joint Bays will not be located within sports pitches

5.12.4.2. The construction programme will be reviewed by the contractor(s) to see where there are opportunities to reduce effects on open space, for example by reducing construction programme though concurrent working on single or multiple spaces (including car parks) and avoiding key events. This would also apply to where there may be potential for cumulative effects with North Portsea Island Coastal Flood Defence Scheme at Kendall's Wharf if construction is concurrent. Site liaison is required to ensure construction site management minimises disturbance in this area.

5.12.4.3. The areas required for longer- term construction works, such as Trenchless methods, within the Order Limits will also be reviewed by the construction contractors to determine whether there are any opportunities to reduce areas of open space required for long-term works.

5.12.4.4. The Fort Cumberland Road Car Park is currently unsurfaced. As part of reinstatement works following construction, the car park will be required to be improved to a better condition in liaison with PCC. Areas of open space will be restored, as far as practicable, to the same condition as they were in prior to construction.

5.12.4.5. Where the Order Limits are crossed by off-road PRoW or cycle routes, there is the potential for the route to be closed temporarily during construction for safety purposes. To mitigate this disruption, an alternative route will be provided along with signage in advance of the temporary closure.

#### **5.12.5. DISRUPTION TO TOURISM**

5.12.5.1. Prior to construction, the Contractor will review the events programme to determine where it may be possible for construction on key transport routes and relevant areas of open space to avoid one-off events. Where this is not possible, the Contractor will liaise with event organisers to implement additional traffic management or other measures to minimise disruption and congestion, such as screening of compounds



and provision of security. The Framework Traffic Management Strategy and the timings for works included within it has taken into account known annual events in the locality of the works.

#### **5.12.6. EFFECTS ON NON-MOTORISED USERS, RECREATION AND OPEN SPACE**

5.12.6.1. The Fort Cumberland Road car park is currently unsurfaced. As part of reinstatement works following construction, the Applicant will resurface the car park. This can encourage better parking and greater capacity use of the remaining car park area.

### **5.13. WASTE AND MATERIAL RESOURCES**

5.13.1.1. All waste will be managed in accordance with the Waste Hierarchy (in order of preference):

- Prevention;
- Minimisation;
- Reuse;
- Recycle;
- Energy recovery; and
- Disposal.

5.13.1.2. The appointed contractor will be responsible for the correct storage and management of the earthwork's material excavated for the works. This material will be used where it meets re-use criteria within the Site (as part of the works) to mitigate the environmental effects of the works. The use of recycled materials will be maximised.

5.13.1.3. Monitoring measures to be adopted across the Proposed Development would include, as a minimum, the implementation of a CEMP, incorporating a Materials Management Plan ('MMP') and Site Waste Management Plan ('SWMP') by the contractor, once appointed. Associated data, information and reports will be used to evidence monitoring undertaken.

5.13.1.4. The SWMP will be prepared in accordance with best practice guidance (Waste and Resource Action Programme ('WRAP')) and will be kept up to date and will be delivered. Associated data, information and reports will be used to evidence monitoring undertaken. An Outline SWMP is provided in Appendix 3.

5.13.1.5. The key matters of the SWMP are to:

- Identify the volume of waste streams likely to be produced during the works to establish the potential for reuse and recycling;

- Identify possible options for waste to be ‘designed out’;
- Identify opportunities for waste minimisation and management;
- Identify the most significant opportunities to increase re-use and recycling rates;
- Identify suitable waste management contractors and record appropriate licences, permits, waste transfer notes and hazardous waste consignment notes;
- Consider appropriate site practices such as how materials will be segregated and the measures that will be used for raising awareness among site operative for waste reduction, reuse and recycling; and
- Set out the method for measuring and auditing Construction, Demolition and Excavation (‘CD&E’) waste to enable more effective waste management through the setting of performance targets for segregation, recycling and monitoring sub-contractors.

5.13.1.6. The following waste related documentation will be held on-site:

- SWMP;
- Relevant Duty of Care documentation, including waste transfer notes and exemptions;
- A Control of Substances Hazardous to Health (‘COSHH’) Register; and
- Site compound plan showing potentially contaminative and COSHH substances.

5.13.1.7. The following actions in relation to Material Resources are considered sufficient:

- Completion of ground and local environment inspections and surveys will be undertaken to determine the nature of the ground, to identify its potential to be diverted from landfill.
- Spoil and waste segregation and containment will be provided on temporary laydown areas within the Converter Station Area.
- Sufficient storage space will be allocated by the construction contractor to allow waste to be properly segregated.
- The detailed design and construction aspects will follow British Standard 8895 (Designing for material efficiency in building projects) and other published guidance such as BRE materials resource efficiency in construction.
- Off-site fabrication will be utilised, where practicable.
- The construction contractor will be encouraged, to order material with less or returnable packaging.

5.13.1.8. The following further actions are recommended to ensure good and best practice are achieved:

- Identification and specification of material resources that can be acquired responsibly, in accordance with BES 6001 Responsible Sourcing of Construction Products.
- Design for resource optimisation: simplifying layout and form, using standard sizes, balancing cut and fill, maximising the use of renewable materials, and materials with recycled or secondary content.
- Design for off-site construction: Maximising the use of pre-fabricated structures and components, encouraging a process of assembly rather than construction.
- Identify opportunities to minimise the export and import of material resources.
- Detailed design for recovery and reuse: identifying, securing and using material resources at their highest value, whether they already exist on site, or are sourced from other schemes.
- Ensure arisings are properly characterised before or during design, to maximise the potential for highest value reuse.
- Working to a proximity principle, ensuring arisings generated are handled, stored, managed and re-used or recycled as close as practicable to the point of origin.

## **5.14. CARBON AND CLIMATE CHANGE**

5.14.1.1. General mitigation measures for carbon and climate change to be adopted by the Contractor include:

### **5.14.2. GREENHOUSE GAS EMISSIONS**

#### **Construction Measures**

- Minimise energy consumption including fuel usage by, for example, reducing the requirement for earth movements to/from and within the construction site;
- Maximise the local sourcing of materials and local waste management facilities, where practicable;
- Use efficient construction processes, such as design for manufacture and assembly; and

### **5.14.3. CLIMATE RESILIENCE**

#### **Materials:**

- Ensuring site and compound temporary drainage infrastructure has sufficient capacity for extreme flood events and that silt traps are in use/regularly emptied and maintained.

- Ensure any materials on site are stored safely and covered with waterproof materials.
- Dust control measures would be in place, for example speed limits on site, water available for dampening down, excavated materials to be removed from site as soon as practicable, and backfilling materials installed immediately after delivery.
- Allowing extra time for materials to dry out in the programme of works.
- Using mould inhibiting paint.
- Safe storage of spoil heaps, storage of spoil is not permitted in the fluvial floodplain.

#### **Plant and Equipment and Working Method:**

- Using rainwater recycling to support other facilities (e.g. washing of machinery etc.).
- Reviewing wind speed before commencing work at height.
- Ceasing work at height during storms.
- Switching machinery off when not in use.
- Use of machinery which is likely to get hot during cooler periods.
- Completed sections of the cable ducts are to be sealed at each end against water ingress. Joint bay chambers are only to be excavated immediately before cable pulling and jointing, where practicable. It may be necessary, for programming reasons, to excavate a cable and pull one section of cable, then temporarily backfill. In this case, temporary water seals would be fitted around the pulled cables.

#### **Workforce:**

- PPE to be suitable for hot weather conditions, lightweight vests/jackets, two piece rather than coveralls.
- Regular breaks to be taken, additional supply of drinking water and sun cream to be made available.
- Areas of shade to be made available for workforce, where practicable.
- Ensuring welfare facilities are available and sufficiently cool. Ensure rest breaks are taken, particularly during the hottest part of the day (generally, 11am – 3pm) or when temperatures rise above 24oC (TUC, 2019).

- An appropriate level of training to staff should be in place to ensure workforce are aware to stay away from flood water and working near watercourses. Workforce should be signed up to flood warnings (rainfall, tidal, fluvial, reservoir) and check the weather forecast to be able to plan ahead and avoid attending site if there is a risk of flooding.

#### **Site Compound:**

- Storing chemicals, hazardous materials and plant on high ground above predicted flood water levels or protecting with appropriate bunds/flood barriers above the predicted flood water level
- Where appropriate, site compound, and any storage of soil stockpiling or plant must be in accordance with measures outlined in Section 5.7 above.
- Using pumps to ensure water levels in excavations do not exceed critical levels, in accordance with an exemption or subject to agreement and approval of a de-watering environmental permit.
- Reducing the area of impermeable surface, where practicable e.g. permeable paving.
- Using vegetation to slow down the movement of surface water e.g. vegetating compound, where practicable, with grass and minimising impermeable area.
- Dust control measures e.g. water spraying, covering spoil heaps.
- Installing lightening protection for site buildings.

#### **Traffic:**

- Ensure the access road and roads used during construction are monitored during periods of heavy rainfall and appropriate traffic management put in place to avoid areas of potential flooding.

# 6. LOCATION SPECIFIC CONSTRUCTION ENVIRONMENTAL CONTROL MEASURES

6.1.1.1. This section of the Onshore Outline CEMP outlines specific environmental management in relation to the construction of the Proposed Development. The structure of this section is broken down into individual route sections.

## 6.2. GENERAL

### 6.2.1. ONSHORE ECOLOGY

#### Winter Restriction of Works Adjacent to Chichester and Langstone Harbour SPA

6.2.1.1. A winter working restriction applies to the following elements where appropriate:

- Chichester and Langstone Harbour SPA; and
- Solent Waders and Brent Goose Strategy (SWBGS) Sites.

6.2.1.2. Effects of the Construction Stage on Chichester and Langstone Harbour SPA and SWBGS sites with their associated wintering intertidal bird community will be avoided by restricting works within the winter season, defined as October to March (the period when SPA birds such as brent goose arrive from their breeding grounds; Snow and Perrins, 1998). Details of the working restriction are provided in the ES Addendum (REP1-139) and ES Addendum Appendix 18 Construction Noise Impacts on SWBGS Sites (REP1-149). The restrictions are informed by six principles (that updated those previously provided in Appendix 16.14 (APP-422)) that will be incorporated into working methods:

- **Principle 1:** Construction works cannot take place in SWBGS (those categorised as either core, primary support, secondary support, low use or candidate) sites that overlap with the Proposed Developments Order Limits during October – March. An exception is the gravel car park within site P11 that is already disturbed by movements of cars, lorries and plant, and offers no functional habitat for brent geese or other waterbirds associated with Chichester and Langstone Harbour SPA.
- **Principle 2:** Where HDD works are to take place underneath the SWBGS site (e.g. at Eastney Landfall) no direct impacts are considered to occur and the restriction does not apply.

- **Principle 3:** Elements of the Onshore Cable Route that are over 400 m from the SPA are not subject to any restriction.
- **Principle 4:** Construction noise events of <55 dB can occur unrestricted.
- **Principle 5:** Construction works of 55 – 72 dB LAFmax immediately adjacent to a major road and/or adjacent to industrial sites with notable levels (>60 dB) of existing noise can be undertaken unrestricted. It is considered that noise levels from the Proposed Development would be masked (i.e. indistinguishable from the baseline) in these instances.
- **Principle 6:** Percussive piling or works with heavy machinery (i.e. plant resulting in a noise level in excess of 69 dB LAFmax – measured at the sensitive receptor) should be avoided during the bird overwintering period (i.e. October to March inclusive). The sensitive receptor is the nearest point of the SPA or any SPA supporting habitat (e.g. high tide roosting site). P54 and P29 are excluded from this principle. Buildings that are situated between them and the construction works will buffer noise such that it will not be in excess of 69 dB LAFmax within either site.

6.2.1.3. Adoption of these principles will offset direct effects on SWBGS sites (as these sites will not be subject to works in the winter period when they are used by SPA birds), and effects of noise on birds within the SPA itself.

#### Restoration of SWBGS Sites

6.2.1.4. SWBGS sites affected by the Proposed Development will be restored to their original condition. The restoration of SWBGS sites is needed to be complete and grass established to provide a suitable food resource by October when birds such as dark-bellied brent Geese, which feed on the grasses, return to the Solent to winter.

6.2.1.5. The following two approaches are considered for restoration of SWBGS sites:

- **Re-seeding.** Reinstatement areas within SWBGS with grass seed before the end of May where practicable. This is the easiest and most cost-effective option;
- **Re-turfing.** Where not practicable to re-seed, turf will be laid and established. This is a more costly option but allows re-establishment and good sward growth in a shorter timescale.

6.2.1.6. The choice of restoration approach is primarily dependent on the time available within the summer growing season for implementation. Re-seeding is not likely to be the optimal technique after May so that for any restoration works after this month, re-turfing would be implemented.

- 6.2.1.7. The restoration measures proposed will comprise the following:
- **Site preparation** - the seedbed will be prepared in accordance with best practice guidance and the detailed landscaping scheme. Depending on site conditions this may include ripping, rotovating, weed control and rolling.
  - **Establishment** - Sowing; spread seed on a properly prepared seedbed at suppliers suggested rate. In the first year of establishment sown grassland areas will be cut repeatedly up until October to maintain at 35mm to promote vigorous sward development and reduce weed germination. Irrigation will be used as required to aid establishment.
  - **Establishment** – Turfing; turves to be laid on a properly prepared seedbed to suppliers’ specification. Top dressing with washed sand or other appropriate material will be considered. In the first year of establishment sown grassland areas will be cut repeatedly up until October to maintain at 35mm to maintain sward development and reduce weed germination. Irrigation will be used as required to aid establishment.
  - **Aftercare** - The desired sward condition in October is that these areas have a close cropped 30-60mm tight sward of green grass, so the last cut of the season should be timed to ensure enough time to green up before the arrival of brent geese. Irrigation will be used as required to aid establishment and particularly in dry periods. The grassland is to be inspected every three months during the first two years. Where grass areas have become worn areas should be re-seeded with the prescribed seed mix or turf.

