AQUIND Limited

AQUIND INTERCONNECTOR

Applicant's Transcript of Oral Submissions for Compulsory Aquisition Hearing 1

The Planning Act 2008

Infrastructure Planning (Examination Procedure) Rules 2010, Rule 8(c)

Document Ref: 7.9.18

PINS Ref.: EN020022

AQUIND INTERCONNECTOR

APPLICANT'S TRANSCRIPT FOR DECEMBER 2020

COMPULSORY ACQUISITION HEARING 1

THURSDAY 10 DECEMBER

1. INTRODUCTION

1.1 On 14 November 2019, AQUIND Limited (the '**Applicant'**) submitted an application for the AQUIND Interconnector Order (the '**Order'**) pursuant to section 37 of the Planning Act 2008 (as amended) (the '**Act'**) to the Secretary of State ('SoS') (the '**Application'**).

1.2 The Application was accepted by the Planning Inspectorate ('**PINS'**) on 12 December 2019, with the examination of the Application commencing on 8 September 2020.

1.3 On 30 October 2020 the Examining Authority ('**ExA'**) issued the agenda for Compulsory Acquisition Hearing 1 ('**CAH1'**). Within the agenda dated 9 November 2020 the ExA requested full transcripts of any oral submissions intended to be made at ISH2. This request in the agenda issued is understood to be a request for information by the ExA in accordance with the Rule 8 letter dated 15 September 2020, as updated on 20 November 2020.

1.4 In response to this request, this statement is submitted on behalf of the Applicant and provides a full written response of the oral submissions intended to be made on behalf of the Applicant at ISH2 in relation to the specific questions raised by the ExA in the agenda for CAH2.

1.5 It is noted in the agenda that the ExA confirm the agenda is for guidance only, that it is not intended to be exclusive or exhaustive and that the ExA may add other issues for consideration and may alter the order in which issues are considered. Any additional detailed information requested by the Examiner or further information considered to be required to help address points not raised in the agenda for CAH1, or raised by others at CAH1, will be provided in the Applicant's post hearing submissions, to be submitted at Deadline 6.

Format of this Statement

1.6 This statement provides responses to the questions raised by the ExA, and it is confirmed any other questions raised at CAH1 will be responded at CAH1 as necessary on behalf of the Applicant.

1.7 The Applicant has submitted a Core Bundle ('**CB'**) index of common documents in relation to all hearings which are to take place during December 2020 in respect of the Application. This Core Bundle has been provided in an electronic format with links to the relevant Application documents as they are contained on the PINS webpage for the Application. The Applicant has not submitted these documents to PINS again. References to the CB index follow the format "**CB – document number**".

1.8 The Applicant has also submitted a hearing specific bundle index of the Application documents relevant to the Compulsory Acquisition Hearings ('**CAH**'), also provided in an electronic format with links to the relevant Application documents as they are contained in the PINS webpage for the Application. References to the CAH hearing specific bundle follow the format "**CAH – document number**".

1.9 In addition, and further to the request by the ExA for illustrative supporting material, this statement is accompanied by exhibits, a list of which is included in **Appendix 1** to this statement, and which are referred to throughout this document by reference to "**CA1 – Exhibit numbe**r".

2. HEARING PARTICIPANTS ON BEHALF OF THE APPLICANT

2.1 In attendance at CAH1 from the Applicant will be:

2.1.1 Kirill Glukhovskoy (LLM, MBA, ACMA), Managing Director of AQUIND Limited

2.1.2 Vladimir Temerko, Project Manager of AQUIND Limited

2.2 The Applicant will be represented at CAH1 by Simon Bird QC of Francis Taylor Building, Catherine Howard, Partner and Martyn Jarvis, Senior Associate, both of Herbert Smith Freehills LLP.

2.3 In addition, the following participants will be speaking on behalf of the Applicant on their relevant specialist topics during CAH1:

2.3.1 In relation to electrical engineering matters:

(A) Dr Norman MacLeod of WSP: Norman is Director of the Interconnectors department at WSP. Norman holds a BSc degree in Electrical and Electronic Engineering and a PhD in the same discipline. Norman is a Chartered Engineer in the UK, a Fellow of the Institution of Engineering and Technology (FIET) in the UK, a Member of the Institute of Electrical and Electronic Engineers (MIEEE) in the USA, and a Distinguished Member of the International Council on Large Electric Systems (DMCIGRE), based in Paris. Norman has worked in the field of HVDC transmission for 40 years and has published over 50 technical papers on HVDC and related technologies and co-authored two books on HVDC systems. Norman is a Visiting Professor at the University of Leeds, a post sponsored by the Royal Academy of Engineering, and a Visiting Professor at the University of Cardiff. Norman was a co-author of the initial techno-economic feasibility study report for the Project in 2014 and has been involved in the development of the Project since that time, as the lead expert on HVDC systems.

(B) Daniel Abbott of WSP: Daniel is a professional engineer at WSP with detailed knowledge of HVDC systems and power electronics. Daniel holds an MEng Honours engineering degree and has spent most of the last decade developing, constructing and commissioning electricity interconnectors in the United Kingdom. Having contributed to the preliminary feasibility study for AQUIND in 2014, Daniel participated in early discussions with key stakeholders such as National Grid, RTE and Ofgem and now oversees technical discussions with service and utilities companies.

2.3.2 In relation to cable engineering matters:

(A) Oliver Bulch of WSP: Oliver is a Senior Cable Engineer with WSP and has worked in the power cable industry as a Site Manager / Project Engineer for over 12 years' with an established record in the delivery of complex projects across all voltages from LV to 400 kV. Oliver has successfully overseen and delivered underground cabling projects at all voltages including LV, HV and EHV specialising in HV Cable Diversions (Oil to XLPE / XLPE) and Linear Onshore Cable routes and is experienced in the planning, management and monitoring of construction activities.

(B) Paul Hudson of WSP: Paul is a Principal Cable Engineer with WSP and holds a BSc (Hons) in Electrical / Electronic Engineering. Paul has worked in the power cable industry for over 35 years, in manufacturing, system design and installation design in the UK, working for the world's largest cable company and now as a consultant with WSP and has worked on several major HV cable contracts. Paul has experience as the in the HVDC and HVAC cable tendering processes and subsequently for HVDC and HVAC contracts