6.2.1.8. SWBGS sites P11, P23A, P23B and P23R will be restored before October applying the above measures.

6.2.1.9. In SWBGS P08A, Farlington Playing Fields, it is unlikely that the CCT1 & CCT2 HVDC trench route and cabling works (See Appendix 1) would be fully reinstated for the commencement of the non-breeding season on 1<sup>st</sup> October. It is anticipated that the remainder of the works will allow appropriate time for restoration of habitat. re-turfing will likely only be possible at the start of October and is estimated that a minimum of 2-3 weeks would be required for re-establishment of the grass sward required for geese grazing.

**Avoidance and Mitigation for Habitats**

6.2.1.10. To avoid loss of important habitats within the Order Limits, HDD is proposed to avoid the need for open trenching and to preserve habitats. Key locations where HDD will be used are at Denmead Meadows (Soake Farm Meadows SINC and lowland meadow habitat within Field 3) (HDD-5), between Farlington and Kendall’s Wharf (Langstone Harbour) (HDD-3) and at Milton Common (HDD-6). HDD requires



entrance and exit sites and associated construction compounds but for the duration of the drill has no impact on habitats or species above ground.

- 6.2.1.11. Following construction, hedgerow planting will be undertaken to repair gaps where the corridor required their removal. Replanting will use native plant species of local provenance and will provide a diverse range of woody species to maintain the species-rich nature of hedgerows.

### **Bats and Lighting**

#### **Lighting Design for Works at Farlington Playing Fields:**

- 6.2.1.12. Lighting of construction work will be designed with reference to recommendations issued by The Bat Conservation Trust (2014) and Institute of Lighting Engineers (2009) and be cowled/hooded to avoid extraneous light spill and focussed onto works areas only to maintain dark corridors on the edge of the playing fields and avoid disturbance of commuting and foraging bats. Farlington Playing Fields is unlit and construction lighting could result in disturbance of bat commuting routes and foraging areas located around the site's edge where scrub and woodland are located. These habitats are used by bats to navigate and find food; open areas are avoided as no physical features are present to reflect echolocation calls. Thus, to avoid effects on bats trenching areas and compounds for HDD work will be set back from the edge of the playing field by at least 10 m to maintain habitats there and preserve bat flight lines

### **Soil Horizon Preservation**

- 6.2.1.13. Mitigation for temporary loss of grassland will be to maintain soil horizons and preserve grassland turf. Mitigation will be put in place at Kings Pond Meadow SINC, Milton Common SINC and unimproved and semi-improved grasslands along the Onshore Cable Corridor.
- 6.2.1.14. Although growing vegetation would be lost to trenching work and the installation of construction compounds/access points, removal and preservation of turves so that they can be replaced when work is finished will retain the seed bank within them allowing regrowth. Maintaining soil conditions by maintaining soils structure (turf, top soil, subsoil) will maintain soil conditions for re-growth of meadow vegetation.
- 6.2.1.15. The following measures will be put in place:
- Separate turves, top soil and sub soil. Each will be stored separately with no mixing during works;
  - Replace soil structure following completion of work with turves on top;
  - Use low ground pressure machinery also to avoid compaction;

- Works areas will be securely fenced and procedures put in place to prevent damage to grassland habitats adjacent to them (e.g. by the use of herras fencing); and
- Works to be monitored by an Ecological Clerk of Works who will provide toolbox talks to contractors and staff working at the site.

6.2.1.16. At Kings Pond Meadow SINC where vegetation has a wet meadow character, work will avoid the plant growing season and winter wet season as both these are important for maintaining the conditions within the habitat. Work in this area will be undertaken in late summer/autumn to facilitate this.

### **Ground Protection**

6.2.1.17. Use of bog matting, temporary membranes with Type 1 aggregate or similar ground protection solutions will be used to prevent compaction of grassland soils at:

- Kings Pond Meadow SINC;
- Milton Common SINC;
- Unimproved neutral grassland; and
- Semi-improved neutral and calcareous grassland.

6.2.1.18. This mitigation measure will promote regrowth of vegetation to its original state.

6.2.1.19. Ground protection measures apply to the Construction Stage of the Proposed Development. Maintenance will be infrequent and use light vehicles that would not lead to effects above those of regular use and management of the land as farmland.

### **Day Lane Passing Bays**

6.2.1.20. Passing bays will be required on Day Lane as detailed in the Revised Construction Management Strategy for Day Lane. Opportunities for micro-siting will assist in the avoidance of RPAs whilst the ability to widen the carriageway on both sides will enable root disturbance to be minimised in instances where avoidance cannot be achieved. Where work within an RPA cannot be avoided then a task specific AMS will be produced. This document will identify the working practices and tree protection measures necessary to minimise the likelihood of damage to acceptable levels and will accord with best practice guidance as identified in British Standard BS 5837:2012. As with all works with the potential to impact trees and hedgerows, the AMS will be produced by a competent arboriculturist and further subject to approval by HCC Highways Arboriculture prior to commencement of any construction work.

6.2.1.21. No trees or hedgerows are to be felled to create the passing bays.

6.2.1.22. Work must comply with the onshore ecology measures outlined in Section 5.3 above.

6.2.1.23. Works must comply with the onshore surface water and flood risk measures outlined within Section 5.7 above and where appropriate obtain relevant Ordinary

Watercourse Consent or exemption based on these measures in consultation with HCC LLFA.

## 6.2.2. ARBORICULTURE

6.2.2.1. The general design principles for working around trees are as follows:

- The constraints associated with trees and hedges shall be considered during all stages of design and construction. Design and construction work shall seek to avoid adverse arboricultural impacts.
- No tree or hedge on land owned by a Local Authority (HCC Highways, PCC Highways or the relevant PCC Department in respect of non-highway trees) shall be removed unless it can be clearly demonstrated that:
  - The application of protection measures described within British Standard BS 5837:2012 does not provide sufficient mitigation for sustainable retention; or,
  - The costs associated with sustainable retention exceed its agreed CAVAT value.
- Local Authority owned trees and hedges shall only be removed with prior written approval of the relevant Local Authority department.
- It is agreed in principle that CAVAT payments will be made to mitigate the impacts of the loss of trees in Local Authority ownership. In instances where hedgerows within Local Authority ownership are to be removed, in whole or in part, then financial compensation will be agreed on a case by case basis. Payment will be made in lieu of any obligation to replant or otherwise replace.
- The Local Authority will retain responsibility for any mitigatory planting deemed to be required. The Local Authority will undertake mitigatory planting using the compensatory monies provided through CAVAT or, in the case of hedgerows, as otherwise agreed.
- Third-party mitigation planting will not be undertaken within the boundary of any highway owned by HCC or PCC nor will it take place on any other land owned by the Local Authority. In instances where third-party trees are to be removed then suitable opportunities for mitigatory planting will be agreed as necessary with landowners. Planting sites will be determined once the scope of third-party tree removal has been confirmed.
- In instances where trees or hedges may be at risk during construction then the following mitigation hierarchy will be applied:
  - Unless a tree is dead or is so structurally impaired or diseased that it would need to be removed for sound arboricultural management within the next ten years. Then cable trenching and any associated construction work, storage

and traffic will be excluded from the Root Protection Area (RPA) or canopy spread, whichever is largest. In instances where this cannot be achieved then,

- A precautionary approach to tree protection will be adopted and an Arboricultural Method Statement (AMS) provided which clearly demonstrates that construction activities can be undertaken with minimal risk of adverse impact to trees which are to be retained. The AMS shall adhere to the principles described within BS 5837:2012, shall be produced by a suitably qualified and experienced arboriculturist and shall be approved by the Local Authority prior to commencement of work. The AMS shall be implemented in full and shall only be varied following technical review by an arboriculturist and approval by the Local Authority. The AMS shall be supported by a Tree Protection Plan where required. In instances where an AMS does not provide sufficient certainty over sustainable retention then:
  - Permission will be sought from the Local Authority to remove tree or hedge and an agreement for compensation will be reached at the appropriate CAVAT value. The CAVAT value must be agreed with the Local Authority prior to tree removal or the commencement of any construction work within the RPA (or crown spread where this is greater). Construction work includes enabling activities, site clearance and storage of materials or machinery.
- Pruning outside of the Order Limits to allow abnormal loads shall be limited to that necessary to permit passage along the highway The Highways Act 1980 section 154 requirements. Where the abnormal load requires additional clearance, this shall be targeted pruning at specific points. All specifications are to be agreed with the haulier, landowner, project team and, where appropriate, the Local Authority prior to the works being carried out. All tree works are to be carried out in accordance with British Standard 3998:2010 “Tree Work - Recommendations”.
- Within the Order limits the lopping of trees will only be carried out where absolutely necessary and will be prescribed in accordance with British Standard 3998: 2010 “Tree Works – Recommendations”. All pruning and felling works shall be specified by a suitably trained and experienced arboriculture consultant and shall be carried out by a suitably trained and experienced arboriculture contractor

### 6.2.3. LANDSCAPE AND VISUAL AMENITY

- 6.2.3.1. Measures which form an important part of efforts to control Construction Stage impacts on landscape character and visual amenity (Section 1 to 10) are outlined below. These include general mitigation measures for all of the Proposed Development and more specific measures which apply to the Onshore Cable Corridor including those sections of the Onshore Cable Route that lie within Sections 1 and 10.

- Appropriate location, organisation and phasing of construction activities.
- Maintenance of a tidy and contained site compound to reduce visual clutter.
- Design and layout of site construction areas to reduce adverse impacts arising from temporary security fencing and lighting.
- Measures to control working hours in specific locations to avoid disturbance to residential receptors both in terms of light and noise.
- Agreed site access points to limit impacts on existing vegetation both above and below ground.
- Retention and protection of existing vegetation considering temporary fencing to demarcate the construction footprint in accordance with Section 6.2 of BS 5837:2012 Trees in relation to design, demolition and construction – Recommendations, (BSI Standards Publication, 2012 British Standards Limited).
- Careful siting of temporary topsoil storage areas considering use as a physical buffer between the construction works and more sensitive receptors, where practicable.
- Careful management and storage of topsoil and subsoil in accordance with Construction Code of Practice for the Sustainable Use of Soil on Construction Sites (Department for Environment, Food and Rural Affairs, 2009).
- Where construction works obstruct a footway an absolute minimum unobstructed width of 1 m shall be provided alongside the construction corridor and where this is not possible a safe alternative route shall be provided. This shall include provision of suitable crossing facilities where required, including the temporary replacement of existing pedestrian crossings that may need to be closed to facilitate construction see the Transport Assessment.
- During construction of the Onshore Cable Route reasonable access shall be made for pedestrians going to or from premises abutting a street
- In some locations, a footway closure may be required without a suitable alternative route being available nearby or on the opposite side of the carriageway. In these instances, a pedestrian route shall be provided within the carriageway.
- Some temporary footway closures may be required to facilitate delivery and collection of materials. Where necessary this shall be mitigated through alternative footway links being available or other measures stipulated in the Traffic Management Strategy
- Temporary screening for sensitive visual receptors shall be provided through implementation of solid construction hoardings whilst using natural existing

screens (topsoil and existing vegetation) where practicable. Hoardings shall be attractive, used to screen low level “clutter” and reduce noise.

- Hoardings shall be well lit in poorly lit walkways and any gates should be positioned to minimise noise transmitted to nearby sensitive receptors.
- Large plant /equipment shall be located away from most sensitive receptors where there are viable alternatives. Temporary structures and stockpiles shall be removed when no longer required.
- Prompt reinstatement of temporary construction areas (including trenches, laydown and construction (including haul road) corridor and all other land impacted through the installation of the Onshore Cable Route as soon as practicable after sections of work are complete. Reinstatement shall involve the careful handling of soils and a return to the existing habitat type.
- Implementation of mitigation planting alongside the construction programme where works would not affect planting and during winter (November – February) as per Appendix 15.7 (Landscape Schedules, Planting Heights and Image Board) of the ES Volume 3 (REP6-029).
- Mitigation planting to replace hedgerows and trees lost following completion of the construction works and as a consequence of actions taken to address ash dieback during the construction period and informed by a woodland management plan. All planting lost shall be replaced with like for like species of a similar size and in agreement with the relevant discharging authority.
- New tree planting shall be offset at least 5 m away from the Onshore Cable Route, and more specifically the cable trench, within the Order Limits.
- It is agreed in principle that CAVAT payments will be made to mitigate the impacts of the loss of trees in Local Authority ownership. In instances where hedgerows within Local Authority ownership are to be removed, in whole or in part, then financial compensation will be agreed on a case by case basis. Payment will be made in lieu of any obligation to replant or otherwise replace.
- The Local Authority will retain responsibility for any mitigatory planting deemed to be required. The Local Authority will undertake mitigatory planting using the compensatory monies provided through CAVAT or, in the case of hedgerows, as otherwise agreed.
- Where hedgerows are lost these shall be replanted with like for like species; on the basis that a concrete duct block will be provided underground to protect the cables from roots and the drying out of the duct surround.
- The micrositing of embedded landscape mitigation measures will be subject to the results of archaeological trial trenching.

- All PRoW / footpaths / car parks affected by the Proposed Development shall be reinstated to at least the condition and quality prior to works being carried out.
- Any street furniture removed or damaged during the installation of the Onshore Cable Route shall be replaced with street furniture of the same quality.
- Any landscaping associated with Portsmouth City Council's Coastal Defence Scheme (considered in cumulative effects) and referred to in paragraph 15.5.4.8 of Chapter 15 of the ES (APP-130) which is impacted by the works shall be reinstated to the same quality and finish as the future baseline.

## 6.2.4. AGRICULTURAL SOILS AND LAND USE

6.2.4.1. Within the current design for the Onshore Cable Route, trenches within agricultural land will be excavated to a typical depth of 1300 mm (depth dependent on the existing utilities). The contractor will ensure that topsoil and subsoil resources are kept separate and placed either side of the exposed trenches. The cables ducts will be laid within approximately 400 mm of cement-bound sand and the remainder of the void is to be backfilled with the excavated soil. Priority should be given to full use of the topsoil resource in the reinstatement of soils above the cable: the surplus material should all be subsoil.

6.2.4.2. As stated in Waste and Material Resources above, the current design of the Converter Station seeks to balance cut and fill, and excess material (estimated at 45,325 tonnes) will be available for use in reprofiling the landform, pond fill and screening. Outstanding surplus will be suitable for off-site general or landscaping fill.

## 6.2.5. GROUNDWATER

6.2.5.1. Any groundwater or rainwater that collects in a trench will be pumped into locations agreed with the landowners, local authorities, EA or drain operators (Highways Authorities). The method of water discharge has yet to be determined.

6.2.5.2. The water management permitting, licenses and agreements will be completed by the appointed contractor, with the quantities of groundwater management determined at the detailed design stage. This applies to all sections. The groundwater collected will either be discharged to surface water, sewer, disposed of off-site or a combination of these three methods. This applies to all sections.

6.2.5.3. If the water is to be discharged to sewer or a surface waterbody then a discharge consent(s) may be required. The permitting process will be completed by the contractor, after detailed design, once a dewatering and discharge management methodology has been agreed upon. This applies to all sections.

6.2.5.4. Should groundwater dewatering be substantial (greater than or equal to 20m<sup>3</sup>/day) an abstraction licence and discharge consent will be required from the EA. At present the requirement for a groundwater abstraction for trench installation is not confirmed, the quantities of groundwater removal will be determined at detailed design stage.

The appointed contractor will be responsible for acquiring the relevant consents and adhering to the conditions of said consents. All groundwater abstraction licensing and discharge permits will not be disapplied but obtained during the detailed design Stage, as agreed upon with the EA.

### **HDD Groundwater Level and Flow**

- 6.2.5.5. To ensure drilling fluids do not break out into the groundwater environment nor groundwater seeps into the bore, a mud engineer will be present at all times during the HDD drilling process to monitor drilling fluid viscosity, density, annual pressure, solids contents, filter cake quality and total mud volume and thereby ensuring the filter cake remains intact and that drilling fluid is not lost to the ground and that groundwater does not seep into the bore annulus. In addition, a review of the proposed drilling fluid and inert polymers will also be completed before ground is broken. All drilling fluids, including polymers, will be CEFAS rated products.
- 6.2.5.6. Drilling fluid losses to groundwater can occur in high permeability ground materials, which are areas with intense fracturing/dissolution features. This is a particular concern in areas which are designated as groundwater Source Protection Zone 1 (SPZ1). These are assigned to the Portsmouth Water public water supply abstractions, the protection of which is of the utmost importance.
- 6.2.5.7. The scheme design in the first instance ensures that the trenchless construction avoids karst dissolution features (in the Chalk) as much as possible. At HDD-5 (Kings Pond), the drilling will be kept in the overlying Lambeth Group only. The contractor will ensure that when drilling HDD-5 there will be at least a 5m standoff between the proposed HDD alignment and the Chalk at all times. Karst dissolution features can also be present in ground materials overlying the Chalk, in the form of voided overburden.
- 6.2.5.8. The drilling team will also need to be briefed on the environmental sensitivity of the SPZ1 and the importance of identifying karst dissolution features prior to work commencing and during the works. They will need to monitor the fluid pressures and observe for significant pressure drops throughout the works. A significant pressure drop would indicate that loss of fluid, potentially to fractures/dissolution features, may be occurring. The Karstic Dissolutions Feature Watching Brief will be implemented in accordance with the Earthworks Management Plan to identify any elements of karst dissolution features at any time during the works.
- 6.2.5.9. Should such features be detected, drilling should be paused temporarily, until the Engineer on site can determine the most suitable course of action for mitigation, from a catalogue of actions already agreed with Portsmouth Water and the EA. A number of actions can be taken to seal the area of loss, for example increasing the drilling fluid viscosity or introducing a cement grout. Real time downhole annular pressure monitoring should be completed to allow for these observations. The exact pressure changes parameters and procedures to evaluate mitigation would need to be agreed



with Portsmouth Water and the EA at detailed Design Stage. Portsmouth Water and the EA will also be notified immediately of any loss of drilling fluid. Once the risk from the dissolution feature has been satisfactorily mitigated (i.e. to no risk of contamination), works will then resume. The complete methodology which should be adhered to for these works, detailing the mitigations described and sequence of actions, is presented in the UK Source Protection Zone 1 Generic Method Statement (Appendix 7 of this Onshore Outline CEMP).

- 6.2.5.10. The launch and receptor pits for the HDD-4 (Farlington Railway Crossing (Trenchless)) will include perimeter sheet piled walls toed into the Chalk to reduce groundwater ingress from the superficial River Terrace Deposits. Groundwater seepage at the base of the pits could occur and this will be sump pumped during operation. The potential consents and permits required to manage this water will be completed by the appointed contractor. The method of discharge has yet to be determined. The groundwater collected will either be discharged to surface water, sewer, disposed of off-site or a combination of these three methods. If the water is to be discharged to sewer or a surface waterbody then a discharge consent(s) may be required. The permitting process will be completed by the contractor, after detailed design, once a dewatering and discharge management methodology has been agreed upon. The appointed contractor will be responsible for acquiring the relevant consents and adhering to the conditions of said consents. Any contaminated water would require off-site disposal. The tunnel will have a lower permeability drilling material when drilled to ensure water does not ingress, then the tunnel will have an impermeable ducting to ensure no ingress into the tunnel itself. The ingress of groundwater at the entrance and exit pit will be managed.
- 6.2.5.11. The required groundwater dewatering quantities for HDD-4 pits will be determined at detailed design. The designer must ensure the discharge quantities are accurate or conservative to ensure no flood risk should be increased due to surplus groundwater encountered during construction.

#### **HDD Groundwater Quality**

- 6.2.5.12. All drilling equipment will be checked and cleaned before use. This will prevent cross contamination. A review of the drilling fluid and inert polymers will also be completed before ground is broken. All drilling fluids, including polymers, will be Cefas rated.
- 6.2.5.13. Drilling through alternative geologies can transfer existing contamination from one source to another. Drilling can also generate fines which can increase sediment in the water column, creating turbidity contamination. The Filter Cake will prevent the mobilisation of contaminants from one groundwater body to another, as the cake 'self-seals' as the drilling progresses. Therefore, no cross contamination is anticipated. Following the embedded mitigation measures the drilling fines and fluids will be contained in the drilling cake, preventing contamination from spreading between sources and drilling fines entering the local groundwater receptors.

- 6.2.5.14. To ensure surface breakout is not lost to the environment a flexible hose pump will be contained at the exit compound site so breakout fluid can be retained on site. A sufficiently sized Intermediate Bulk Container or similar will be stored on site to store such a breakout.

### **Onshore Cable Route Trench Excavation Works**

- 6.2.5.15. A catalogue of potential mitigation measures is to be developed for the Onshore Cable Route Trench Excavation Works, to deal with potential areas of insufficient Head deposits in Sections 1, 2 and 3 (designated as a Groundwater Source Protection Zone 1). This is driven by the possible presence of unidentified karst dissolution features in the areas outside of the Converter Station Area but within the Order Limits. These have been raised as a topic of a concern by Portsmouth Water and the EA, due to their potential ability to act as rapid contamination pathways directly to Portsmouth Water's public water supplies (at Lovedean and H&B Springs). Based on the available information, it is considered likely that sufficient Head deposit cover is present throughout the proposed route in these sections.
- 6.2.5.16. The types of proposed mitigation measures are discussed in Section 6.4.3 below.

## **6.2.6. SURFACE WATER RESOURCES AND FLOOD RISK**

### **Surface Water Drainage Patterns**

- 6.2.6.1. A number of Main River and Ordinary Watercourse crossings are located within the Order Limits, as detailed within Table 6.1. To limit the impact to the surface water environment alongside other environmental and design constraints the development will pass under a number of these open channel watercourses using HDD or Trenchless techniques to pass under the watercourses open channel. HDD / Trenchless techniques are proposed at:
- Kings Pond (HDD) (Soake Farm - Main River) – HDD-5;
  - Farlington Railway Crossing (Trenchless) (Farlington Marshes Gutter - Ordinary Watercourse) – HDD-4; and
  - Langstone Harbour (HDD) (Broom Channel - Transitional/ Tidal Watercourse) – HDD-3.
- 6.2.6.2. The other Main Rivers and Ordinary Watercourses identified, as detailed within Table 6.1, are proposed to be crossed within the public highway where the watercourses are confined to a culvert and works within the cable corridor will not impact on the watercourse's drainage patterns.

### **Water Supply and Surface Water Wastewater Infrastructure – Quantity**

- 6.2.6.3. During construction it is proposed that any temporary requirements for water supply and foul wastewater throughout the Order Limits are to be provided through

temporary site compounds and construction set up that would not utilise the existing local networks.

- 6.2.6.4. Notwithstanding the above, an in-principle connection agreement with Portsmouth Water has been obtained for the proposed permanent connection for the Converter Station Area with agreement for temporary use during construction, if required, subject to detailed design and to be determined by the appointed contractor. This in-principle agreement is for a connection point at Broadway Lane and has been obtained from Portsmouth Water for an assumed demand requirement of 105 'loading units' based on Portsmouth Waters application for water supply calculations.
- 6.2.6.5. Any changes to the assumed demand and construction demand shall be agreed with Portsmouth Water prior to connection, with the contractor responsible to account for any head loss when sizing the supply.
- 6.2.6.6. If the contractor determines, during detailed design, that it would be appropriate to utilise a local water infrastructure network throughout the Onshore Cable Corridor, the anticipated quantities are likely to be variable depending on its specific use. Furthermore, a proposed temporary connection for either clean water supply, surface water and foul water discharge would be subject to approval from Portsmouth Water (clean water supply) and Southern Water (wastewater).

#### **Surface Water Features Water Quality**

- 6.2.6.7. To avoid disruption to the Main Rivers and Ordinary Watercourses (Table 6.1) located within the Order Limits all installed ducts and trenching across watercourses should be undertaken within the highway carriageway. By remaining within the carriageway any existing watercourses are expected to pass under the carriageway within a watercourse structure (e.g. culvert or sewer).
- 6.2.6.8. Where open channel watercourses are present within the Order Limits, as listed within Table 6.1, HDD or Trenchless techniques are to be used to pass under the watercourses open channel, unless otherwise agreed with the relevant authority in agreement with proportionate mitigation measures (also see 6.2.7.10.).

#### **Human Receptors and Infrastructure as a Consequence of Flood Risk**

- 6.2.6.9. The Converter Station Area is located on high ground and away from any watercourse and is located within Flood Zone 1.
- 6.2.6.10. Proposed watercourse crossings detailed within Table 6.1 are to be via HDD/ Trenchless techniques or within the carriageway around a watercourse structure (culvert or sewer). Other minor ditches and dry watercourses, also defined as Ordinary Watercourses, have not been individually identified at this stage; however, it is anticipated that a number of additional Ordinary Watercourse crossings may be required within the Onshore Cable Corridor. Identification of any other Ordinary Watercourse crossings will be further investigated post-application as part of the detailed design undertaken by the appointed contractor once the specific Cable

Route is confirmed within the Onshore Cable Corridor. It is anticipated that this would include ditches to the side of roads and extreme weather overland flow routes that are typically dry known as 'winterbourne or dry watercourse'. The overall principles of crossing these open watercourses will be subject to an Ordinary Watercourse Consent and in principle, any works going through these features will need to ensure that: watercourse flow is maintained, there is no increase to the local flood risk, and appropriate pollution prevention measures are in place.

6.2.6.11. Works within the Onshore Cable Corridor adjacent to the coastal flood defences have been developed alongside consultation with CP (formally ESCP) and should avoid works to existing or proposed coastal flood defence and where appropriate HDD or Trenchless techniques are to be used to pass under the coastal flood defences.

6.2.6.12. It should be noted that the implementation of above principles will be the responsibility of the appointed contractor to develop during detailed design and be subject to relevant environmental consents prior to construction.

**Table 6.1 – Summary of Watercourses Within the Order Limits**

Code	Watercourse Name	Classification	Typical Form with Onshore Order Limit	Structures within Onshore Order Limit	Proposed Watercourse Crossing	Water Environment Consent Regulator	Overview
WC.01	Soake Farm North	Main River	Open channel*	None	No	EA	No proposed crossing
WC.02	Soake Farm South	Main River	Open channel	None	Yes	EA	Proposed horizontal directional drill under watercourse
WC.03	Unnamed	Ordinary Watercourse	Open channel/ culvert	Culvert	Yes	SW, LLFA	Proposed crossing culvert within carriageway build up
WC.04	Old Park Farm	Main River	Culvert	Twin culvert	Yes	SW, LLFA, EA	Proposed crossing culvert within carriageway build up
WC.05	Unnamed	Ordinary Watercourse	Culvert	Culvert	Yes	SW, LLFA	Proposed crossing culvert within carriageway build up
WC.06	Unnamed	Ordinary Watercourse	Culvert	Box Culvert	Yes	SW, LLFA	Proposed crossing culvert within carriageway build up
WC.07	Unnamed	Ordinary Watercourse	Swales*	None	No	LLFA	No proposed crossing
WC.08	Unnamed	Ordinary Watercourse	Culvert	Culvert	Yes	SW, LLFA	Proposed crossing culvert within carriageway build up
WC.09	North Purbrook Heath (North)	Main River	Culvert	Twin box culvert	Yes	EA	Proposed crossing culvert within carriageway build up
WC.10	North Purbrook Heath (South)	Main River	Open channel	None	No	EA	No proposed crossing
WC.11	Unnamed	Ordinary Watercourse	Open channel	None	Yes	LLFA	Proposed Trenchless techniques under watercourse
WC.12	Farlington Marshes Gutter	Main River	Open channel	None	No	EA	No proposed crossing
WC.13	Broom Channel	Main River	Channel	None	Yes	EA, LLFA or HA, CP	Proposed horizontal directional drill under watercourse and defences
WC.14 <sup>1</sup>	Great Salterns Drain	Main River	Culvert	Culvert	Yes	EA, LLFA or HA, CP	Proposed crossing culvert within carriageway build up

**Notes:**

Code	Watercourse Name	Classification	Typical Form with Onshore Order Limit	Structures within Onshore Order Limit	Proposed Watercourse Crossing	Water Environment Consent Regulator	Overview
<p>EA – Environment Agency, SW – Southern Water, LLFA – Lead Local Flood Authority (Hampshire County Council or Portsmouth City Council), HA – Highways Authority, CP – Coastal Partners</p> <p>Other minor Ordinary Watercourses not identified in the list above may also be crossed, any such crossing will also require an Ordinary Watercourse Consent or exemption and shall follow the principles set out in Section 5.7</p> <p><sup>1</sup> PCC advised a highways drainage box culvert is located immediately south of WC.14 which drains into the Great Salterns Lake from Eastern Road highway drainage and is understood to be at depth from carriageway surface</p>							

- 6.2.6.13. Land affected by open trenching will be reinstated with native soil and or surfacing, typically with no infrastructure left above ground.

## 6.2.7. NOISE AND VIBRATION

### Environmental Control Measures to be Employed for Specific Activities

#### Trenching

- 6.2.7.1. The majority of duct laying activities via trenching are will take place during weekdays between the hours of 07:00 and 17:00 and Saturdays from 08:00 to 13:00 hours. Due to the transient nature of the duct laying works, and the substantial space constraints anticipated, noise mitigation in the form of screening is unlikely to be feasible.
- 6.2.7.2. However, there are some locations where trenching may take place outside of core working hours (i.e. during evenings, weekends and at night-time) to mitigate negative traffic effects on the surrounding road network and minimise disruption to businesses (e.g. Sainsbury's supermarket). The potential works locations outside of core working hours are as follows:
1. Section 4 – a c.90m section of the A3 London Road in Purbrook near Stakes Road;
  2. Section 5 – Havant Road between Farlington Avenue and Eastern Road;
  3. Section 6 –Sainsbury's Car Park;
  4. Section 8 – Eastern Road between Airport Service Road and the north of Milton Common (c. 350m south of Tangier Road); and
  5. Section 8 – Eastern Road between HDD-6 and Eastern Avenue.
- 6.2.7.3. For further information, see section 2.3.1 and the Framework CTMP (AS-074).
- 6.2.7.4. The following mitigation measures will be employed during the trenching works outside of core working hours:
- All locations**
- 6.2.7.5. Mitigation for trenching works outside of core working hours will incorporate screening achieving at least 5 dB attenuation. The exact form that this screening would take is unknown at this stage and will be confirmed following the contractor appointment and the production of detailed works plans It could, for example, comprise solid (e.g. timber) 2 m high site hoarding around the construction works. All gaps (e.g. knot holes, cracks and other joints) will be sealed to minimise the escape of noise. Alternatively, if this is not possible due to time or space constraints, Heras fencing around the compounds will be fitted with acoustic quilts and combined with further localised screening of particularly noisy equipment items. Acoustic quilts must be fitted to fencing with no gaps underneath or between the panels. Screening is considered an important mitigation measure at these locations because of receptors

being more sensitive to noise during the night-time period when stricter criteria apply. Plate 6.1 provides some examples of potential screening solutions.

6.2.7.6. In addition to the community liaison measures outlined in sections 4.4.3 and 5.11.2, nearby residents will be informed of the specific timings during the daytime when road cutting/breaking and re-surfacing activities are expected to take place outside of their property so that they can make alternative arrangements, if they wish, whilst the noisiest works are taking place.

6.2.7.7. Road cutting/breaking and re-surfacing activities shall not be carried out at night (22:00-07:00) in the vicinity of sensitive receptors. The exact distance from sensitive residential receptors that this mitigation measure will be applied to must be confirmed in a CEMP submitted at the detailed design stage, when works plans and equipment specifications to be used on-site are confirmed. The distance from sensitive residential receptors that the road cutting/breaking and re-surfacing restriction will apply to must ensure that the noise level from works beyond this distance does not exceed 50dB  $L_{Aeq,9h}$  between 22:00 – 07:00 externally at the façade of any residential receptor. This will ensure that works not subject to the night-time cutting/breaking and resurfacing restriction will result in, at worst, a minor adverse effect (not significant).

6.2.7.8. Works in these areas should be completed as quickly as possible to minimise the duration of residents' exposure to high noise levels, whilst minimising the duration of works during the most sensitive periods (i.e. night-time).

#### Section 4 – a c.90m section of the A3 London Road in Purbrook near Stakes Road

6.2.7.9. Aim to complete duct laying for each circuit over eight weekends (four weekends per circuit). It is most likely that each circuit would be completed in four c.22-23m sections, one per weekend. At this stage, it has not been confirmed if these would be consecutive weekends. However, completing the works across non-consecutive weekends would reduce negative noise impacts through respite periods.

6.2.7.10. Work will be completed between 08:00 and 18:00 on Saturday and Sunday.

#### Section 5 - Havant Road between Farlington Avenue and Eastern Road

6.2.7.11. There are three potential options for the out-of-hours works in section 5:

- Option 1 – Works for each circuit could be completed in a single weekend per circuit (two weekends in total which could be consecutive or non-consecutive). Works would commence at sunrise on Saturday morning and continue until sunset on the Sunday evening. Whilst this would include night-time working on Saturday, to minimise sleep disturbance in the immediate area, the noisiest activities (road cutting/breaking and re-surfacing) shall not be carried out at night (22:00-07:00), and this restriction applies to the entire length of these works on Havant Road between Farlington Avenue and Eastern Road.



- Option 2 – Works for each circuit could be completed in two consecutive weekends per circuit (four weekends in total) during the daytime and evening (from 07:00 to 22:00).
- Option 3 – Works for each circuit could be completed in two non-consecutive weekends per circuit (four weekends in total) during the daytime and evening (from 07:00 to 22:00).

6.2.7.12. Whilst the option that will be chosen cannot be confirmed until a contractor is appointed, avoiding night-time working, and/or completing the works across non-consecutive weekends would reduce negative noise impacts by avoiding the most sensitive time periods and providing respite.

#### Section 6 - Sainsbury's Car Park

6.2.7.13. The installation of the cable ducts at Sainsbury's car park and associated access road may need to take place during the evening and at night to minimise disruption to the supermarket.

6.2.7.14. To minimise sleep disturbance in the immediate area, the noisiest activities (road cutting/breaking and re-surfacing) shall not be carried out at night (22.00 – 07.00). The distance from the sensitive receptors (Marshfield House and dwellings on Lealand Road) that this restriction applies must be determined at detailed design stage in accordance with the control described in Paragraph 6.2.8.7 above.

#### Section 8 - Eastern Road between Airport Service Road and the north of Milton Common (c. 350m south of Tangier Road)

6.2.7.15. In order to minimise traffic disruption, 24-hour working seven days per week may be undertaken.

6.2.7.16. To minimise sleep disturbance, the noisiest activities (road cutting/breaking and re-surfacing) shall not be carried out outside the Harbourside Caravan Park and the residential flat above the Great Salterns Mansion Harvester at night (22:00-07:00). The distance from Harbourside Caravan Park and the residential flat that this restriction applies must be determined at detailed design stage in accordance with the control described in Paragraph 6.2.8.7 above.

6.2.7.17. Until a contractor is appointed, and detailed work plans are produced, it is not feasible to identify further specific physical mitigation measures that could be employed. However, the contractor appointed will engage with local residents affected by the works and the environmental health department at the local planning authorities to agree additional mitigation to reduce the significant effects as far as reasonably practicable.

## Section 8 – Eastern Road between HDD-6 and Eastern Avenue

- 6.2.7.18. To minimise traffic disruption, there is a potential for seven day working between 07:00-17:00 if cable ducts are required to be installed within the Eastern Road between HDD-6 and Eastern Avenue.
- 6.2.7.19. There are other preferential options for the installation of the cable ducts in section 8 which would avoid the need for works outside of core working hours on Eastern Road between HDD-6 and Eastern Avenue. There are as follows:
- Installing the cable route along the other two options through Milton Common;
  - Installing the cable route within the open ground adjacent to the south of Eastern Road; or
  - Installing the cable route within Eastern Road during Core Working Hours only.

### Joint Bays

- 6.2.7.20. Mitigation for Joint Bays which are predicted to have any more than a negligible impact at surrounding receptors will be in the form of screening achieving at least 5 dB attenuation. Generally, Joint Bays located in rural areas distant from sensitive receptors would not require screening, whereas those in more urban areas in close proximity to sensitive receptors would require screening. Example noise screening solutions are illustrated in Plate 6.1.

### HDD sites

- 6.2.7.21. Screening achieving at least 5 dB attenuation will be required at all HDD compounds. As work associated with HDD compounds will be scheduled for longer relative to trenching and Joint Bay activities, this screening is likely to require solid (e.g. timber) hoarding around the HDD compounds. The screening must provide noise mitigation to surrounding residential receptors and/or Solent Wader Brent Goose Strategy (SWBGS) sites.-Example noise screening solutions are illustrated in Plate 6.1.
- 6.2.7.22. At HDD-1 (Landfall), HDD-3 (Portsea Island), HDD-4 (Railway), HDD-5 (Kings Pond) and HDD-6 (Milton Common), hoarding around the HDD compound should be at least 2m high. At HDD-2 (Eastney and Milton Allotments), hoarding around the compound should be at least 3m high, to provide sufficient mitigation to the Thatched House public house.



**Plate 6.1 – Example noise screening solutions**

## 6.2.8. SOCIO-ECONOMICS

- 6.2.8.1. HDD will be used at Landfall, Eastney and Milton Allotments/ Milton Locks Nature Reserve and Milton Common. This avoids direct impacts on Eastney Beach, the Allotments and Milton Locks Nature Reserve respectively.
- 6.2.8.2. Where the Onshore Cable Corridor crosses open space, the Onshore Cable Route would be designed to avoid key recreational facilities. This includes avoiding:
- Two cricket squares at Farlington Playing Fields and the cricket square at Langstone Harbour Sports Ground; and
  - A football pitch and, skate park at Bransbury Park.
- 6.2.8.3. The Framework Traffic Management Strategy (AS-072), including Appendix 1, Onshore Cable Route Construction Impacts on Access to Properties and Car Parking and Communication Strategy also sets out principles for mitigation, including:
- Traffic Management to keep one lane open including temporary traffic signals on single carriageways and lane closures on wider roads including dual carriageways;

- Access to residences, businesses and community facilities - including access to driveways outside working hours and three-way signals for business premises with their own access onto affected highways; and maintenance of side road access;
- A communication strategy to allow stakeholders such as residents, businesses and community facilities to keep up to date with construction works;
- Access principles for pedestrians and cyclists; public transport; school access; and emergency services; and
- Programme constraints, taking into consideration major events.

6.2.8.4. Prior to construction commencement on recreation facilities, temporary works will be implemented to protect existing drainage. Land drains will be protected from point loading pressure caused by plant and equipment with the use of track mats. For protection under stone haul roads a geogrid mesh material will be used to reinforce the underlying soil which in turn will mitigate damage caused by wheel loading pressures. Alternatively track matting may also be used as a suitable geogrid / stone haul road alternative. Any land drains damaged by trenching activities, during construction of HDD pits and joint bays must ensure flood risk is not increased during construction and will be repaired ahead of subsoil back filling in accordance with the reinstatement plan. Land drains damaged by trenching activities must be repaired in the same working day ahead of subsoil back filling where the situation is considered an emergency (i.e. if relevant action is not taken, there will be adverse health, safety, security or environmental consequences that in the reasonable opinion of the undertaker would outweigh the adverse effects to the public of taking that action). Land drains damaged during construction of HDD pits and joint bays must be repaired on completion of the works ahead of back filling. Temporary drainage will be provided during construction if pitches still in use are indirectly affected by interruption or damage to the drainage system

#### **Disruption to Residences and Local Businesses**

6.2.8.5. Overall, residential and business access will be maintained, wherever practicable, albeit with different traffic management approaches applied depending upon the circumstances as described in the Framework Traffic Management Strategy, Appendix 1, Onshore Cable Route Construction Impacts on Access to Properties and Car Parking and Communication Strategy.

6.2.8.6. Along the majority of the roads within the Order Limits, a single lane will remain open to traffic and access will be maintained for cyclists and pedestrians at all times. Pedestrian and cycle routes along the Onshore Cable Corridor will be maintained wherever practicable, with full closure considered as the last resort, such as where it would prevent full closure of a major road. In all cases the construction works will

ensure that pedestrians and cyclists can pass the corridor in a safe manner, with suitable barriers between the construction works.

- 6.2.8.7. Access to junctions with roads affected by the Order Limits, business premises and retail parks will be maintained using three-way traffic lights.

#### **Disruption to Community Facilities**

- 6.2.8.8. As set out in the Framework Traffic Management Strategy, to avoid disturbance to schools, construction of the Cable Corridor will not take place outside of the school holidays where they there are schools located directly adjacent to the Onshore Cable corridor. These include:

- Solent Junior School on Solent Road and Solent Infant School on Evelegh Road, adjacent to Farlington Avenue; and
- Mooring Way Infant School, Moorings Way.

- 6.2.8.9. The Framework Traffic Management Strategy Transport Strategy also includes measures to continue to provide access to emergency services adjacent to the Order Limits.

#### **Effects on Users of Recreation, Leisure Facilities and Open Space and Non-Motorised User Routes**

- 6.2.8.10. A Framework Management Plan for Recreational Impacts (AS-062) has been developed to demonstrate ways in which the general mitigation principles described in Section 5.12 above can be applied to construction to minimise effects with a particular focus on carefully timing the works and minimising the working areas in the open spaces affected. In addition, specific mitigation (for example relocation of pitches) has been explored and would be adopted where necessary and practicable.

- 6.2.8.11. Given the duration and complexity of works at Farlington Fields, an outline Method Statement for this site is set out in Appendix 8 to this Onshore Outline CEMP (also provided at Appendix D of the Framework Management Plan for Recreational Impacts). The Method Statement includes principles for protection of playing surfaces, drainage and reinstatement. The contractor will be required to comply with these principles in order to minimise damage to the playing fields or propose alternative measures which provide equal or better protection/ reinstatement in agreement with PCC. In addition, the Contractor will not undertake any excavations on cricket squares (the small square batting area in the centre of the pitch) due to the difficulty in reinstating them.

- 6.2.8.12. A Recreational Management Plan will need to be prepared for Farlington Fields, to include Phasing Plan, specification for excavating and filling (to manage resettlement), ground protection, realignment of any pitches within the Order Limits, reinstatement of turf and drainage system for submission and agreement with PCC prior to construction commencing.

- 6.2.8.13. A Recreational Management Plan will also need to be prepared for Bransbury Park, Langstone Harbour Sports Ground and Zetland Field to cover reinstatement and realignment of any pitches within the Order Limits. Reinstatement at these playing fields will be substantially in accordance with ‘Principles of Construction and Reinstatement Works’ of the Method Statement attached at Appendix 8 to this OOCEMP (excluding items relating to the drainage system as there is no drainage at these locations). Plans shall also include estimated programming for the works and details of any other technical specifications.
- 6.2.8.14. A Recreational Management Plan will also be prepared and agreed with the University of Portsmouth prior to works to the University Pitches within the redline boundary. The Plan will comprise arrangement of temporary works, programme and reinstatement.
- 6.2.8.15. For works through the University of Portsmouth land the contractor will keep the works as far to the eastern extent as practical to minimise impacts on sports facilities. This will take into account other environmental and engineering restrictions and considerations.
- 6.2.8.16. Seven PRoW are potentially affected by the Onshore Cable Corridor The PRoW are listed below:
- PRoW 4 (and PRoW 16) – Section 1, farm track between Broadway Farm and Little Denmead Farm a temporary diversion would be required;
  - PRoW 41 – Section 2, bridleway between Anmore Road and Edney Lane a temporary diversion would be required;
  - PRoW 11– Section 4, starting/ending at Maurepas Way, no diversion required as route terminates at the public highway;
  - PRoW 17 – Section 4, located along Milk Lane, no diversion required as route terminates at the public highway;
  - PRoW 24 – a short length of footpath connecting Drayton Lane and the B2177 to the south west of the Order Limits for the Proposed Development, temporary diversion required;
  - PRoW 31 – Section 5, a small section of footpath which provides a link between Eastern Road and Copsey Grove, no diversion required as route terminates at the public highway; and
  - PRoW 33 – Section 6, Zetland Fields, temporary diversion required.
- 6.2.8.17. Additionally, there are a number of permissive paths including four Long Distance Walking Routes (Monarchs Way in Section 1, Wayfarers Walk in Section 3- 4, The Solent Way in Sections 7-10, and Shipwrights Way in Section 10) within the Order Limits. Diversions will be provided at Milton Common and at Bransbury Park.

6.2.8.18. The Transport Assessment programmes work outside key periods, such as including December for Christmas Shopping and the Victorious Festival on Farlington Playing Fields.

### 6.2.9. HUMAN HEALTH

- To minimise disruption, a single lane closure would be used, where practicable, rather than a full road closure. Road closures (70 m distance in total) are anticipated at:
  - Broadway Lane (one days per circuit, two days total);
  - Anmore Road (one day to two weeks);
  - A3 London Road between Poppy Fields and Ladybridge Roundabout (one weekend for both circuits);
  - Farlington Avenue between Sea View Road and Solent Road (one - two weeks for both circuits);
  - Farlington Avenue between Solent Road and Havant Road (one - two weeks for one or both circuits, therefore up to two – four weeks for both circuits);
  - Eveleigh Road (one - two weeks for one circuit, therefore three - four weeks total);
  - The entirety of Yeo Court within Section 9;
  - Havant Road between Farlington Avenue and Waterworks Road (one - two days for one circuit, therefore up to four days total);
  - Eastern Avenue (two - three weeks per circuit, therefore four - six weeks for both circuits);
  - Furze Lane Bus Link (two weeks); and
  - Yeo Court (one week per circuit therefore up to two weeks).
- Where construction works do obstruct a footway an absolute minimum unobstructed width of 1.0 m will be provided alongside the construction corridor and where this is not possible a safe alternative route will be provided. This will include provision of suitable crossing facilities where required, including the temporary replacement of existing pedestrian crossings that may need to be closed to facilitate construction.
- During construction of the Onshore Cable Route, where existing bus stops need to be closed, a temporary bus stop will be provided as close as practicable to the original location, taking into account highway safety of all road users.
- While residents will be informed of construction works and encouraged to make alternative arrangements where practicable, such as parking on-street, steel

plating over the trench will be available during working hours in the case of emergencies. Outside of these times road plates will be installed and construction fences removed to allow access over the construction zone. Where the construction zone falls on the opposite side of the carriageway to driveways access will be maintained at all times, but drivers will be made aware of construction works/traffic signal control, as appropriate.

- Access to business premises will be maintained using either three-way traffic signals, with excavation of the trench taking place in two phases to allow a 3 m access to be maintained at all times, or through use of road plates.

6.2.9.1. It is expected that there will be a programme of community liaison to ensure that the potentially effected receptors are provided with early warning of construction activities (including targeted leafleting at affected properties and community facilities). Signage and advanced warning will be provided in advance of the temporary closure. Any diversions will be suitable to accommodate all users.

## **6.2.10. HORIZONTAL DIRECTIONAL DRILLING POSITION STATEMENT**

6.2.10.1. The HDD Position Statement (REP1-132) outlines the requirements on the contractor for the HDD locations, setting out the constraints and specific requirements for construction at each HDD location. HDD/Trenchless installation will be used in the locations identified in the Horizontal Directional Drilling Position Statement and provides indicative information outlining the requirements for the compounds and work methodology for the HDD works at these locations.

6.2.10.2. The mitigation measures that will be employed for HDD works involve:

- Monitoring of drilling fluid returns and volumes to warn of inadequate hole cleaning. If drilling fluids are returning to the injection point there will be an immediate warning that there is a breakout and drilling will cease to correct;
- Drilling fluid to be of sufficient viscosity and properties for the ground being drilled. It will be ensured that the cuttings are carried to surface to prevent blockages, Mud man to monitor rheology of muds;
- Real time downhole annular pressure monitoring to warn of over pressurising by drilling fluid. Pressures will be kept within hydro fracture calculations limits.
- A visual drilling fluid 'spotter' will be employed to undertake daily visual checks of the drilling route.

6.2.10.3. The drilling fluids which are to be used are constructed of naturally occurring bentonite. We can be sure of the products safety as the drilling products (Bentonite) are listed on the British Governments CEFAS (Centre for Environmental Fisheries and Aquatic Science) website and PLONOR (Pose Little Or No Risk) list



6.2.10.4. In the rare event of any break out of bentonite drilling fluid, any such break out of bentonite drilling fluid would be remediated.

6.2.10.5. Once the bentonite has been removed the area can be reinstated to original condition.

## **6.3. SECTION 1 – LOVEDEAN (CONVERTER STATION AREA)**

### **6.3.1. LANDSCAPE AND VISUAL**

6.3.1.1. Construction cranes will be retracted when not in use. The height of the cranes when not in use will be dependent on the crane manufacturer but is likely to be approximately 5m. Tower cranes will not be used on site.

### **6.3.2. ONSHORE ECOLOGY**

6.3.2.1. The 15m buffer between construction works and Stoneacre Copse, Crabden’s Copse and Crabden’s Row required to avoid direct effects on this feature must be protected from works at all times.

6.3.2.2. Re-surveys will be undertaken of surrounding habitats to confirm their bat roosting potential and the presence of any roosting bat species. Where any such species are identified this will be identified to the Ecological Clerk of Works and methods of working and any necessary additional mitigations required will be confirmed prior to works which affect the relevant habitat commencing.

#### **Closure of Badger Setts Under Licence**

6.3.2.3. The two badger setts to be lost to the converter station footprint (Option B(i)) will be closed using badger gates outside of the badger breeding season (June-November inclusive). A re-survey to confirm the location of the badger setts will be undertaken prior to commencement of works.

6.3.2.4. Setts will be closed using one-way gates so badgers can leave but cannot return to the sett. Following a period of monitoring to ensure badgers are not within them, the setts will be dug out.

6.3.2.5. This process will avoid potential death or injury to badgers as a result of development, and work must be undertaken under a Natural England licence to allow legal sett closure.

6.3.2.6. In addition, open excavations will be fitted with mammal ladders (planks of wood at either end) to allow animals to climb out if they fall in and prevent the trapping of animals including badgers.

### **6.3.3. ARBORICULTURE**

6.3.3.1. The following measures are required:

- Works Compound and Laydown Area shall be prohibited within the RPA of woodland retained trees and hedgerows. When storing materials, particularly

liquids, slopes and drainage channels shall be used to prevent spillages and flow into the RPA of woodland retained trees and hedgerows. Temporary fencing in accordance with British Standard 5837:2012 “Trees in relation to design demolition and construction recommendations” shall be erected at the periphery of the RPA allocated to woodland retained trees and hedges to exclude construction workers other than workers delivering the site specific management activities associated with those features.

- Works shall be prohibited within 15m of the ancient woodland and follow the same measures as identified above.
- Design shall avoid positioning apparatus in conflict with the above (stem and canopy) and below ground (RPA’s) elements of existing trees. Where significant incursion is unavoidable, trees shall be appropriately replaced.
- Mitigation for the loss of hedgerows and hedgerow trees will involve replacement with like for like species of a similar size with hedgerow trees repositioned at least 5 m away from the Onshore Cable Route within the Order limits.
- In line with the proposed Generic Arboricultural Method Statement (see REP7-066), the process of construction of the Converter Station must minimise encroachment on the west side of the Converter Station and impacts on the existing hedgerow and hedgerow trees.

#### **6.3.4. CONSTRUCTION SURFACE WATER MANAGEMENT**

6.3.4.1. In addition to the General Environmental Control Measures contained within Sections 5.5, 5.6 and 5.7, the following shall also be prepared and implemented and shall be discussed and agreed with the statutory authorities and other stakeholders to avoid potential pollution of the surface and ground water:

- Construction Surface Water Management Plan (‘CSWMP’). Area with prevalent run-off shall be identified and drainage shall be actively managed, e.g. through bunding and/or temporary drainage. Temporary drainage works shall be designed and constructed to relevant statutory guidance in consultation with statutory authorities and other stakeholders.
- The Emergency Pollution and Spill Response Plan shall be prepared in compliance with Section 4.6.
- Earthwork Management Plan (‘EWMP’). EWMP shall be prepared in conjunction with CSWMP to ensure the risk of flooding and contamination of SPZ1 is not increased during bulk earthworks. These shall be formed part of the CEMP.
- To mitigate any potential impact of the known and unknown karst features to the ground water receptors, the Contractor shall prepare a project specific Method

Statement and Communication Plan detailing mitigation for bulk earthworks in compliance with the UK SPZ 1 Generic Method Statement (Appendix 7).

- SPZ1 protection measures shall be agreed by put in-place by the appointed contractor for any further site investigation. Any further site investigation shall be undertaken in accordance with Environment Agency guidance as outlined in “Technical Report P5-065/TR” (Environment Agency, 2000).
- The appointed contractor shall design and construct a temporary low permeable construction compound to house the heavy vehicles and construction works and shall take all steps necessary to avoid cross contamination and shall use appropriate water management techniques during the ground work to control potential pollution of the surface water and ground water.
- All temporary diesel generator(s) shall be bunded with drainage design to be undertaken by the contractor and complying with the treatment and flow control principles of the Operational Stage and contractor’s carpark.
- Refuelling of machinery shall be undertaken within designated areas where spillages can be easily contained. Machinery shall be routinely checked to ensure it is in good working condition.
- Any tanks and associated pipe work containing hazardous substances shall be double skinned and be provided with intermediate leak detection equipment.
- Area at risk of spillage, such as vehicle maintenance areas and hazardous substances stores (including fuel, oils, and chemicals) shall be bunded and carefully sited to minimise the risk of hazardous substances entering the drainage system to the local watercourses, additionally the bunded areas shall have impermeable base to limit the potential for migration of contaminants into ground.
- It is recommended that the excavation works in the proposed areas of “cut” (in approximately the northern third of the Converter Station area) be undertaken outside of the winter wet season and in the summer dry season if feasible. This will significantly help in reducing the likelihood of infiltration of surface runoff water containing suspended sediments (turbidity) into the exposed Chalk aquifer. If the works are undertaken in the wet season, the works should be undertaken using a staged approach, where any exposed Chalk is covered over as soon as possible to prevent the ingress of turbid runoff. This runoff should be collected by the temporary water management system. This approach should be undertaken regardless of time of year, however, is especially critical should the undertaking of the works in the winter wet season be unavoidable (due to programme constraints).

### 6.3.5. NOISE AND VIBRATION

- 6.3.5.1. The following best practice noise and vibration mitigation measures will be employed at the Converter Station Area.
- 6.3.5.2. Throughout the Construction Stage, the Converter Station access road will be maintained in a good condition (i.e. free from bumps/potholes) to minimise the generation of noise or vibration from vehicles.
- 6.3.5.3. The layout and form of the laydown areas, vehicle parking and works compounds at the Converter Station will be planned carefully to minimise noise at nearby sensitive receptors (including The Haven, Hillcrest, Millfield Farm, Kimberley House, Little Denmead Farm, Broadway Farm House and Broadway Farm Cottages) as far as practicably possible through best practice measures including the following:
  - The noisiest activities will be planned to take place as far as practicably possible from nearby sensitive receptors.
  - Careful positioning of site cabins and other equipment to provide screening between site activities and nearby sensitive receptors. Where appropriate, this could be supplemented by localised noise barriers in the areas adjacent to sensitive receptors (see Plate 6.1 for illustrative examples).

## **6.4. SECTION 2 – ANMORE AND SECTION 3 – DENMEAD/KINGS POND MEADOW**

### **6.4.1. ONSHORE ECOLOGY**

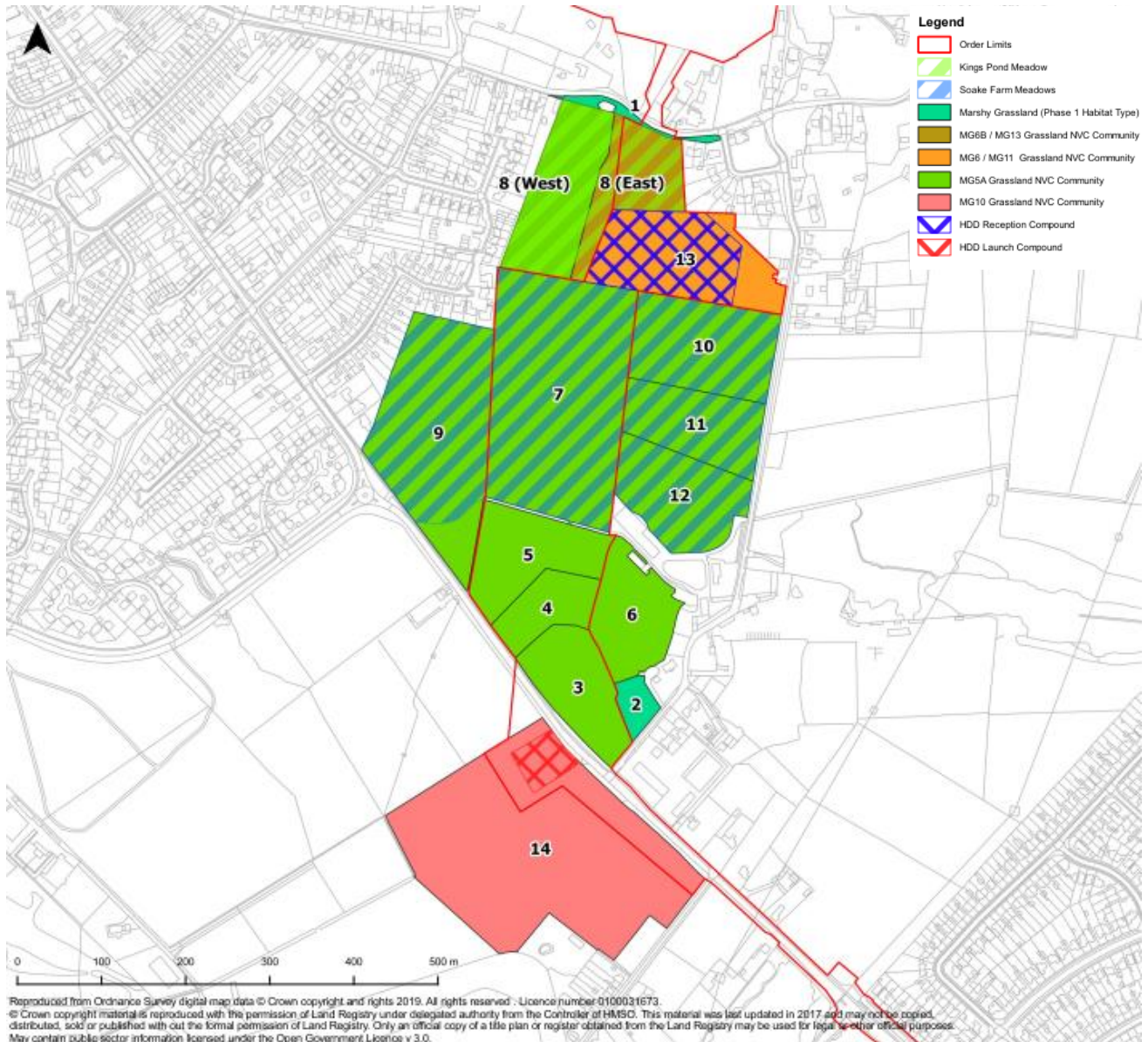
- 6.4.1.1. HDD work already avoids much of the impacts of the Onshore Cable Route through a substantial part of Denmead Meadows, and as the cables will be buried there will be no permanent habitat loss within Soake Farm Meadows SINC and other lowland meadow habitat. However, as work is proposed within the Kings Pond Meadow SINC part of Denmead Meadows measures are proposed to avoid potential effects through controlling working practices. The detailed measures which the Contractor must comply with are more fully set out in section 1.5.3 of the Outline Landscape and Biodiversity Strategy.

#### **Avoidance and General Measures**

- 6.4.1.2. The size of working areas, including compounds, will be kept to a minimum to reduce the effects of grasslands. Works areas will be securely fenced, and procedures put in place to prevent damage to grassland habitats adjacent to them (e.g. by the use of Heras fencing).
- 6.4.1.3. To avoid the potential effects to Soake Farm Meadows SINC and Kings Pond Meadow SINC, access by foot will be permitted only with no vehicular access.
- 6.4.1.4. Works will be monitored by an Ecological Clerk of Works that is experienced in management of priority habitats who will provide toolbox talks to contractors and staff working at the site.

### Timing of Work

- 6.4.1.5. The growing season and winter wet season will be avoided as both these are important for maintaining the conditions within the habitat; work will therefore be undertaken in late summer/autumn (August to November).



**Plate 6.2 – Denmead Meadows Mitigation Strategy Map**

### Field 8 (East) - Trenching for the Cable Corridor

- 6.4.1.6. Mitigation at Field 8 East (as indicated in Plate 6.2) will comprise soil protection and grassland restoration measures, supported by cutting, storage and replacement of

whole turves from specific areas within the Order Limits. Measures are further detailed in the Outline Landscape and Biodiversity Strategy in relation to cutting and storage of turves, ground protection and restoration.

### **Field 13 - HDD5 Reception Compound**

6.4.1.7. Mitigation of Field 13 will comprise soil protection and grassland restoration measures as follows:

- Pre-construction botanical survey;
- Where stripping of top soil is required to level and prepare the compound's surface, it will be stored for the duration of the compound's operation and replaced following completion of HDD works. No subsoil excavation will be required and this horizon will be left in-situ.
- Use of a suitable ground protection solution, such as matting supported by Teram or similar geotextile but the final decision to be informed by contractor, and low ground pressure machinery to avoid compaction of soils adjacent to the trench.
- Reseeding using a commercially available Lowland Meadow grassland seed mix conforming to the MG5 NVC botanical community.

## **6.4.2. ARBORICULTURE AND LANDSCAPE**

6.4.2.1. Impacts on higher value features including mature trees, those subject to TPOs and deciduous copse should be avoided where practicable. The Contractor must comply with section 1.5.4 of the Outline Landscape and Biodiversity Strategy. For Section 2 no trees shall be lost. For section 3 where features are to be removed, replanting is required with like for like species of a similar size at least 5 m from the Onshore Cable Route within the Order Limits. Works running close to the edge of specific tree groups subject to TPOs must be reviewed at detailed design to minimise impacts through Onshore Cable Micrositing, in accordance with BS 5837 and under the supervision of a suitably qualified clerk of works.

6.4.2.2. Sections of hedgerows bounding the edge of the Order Limits are to remain unaffected. Hedgerows and hedgerow trees where lost must be replaced with like for like species where practicable in agreement with the LPA, with hedgerow trees repositioned at least 5 m away from the Onshore Cable Route within the Order Limits.

## **6.4.3. GROUNDWATER**

6.4.3.1. Trenching in Section 3 and parts of Section 2, in the vicinity of the Kings Pond and Denmead Meadows, will avoid the wet winter season. The trenches will be installed at end of the summer to ensure groundwater is at its lowest elevation. If the trenches were to be installed during the peak winter months, groundwater dewatering would likely be required, and this could potentially impact upon Kings Pond which is

considered to have a proportion of groundwater dependency. This applies to Section 3 and the southerly 100 m of Section 2 adjacent to Kings Pond.

6.4.3.2. The required groundwater dewatering quantities for trench construction will be determined at detailed design. The designer must ensure the discharge quantities are accurate or conservative to ensure no flood risk should be increased due to surplus groundwater encountered during construction. This applies to all sections.

6.4.3.3. Sections 1, 2 and 3 have been identified as areas which may contain dissolution features. Such features would represent potential contaminant transport pathways (directly to public water abstractions) and have been raised as a particular concern by Portsmouth Water and the EA. Although no dissolution features have been identified within the Order Limits, there may be features present which are as yet unidentified. The karstic features identified across Route Section 1, 2 and 3 have been commonly infilled and have rarely been greater than 25 m in diameter. Therefore, the nature of the features are considered low risk to the project especially in areas where the Order Limits are of such width to allow micro-siting to bypass features. Where the order limits are narrower industry standard engineering solutions can be used to stabilise the feature and control potential contamination pathways, these included but are not limited to grouting, geotextiles and geomembranes, any remedial solution will be agreed with Portsmouth Water and the Environment Agency prior to construction.

6.4.3.4. A catalogue of detailed descriptions of mitigation measures will be agreed with Portsmouth Water and the EA prior to construction of Sections 1, 2 and 3. Typically, such measures could include:

- Ensuring wherever practical that the Onshore Cable Route trench excavation works are undertaken in the superficial Head deposits and not in the Chalk;
- If the Head deposits are of insufficient thickness (or not present), making excavating in the Chalk unavoidable, then extra care will be taken to avoid fracture zones and karst features. The appearance of any sudden increase in thickness of Head deposits during trenching could indicate the presence of a karst dissolution feature.
- During the construction works the Karstic Dissolution Feature Watching Brief as part of the Earthworks Management Plan will be employed to detect any unknown karst dissolution features when works are taking place;
- Any detection of karst dissolution features may result in a temporary pause of the works for the engineer on site to determine which of the agreed actions in the catalogue of mitigations agreed with Portsmouth Water and the EA should be applied;
  - Portsmouth Water and the EA will be notified should such an instance occur;

- The engineer on site may determine that the karst dissolution feature is sufficiently filled by low-permeability overburden that it presents little or no risk of acting as a pathway for potential contaminants during construction, and therefore works can continue;
- A possible course of action could be the Onshore Cable Micrositing in order to alter the course of the Onshore Cable Route locally, just enough to avoid the dissolution feature (within the Order Limits and dependent of other constraints);
- Another possible action could be to fill the karst dissolution feature with impermeable grout before continuing the works;
- A drainage strategy during the works will be put in place, which will ensure that no untreated runoff is allowed to flow freely and potentially entering karst dissolution features;
- Drip trays and spill kits will be utilised throughout the works to prevent fuel spillages,
- If required to support the discharge of Requirement 13, the appointed contractor may decide to undertake more GI (prior to the main works starting) to confirm ground conditions and identify the Onshore Cable Route (i.e. trenching strategy by the contractor as part of detailed design) in Sections 1, 2 and 3 to determine the thickness of the Head superficial deposits and check for the presence of karst dissolution features; and
- The complete methodology which should be adhered to for these works, detailing the mitigations described above and sequence of actions, is presented in the UK Source Protection Zone 1 Generic Method Statement (Appendix 7 of this Onshore Outline CEMP).

## **6.5. SECTION 4 – HAMBLEDON ROAD TO FARLINGTON AVENUE**

### **6.5.1. ARBORICULTURE AND LANDSCAPE**

- 6.5.1.1. Detailed design of the Onshore Cable Route and detailed analysis of impacts shall be required as the route is refined through Onshore Cable Micrositing overseen by a suitably qualified clerk of works. All works must be carried out within the carriageway, avoiding the use of footways or verges to minimise impacts on structural roots except where technical constraints make this unavoidable. The Contractor must comply with section 1.5.4 of the Outline Landscape and Biodiversity Strategy.
- 6.5.1.2. High and medium value features including trees subject to TPOs shall be avoided where practicable, and design and construction shall follow BS 5837 as a minimum.
- 6.5.1.3. The design of the scheme will have avoided positioning cables in conflict with RPAs of existing trees. Where significant incursion is unavoidable, replanting in the locality



is required with like for like species of a similar size positioned a minimum of 5 m away from the Onshore Cable Route in discussion with the relevant Local Authority. Where the siting of new trees cannot be accommodated, replanting in the locality is required.

## **6.6. SECTION 5 - FARLINGTON**

### **6.6.1. ARBORICULTURE AND LANDSCAPE**

- 6.6.1.1. High/medium value features including impacting on trees subject to TPOs must be avoided where practicable, and design and construction shall follow BS 5837 as a minimum. The Contractor must comply with section 1.5.4 of the Outline Landscape and Biodiversity Strategy.
- 6.6.1.2. Hedgerows, hedgerow trees and ornamental trees lost must be replaced with like for like species subject to agreement with PCC with trees positioned a minimum of 5 m away from the Onshore Cable Route within the Order Limits.
- 6.6.1.3. In agreement with PCC, in the event that TPO feature H896 (201/1997) requires replacement, other than the poplar (T925), these features must be replaced with like for like species of a similar size. For T925, alternative species such as beech, sweet chestnut or yew would be considered.

## **6.7. SECTION 6 – ZETLAND FIELD AND SAINSBURY’S CAR PARK**

### **6.7.1. ARBORICULTURE AND LANDSCAPE**

- 6.7.1.1. High value features must be avoided construction must follow BS 5837 as a minimum. Where medium value features are at risk of removal, impacts must be minimised to secure the retention of as many features as practical through detailed design measures considering Onshore Cable micro-siting and overseen by a suitably qualified clerk of works. The Contractor must comply with section 1.5.4 of the Outline Landscape and Biodiversity Strategy.
- 6.7.1.2. Trees and shrubs shall be replaced with like for like species of a similar size and trees repositioned at least 5 m away from the Onshore Cable Route within the Order Limits. Where the siting of new trees cannot be accommodated within the Order Limits, replanting in the locality is required.

## **6.8. SECTION 7 – FARLINGTON JUNCTION TO AIRPORT SERVICE ROAD**

### **6.8.1. ARBORICULTURE AND LANDSCAPE**

- 6.8.1.1. In this Section, the Contractor must comply with section 1.5.4 of the Outline Landscape and Biodiversity Strategy and should ensure that the impact on tree and scrub planting along the railway line is minimised. Should the access track to the Farlington Playing Fields and hotel car park not be sufficient to withstand heavy

vehicular loading (and in consequence insufficient to avoid impact on the adjacent Category B tree groups G680, G783, G706, G671 and G582), bog matting or similar techniques must be used to avoid compaction of the RPAs.

- 6.8.1.2. If any trees are likely to be affected by construction traffic, they must be pruned back sufficient to avoid accidental damage and monitored. If any tree is identified as requiring removal, then this matter will be discussed with PCC. The removal of trees will only take place with the written consent of PCC and following agreement on compensatory payment.
- 6.8.1.3. Where significant incursion is unavoidable and the siting of new trees cannot be accommodated, replanting in the locality is required.
- 6.8.1.4. Planting around Baffins Milton Rovers Football Ground is a key landscape feature which serves an important contribution to visual amenity and screening and conflict with the RPAs of existing trees should be avoided.
- 6.8.1.5. The Order Limits include an access road to the east of the Baffins Milton Rovers Football Ground which runs to Andrew Simpson Watersports Centre past Kendall's Wharf and existing vegetation to the north. The cable corridor will impact on Category C trees G663, W885 and W886. Where significant incursion is unavoidable, trees must be replaced on either side of the access road allowing for easements associated with the Onshore Cable Corridor.

## **6.8.2. SURFACE WATER RESOURCES AND FLOOD RISK**

### **Artificial Land Drainage at Farlington Playing Fields**

- 6.8.2.1. Farlington Playing Fields have a history of surface water and groundwater flooding due to artificial land. A Land Drainage survey at pre-Construction Stage, reinstatement plan and post-Construction Survey must be undertaken in order to monitor the impacts of the Proposed Development.

## **6.8.3. SOCIO-ECONOMIC EFFECTS**

- 6.8.3.1. Opportunities to minimise impacts on sports pitches will be required to be discussed with relevant stakeholders. This includes ongoing discussions with the Chairman of the Baffins Milton Rovers Football Club on timing of construction and reinstatement requirements, which will be in the summer (outside playing season) within this section. It also includes discussion with Portsmouth City Council to minimise impacts to pitches at Farlington Fields and Langstone Harbour Sports Ground.

## **6.9. SECTION 8 – EASTERN ROAD (ADJACENT TO GREAT SALTERNS GOLF COURSE) TO MOORINGS WAY**

### **6.9.1. ARBORICULTURE AND LANDSCAPE**

- 6.9.1.1. Works must avoid the footway or verge where there are mature trees except where existing constraints make this unavoidable. The Contractor must comply with 1.5.4 of the Outline Landscape and Biodiversity Strategy in this Section.

6.9.1.2. Detailed design measures must be undertaken to minimise the impact on mature Category B trees, TPO tree T59, trees within Milton Common and the eastern edge of Portsmouth College/Eastern Road. Through design and construction, measures should avoid positioning cables in conflict with RPA's of existing trees and follow BS 5837 as a minimum overseen by a suitably qualified clerk of works. Trees shall be replaced with like for like species of a similar size and trees repositioned at least 5 m away from the Onshore Cable Route within the Order Limits. Where the siting of new trees cannot be accommodated within the Order Limits, replanting in the locality is required

## 6.9.2. GROUND CONDITIONS

6.9.2.1. Mitigation measures required specifically where the route traverses Milton Common include:

- The works will be carefully and sensitively managed and executed to minimise impact on the local environment through the use of appropriate mitigation measures outlined below.
- There is a potential for noise, dust and odour impacts in the immediate vicinity of the proposed excavations within Milton Common. The appointed contractor will prepare a detailed specification of the proposed excavation and installation methodology in this location outlining the measures to be put in place to monitor and mitigate such impacts.
- the introduction of an exclusion zone in the immediate area of the excavation to keep members of the public at distance.
- excavation of the trench in short lengths to minimise odour and dust impacts.
- a programme of noise, dust and odour monitoring with agreed red/amber/green alerts and associated actions to reduce impacts.
- odour control such as the installation of a perimeter fog and misting system.
- agreed limits on hours of working.
- A programme of community engagement will be carried out before and during the works to inform the local community of the nature of the works and to provide comfort and reassurance that the works will be carried out in a way that minimises impacts as far as is reasonably practicable. This may include local notices, mail drops, liaison with the LPA.
- The excavated waste will be carefully segregated and handled so as not to contaminate areas away from the works themselves. Excavated materials will be removed from site and disposed of or treated for reuse at a suitably licensed waste receiving facility. Full details and records of the movement of excavated soils will be presented in a Verification Report upon completion of the works.

- Reinstatement of an engineered landfill cap to its existing condition or better.
- Clay stanks (or similar) will be installed at regular intervals along the trench to prevent migration of landfill gas along the route and beyond the existing gas vent trench around Milton Common.
- Appropriate gas protection measures will be applied to access chambers or jointing pits to prevent ingress of landfill gas.
- Should significant unexpected contamination be encountered this will be managed appropriately and reported to the EA. If required, the contamination risk assessment and remediation strategy will be updated.

## **6.10. SECTION 9 – MOORINGS WAY TO BRANSBURY ROAD**

### **6.10.1. ARBORICULTURE AND LANDSCAPE**

- 6.10.1.1. Works must avoid the footway or verge where there are mature trees except where existing constraints make this unavoidable. The Contractor must comply with section 1.5.4 of the Outline Landscape and Biodiversity Strategy for this Section.
- 6.10.1.2. Impacts on tree group G900 within Milton Locks Nature Reserve and tree group G697 within Bransbury Park shall be minimised. Measures shall be taken to avoid positioning cables in conflict with RPAs of existing trees, following BS 5837 as a minimum, and overseen by a suitably qualified clerk of works. Liaison shall take place with the site manager at Milton Locks Nature Reserve to agree the most appropriate form of mitigation.
- 6.10.1.3. In general, high and medium value features shall be avoided. Detailed design measures must be undertaken to avoid positioning cables in conflict with RPAs of existing trees. If any tree is identified as requiring removal, then this matter will be discussed with PCC. The removal of trees will only take place with the written consent of PCC and following agreement on compensatory payment.. Where the siting of new trees cannot be accommodated within the Order Limits, replanting in the locality is required. Opportunities shall also be explored to remove trees in poor condition and, where appropriate, replace with other ornamental species in agreement with PCC.
- 6.10.1.4. The long-term impact on retained trees within Bransbury Park must be minimised through Onshore Cable Micrositing within the Onshore Cable Corridor, under the supervision of a suitably qualified clerk of works.

### **6.10.2. MAINTENANCE AT THE ALLOTMENTS**

- 6.10.2.1. Operational maintenance of the cable under the allotment will involve visual inspections only, which will not be intrusive. There would be a negligible impact to allotment users. Any maintenance of the cable under the allotments would be completed from the entrance and exit pits located outside of the allotments and therefore will not affect the users.

## **6.11. SECTION 10 – EASTNEY (LANDFALL)**

### **6.11.1. ARBORICULTURE AND LANDSCAPE**

6.11.1.1. Impacts on medium value trees including trees subject to TPO must be avoided. The Contractor must comply with section 1.5.5 of the Outline Landscape and Biodiversity Strategy for this Section. Measures shall be taken to avoid positioning cables in conflict with RPA's of existing trees and follow BS 5837 as a minimum overseen by a suitably qualified clerk of works. If any tree is identified as requiring removal, then this matter will be discussed with PCC. The removal of trees will only take place with the written consent of PCC and following agreement on compensatory payment. Where the siting of new trees cannot be accommodated, replanting in the locality is required. The northern (east bound) side of Henderson Road and Fort Cumberland Road would be a preferred choice to avoid impact on existing street trees in this section.

## 7. MONITORING

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### 7.1. MONITORING AND REVIEW

- 7.1.1.1. The Environment Manager will hold the responsibility for maintaining a register of all environmental monitoring, which will be made available for auditing and inspection.
- 7.1.1.2. Reporting procedures will be defined by the Environment Manager who will hold overall responsibility for providing feedback to the appointed contractor on the environmental performance of the construction works.
- 7.1.1.3. A framework for environmental monitoring on site is set out in Table 7.1. Records of environmental inspections and audits will be kept and appended to the CEMP.

**Table 7.1 – AQUIND Onshore Monitoring Plan**

Discipline	Monitoring Requirement / Commitment	Responsibilities	Construction / Operation Stage	Location in Control Document	Trigger leading to Non-Compliance	Further Action / Remedial Measures
<b>Landscape and Visual Amenity</b>	<b>Management of Vegetation</b> Management of vegetation through a detailed landscaping scheme which would form part of the draft DCO's requirements and implemented following approval by the host authority. k.	The appointed contractor to appoint a specialist contractor.	Construction / Operation	Onshore Outline Construction Environmental Management Plan ('OOCEMP') (APP-505) Section 7 - Table 7.1 AQUIND Onshore Monitoring Plan	Actions do not accord with the Outline Landscape and Biodiversity Strategy ('OLBS') (document reference REP8-015) and the approved detailed landscaping scheme.	Review of role and responsibilities of appointed farmer / contractor and reappointment if deemed necessary.
	<b>Monitoring of Planting</b> New planting would be subject to a five-year liability period to secure successful establishment, commencing on completion of landscaping works associated with each phase.  All plants found dead or dying would be replaced in the first available planting season.	<b>Local farmer with agreed management plan</b> - existing planting (hedgerows and hedgerow trees).  <b>External landscape contractor</b> - all new planting.  <b>Appointed Ecological Clerk of Works</b> - undertaking ecological monitoring surveys, advising Applicant.  <b>Environmental Clerk of Works</b> - specialist site supervision for walkover assessments, analysis of impacts associated with RPAs, monitoring effectiveness of the first 5 years following completion of the development, ensures review of landscape features every 5 years, reviews against aims and objectives of Outline Landscape and Biodiversity Strategy and the approved detailed landscaping scheme.  It is currently suggested that the local farmer (following assurance of good horticultural experience, and awareness of	Construction / Operation	OLBS - Sections 1.7.1 Monitoring of Planting; 1.7.2 Management Responsibilities;	<b>New planting:</b> An unapproved contractor proceeding with works. Implementation of works not in accordance with the approved detailed landscaping scheme considering agreed specification and programme covering implementation, planting and management including watering, planting schedule and planting plans, changes in stock, species and size. Changes taking place without written agreement, not in accordance with relevant Codes of Practice and British Standards, a lack of communication over activities which require support / supervision and not enacting on recommendations made by the Clerks of Work, landscape architect and /or arboriculturalist.  <b>Existing and replacement planting:</b> A change of appointed farmer without agreement, an absence of / or incorrect management practices, lack of compliance with the	Review of role and responsibilities of appointed farmer / contractor and reappointment if deemed necessary. Regular reviews will be undertaken by a Clerk of Works every five years to ensure works accord with the OLBS and the approved detailed landscaping scheme.



Discipline	Monitoring Requirement / Commitment	Responsibilities	Construction / Operation Stage	Location in Control Document	Trigger leading to Non-Compliance	Further Action / Remedial Measures
	<p><b>Management Plan Reviews</b></p> <ul style="list-style-type: none"> <li>- Site walkover following any extreme weather event to inspect health of landscape features and trees. Any trees that have suffered damage would be subject to an arboricultural survey by an arboriculturalist.</li> <li>- The OLBS and detailed landscaping scheme and its objectives will be reviewed against current environmental conditions to consider unforeseen circumstances.</li> <li>- The OLBS, detailed landscaping scheme and detailed management plans will be reviewed annually. Any significant changes must be agreed between the project landscape architect, arboriculturalist, ecologist and appointed contractor.</li> </ul>	<p>invasive species, diseases and pests) undertakes existing management practices, with a specialist contractor overseeing the new planting to ensure compliance with OLBS objectives in terms of long term planting.</p> <p>An update to the OLBS and management responsibilities is submitted as document reference REP8-015.</p>	Operation	OLBS - Section 8.4 Management Plan Reviews	<p>OLBS and detailed landscaping scheme and lack of communication over activities which require support / supervision and not enacting on recommendations made by the Clerks of Works, landscape architect and arboriculturalist and not keeping a record of measures taken to deliver actions.</p> <p>Health and Safety incidents resulting from inclement weather and a lack of action / notification to the Clerks of Works, arboriculturalist and landscape architect and need for support / supervision. Non adherence to detailed landscaping scheme including specification and management plans and recommendations made by Clerks of Works, arboriculturalist / landscape architect and record of measures taken to deliver recommendations.</p>	Review of role and responsibilities of appointed farmer / contractor and reappointment if deemed necessary. Regular reviews will be undertaken by Environmental Clerk of Works every five years to ensure works accord with the OLBS and the approved detailed landscaping scheme.
Onshore Ecology	<p><b>Closure of badger setts under licence</b></p> <ul style="list-style-type: none"> <li>- Setts will be closed using one-way gates so badgers</li> </ul>	Named ecologist responsible for badger licence.	Construction	OOCEMP - Section 6.3.3.6	<ul style="list-style-type: none"> <li>- One-way gates not installed for the 21 day monitoring period; and</li> <li>- 21 day period not completed.</li> </ul>	Review of situation by Environmental Clerk of Works. Installation of gates and/or additional days of monitoring to

Discipline	Monitoring Requirement / Commitment	Responsibilities	Construction / Operation Stage	Location in Control Document	Trigger leading to Non-Compliance	Further Action / Remedial Measures
	can leave but cannot return to the sett. Following a period of monitoring to ensure badgers are not within them, the setts will be dug out.					be undertaken until 21 days is reached.
	<p><b>Post-construction monitoring of vegetation re-establishment at Denmead Meadows</b></p> <ul style="list-style-type: none"> <li>- Monitoring will comprise an assessment will be made each year within the 5 year post construction management and monitoring period as to whether aftercare management is needed, and appropriate actions taken.</li> <li>- In addition, a botanical survey will be undertaken each year within the 5 year post construction management and monitoring period. It will comprise botanical survey of the reseeded areas and will allow interventions that may be necessary to maintain HPI-quality grassland remains in the long-term.</li> </ul>	Appointed contractor and Environmental Advisor/Manager	Operation	OOCEMP – Section 6.2.1.8	<ul style="list-style-type: none"> <li>- Monitoring not undertaken each year within the 5 year post construction management and monitoring period; and</li> <li>- Habitats start to change from their state prior to construction and no interventions are made to return them to the correct status.</li> </ul>	Review of monitoring work by appointed contractor and monitoring surveys commissioned to replace those missed. Management of site habitats put in place to return them to their baseline condition.
<b>Arboriculture</b>	<p><b>Ancient Woodland</b></p> <p>Works Compound and Laydown Area would be prohibited within 15 m of the ancient woodland and hedgerows. When storing materials, particularly liquids, slopes and drainage channels would be used to prevent spillages and flow into the</p>	Environmental Clerk of Works to lead, with specialist input from an arboriculture consultant where required, to be appointed by the appointed contractor.	Construction	OOCEMP - Section 6.3.4.4	Protective measures not in place or tampered with / works within Root Protection Area ('RPA') not agreed with Project Arboriculture consultant	Remedial work may involve de-compaction of RPA, tree condition assessment to understand impact to long term retention

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	buffer zone of the ancient woodland and hedgerows.					
	<p><b>Protection of trees and RPA</b></p> <p>- Where practicable design would avoid positioning cables in conflict with RPAs of existing trees. Where significant incursion is unavoidable, trees would be appropriately replaced.</p>		Construction	OOCEMP - Section 6.5.1.1 and 6.5.1.2	Protective measures not in place or tampered with / works within Root Protection Area not agreed with Project Arboriculture consultant	Remedial work may involve de-compaction of Root Protection Area, tree condition assessment to understand impact to long term retention
	<p><b>Hedge removal</b></p> <p>- Hedge removal in the Converter Station Area would be minimised by only removing what is required to lay the Access Road.</p> <p>- Mitigation for the loss of hedgerows and hedgerow trees will be replaced with like for like species, where practicable, with hedgerow trees repositioned at least 5 m away from the Onshore Cable Route.</p>		Construction	OOCEMP - Section 6.5.1.3 and 6.10.1.2	Replanting and after care not completed or not completed in accordance with best practice.	"Beating up" or snagging planting may be required.
	<p><b>Replanting of trees -</b></p> <p>- Where significant incursion is unavoidable, consideration for replanting in the locality is required with like for like species positioned a minimum of 5 m away from the Onshore Cable Route in discussion with the relevant LPA.</p> <p>- Opportunities should also be explored to remove trees in poor condition and, where appropriate, replace with</p>		Construction	OOCEMP - Section 6.5.1.3 and 6.10.1.2	Replacement trees not provided or not planted in accordance with best practice or British Standard. Alternatively, unsuitable species may be selected if Portsmouth City Council not consulted.	Unsuitable trees or trees planted incorrectly to be made good.

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	suitable species in agreement with PCC.					
<b>Soils and Agricultural Land Use</b>	<p><b>Construction Impacts to soil, waste and material resources</b></p> <ul style="list-style-type: none"> <li>- Implementation of a Construction Environmental Management Plan ('CEMP'), incorporating a Materials Management Plan ('MMP'), Soil Resources Plan ('SRP') and Site Waste Management Plan ('SWMP').</li> </ul>	Appointed contractor and Environmental Advisor/Manager	Construction	OOCEMP Section 7 Table 7.1	The absence of a contractor prepared CEMP, SWMP and MMP prior to construction works commencing, and failure to update / record outputs from these documents during on site activity.	Review of contractor prepared CEMP, SWMP and MMP by suitably qualified and experienced personnel prior to and during construction works. This will ensure documents have been prepared and are suitable for the Proposed Development, and arisings are managed in accordance with legal and best practice requirements.
<b>Ground Conditions</b>	<p><b>Contaminated Land at Milton Common</b></p> <ul style="list-style-type: none"> <li>- Detailed management plan for future maintenance and entry to below ground access chambers.</li> <li>- Prepared during detailed design stage and will form part of the Health and Safety File.</li> </ul>	Appointed contractor and Environmental Advisor/Manager	Construction / Operation	OOCEMP Section 7 Table 7.1	The absence of a contractor prepared Construction Phase Plan ('CPP') (needed for all intrusive works), and absence of a management plan for future maintenance works and entry to below ground access chambers. These documents must be included in the Health and Safety File. Also, failure to update / record outputs from these documents during on-site activity.	Review of contractor management plans including CPP and the Health and Safety File by suitably qualified personal prior to and during the works in the construction / operational and decommissioning stages. This will ensure documents have been prepared and are suitable for the proposed works to minimise risks to receptors particularly Human Health due to the exposure of contaminated soils / groundwater and potential landfill gases.
<b>Heritage and Archaeology</b>	<p><b>Archaeological Monitoring</b></p> <ul style="list-style-type: none"> <li>- Depending on the results of the Trial Trench evaluation, mitigation could take the form of targeted archaeological excavation (preservation by record) in advance of</li> </ul>	Any archaeological work would need to be undertaken in consultation with the local authority's archaeological advisor in accordance with an approved archaeological Written Scheme of Investigation ('WSI').	Construction	OOCEMP Section 7 Table 7.1	- The programme of archaeological and heritage mitigation that is set out in the DCO submission is an Applicant's commitment that would need to be carried out to mitigate the adverse effects identified. If this is not the case it would be non-compliant.	Supervision of works for compliance against the WSI by a suitably qualified archaeologist

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	<p>construction and/or an archaeological watching brief.</p> <ul style="list-style-type: none"> <li>- Archaeological watching brief (a programme of strip, map and sample) carried out alongside the preliminary topsoil removal.</li> </ul>				<p>Irreplaceable heritage assets, which are a finite resource and which form part of our collective heritage, would be permanently removed without record.</p> <ul style="list-style-type: none"> <li>- All required historic environment site-based investigation should be carried out in accordance with a WSI for each element. The WSI sets out the scope of work, aims and objectives, methodology and reporting requirements. Each WSI will need to be approved by the Archaeological Advisor to the relevant local planning authority (LPA) prior to undertaking the work. The lack of an approved WSI would be non-compliant.</li> <li>- The Construction programme will need to allow sufficient time to undertake the required historic environment investigations, whether it is preliminary work in advance of the main construction stage, or during construction. The lack of sufficient time to meet the professional standards required by the Chartered Institute for Archaeologists and the LPA Archaeological Advisor would be non-compliant.</li> <li>- All work should be carried out by a suitably qualified historic environment organisation. The organisation and/or staff should be recognised by the Chartered Institute for Archaeologists, to ensure</li> </ul>	

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					appropriate professional standards. If this is not the case, it might be seen as non-compliant by the LPA Archaeological Advisor.	
<b>Traffic and Transport</b>	Travel Plan monitoring of construction worker journeys to the Converter Station Area. To be completed at 6-months, 1 -year and 2-years into site occupation.	Appointed Contractor Travel Plan Coordinator.	Construction	Framework Construction Worker Travel Plan ('FCTMP') (APP-450) / Requirement 21 of dDCO	The Travel Plan will set modal share targets for construction workers, which are to be agreed with Hampshire County Council as the relevant Highway Authority. These targets will need to be agreed between The Applicant and the Highway Authority and will be used as the basis to determine the performance of the Travel Plan. Failure to meet these targets will be the trigger leading to non-compliance.	The likely forms this remedial action are set out in the Construction Worker Travel Plan at Appendix 7 of the Updated Framework Construction Traffic Management Plan (AS-074) - includes further promotion of sustainable transport alternatives / extension of shuttle bus service provision to nearby train / bus stations and hotels
<b>Air Quality</b>	<p><b>Risk of fugitive emissions of dust and air emissions</b></p> <ul style="list-style-type: none"> <li>- Undertake daily on-site and off-site inspections where receptors are nearby to monitor dust. Should include regular dust soiling checks of surfaces within 100 m of the construction site boundary, with cleaning to be provided if necessary.</li> <li>- Regular site inspections to monitor compliance with the Dust Management Plan; increasing the frequency of site inspections on site when activities have a high potential to produce dust and during prolonged dry or windy conditions.</li> </ul>	Appointed contractor and Environmental Advisor/Manager	Construction	OOCEMP Section 7 Table 7.1	<p>All triggers are to be agreed following consultation with the local Environmental Health Officer. Sample triggers according to the Institute of Air Quality Management ('IAQM') Guidance on Monitoring in the Vicinity of Demolition and Construction Sites include:</p> <ul style="list-style-type: none"> <li>- Dust complaint from a member of the public;</li> <li>- Dust complaint from the local authority Environmental Health Officer;</li> <li>- Dust complaint from a member of the public via the local authority;</li> <li>- Visible dust observed at the locations of nearby receptors and on surfaces within 100m of</li> </ul>	<p>All site monitoring and recording should be implemented with the full cooperation and in consultation with the local Environmental Health Officer. Detailed monitoring requirements will be in place at each location of the Proposed Development in agreement with the EHO.</p> <p>Where a complaint is issued, this should be fully investigated, including records of activities undertaken on-site at the time the complaint relates to and accompanying meteorological conditions, and a judgement issued to the relevant party and the local authority. All complaints should</p>

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	<p>- Agree dust deposition, dust flux or real-time PM10 continuous monitoring locations with the Local Authority. Where practicable, commence baseline monitoring at least three months before work commences on site or, if it a large site, before work on a phase commences.</p>				<p>the construction site boundary during routine inspections;</p> <ul style="list-style-type: none"> <li>- Visible dust emission from an on-site process that, in the judgement of a trained individual, constitutes an excessive emission;</li> <li>- A recorded 1-hour average PM concentration of 190 µg/m<sup>3</sup> where continuous monitoring is undertaken;</li> <li>- A 4-week average of 200 mg/m<sup>2</sup>/day where deposition monitoring is undertaken; and</li> <li>- An Effective Area Coverage ('EAC') of 5% per day averaged over 1-week where dust flux is monitored.</li> </ul> <p>All triggers will require agreement from the local Environmental Health Officer on an site-by-site basis.</p>	<p>be recorded in a complaints log, recorded in the site log book, and all records kept and made available on request to the local authority.</p> <p>Where dust is observed during routine inspections of the surrounding area, and investigation of the activities on site since the last inspection and the prevailing meteorological conditions during that period, and additional on-site measures undertaken or a review of working practises as appropriate, and the investigation and results recorded in the site log book.</p> <p>Where short-term (1-hour) monitoring exceeds 190 µg/m<sup>3</sup> of PM, then the dust-causing activities being undertaken should be immediately stopped and on-site conditions and the effectiveness of mitigation reviewed before restarting works, and the results recorded in the site log book.</p> <p>Where excessive dust emission is, in the judgement of a trained individual, observed on-site during a dust-causing process, then the related activity should be immediately stopped and the effectiveness of mitigation, on-site conditions and/or</p>

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						<p>working methods reviewed prior to re-starting the activity. The event should be recorded in the site log book.</p> <p>Where a longer-term monitoring average is exceeded, a review of activities undertaken, meteorological conditions and the effectiveness of on-site mitigation should be undertaken, with the results recorded in the site log book.</p>
<b>Noise and Vibration</b>	<p><b>Control of noise during operational period</b></p> <p>A noise monitoring scheme for testing the attenuation and mitigation measures required to achieve the broadband and octave band noise criteria.</p>	Appointed contractor responsible for installation of noise producing equipment at Converter Station Area and Optical Regeneration Station(s).	Operation	Requirement 20 of the dDCO.	Significant exceedance of the noise criteria specified in the broadband and octave band noise criteria document.	Investigation of the exceedance and identification of cause. If required, proportionate rectification of noise attenuation or mitigation measures.
<b>Socio-economics</b>	N/A					
<b>Human Health</b>	N/A					
<b>Waste and Material Resources</b>	N/A					
<b>Climate Resilience</b>	<ul style="list-style-type: none"> <li>- Reviewing wind speed before commencing work at height.</li> <li>- Ensuring welfare facilities are available and sufficiently cool. Ensure rest breaks are taken, particularly during the hottest part of the day.</li> </ul>	Appointed contractor and Environmental Advisor/Manager	Construction	OOCEMP Section 5.14.3	Health risks to construction workers.	Review of contractor management plan including CPP and the Health and Safety file by suitably qualified personnel prior to and during the works in the construction / operational and decommissioning stages. This will ensure documents have been prepared and are suitable



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						for the proposed works to minimise risks to construction workers.
	Regular clearing and maintenance of drainage infrastructure to prevent blockage.	Appointed contractor and Environmental Advisor/Manager	Operation	OOCEMP Section 5.14.3	Blockage of drainage infrastructure.	Investigation of source of blockage and emergency clearance of drains to be undertaken. Review of maintenance plans to identify cause and to prevent further blockages.

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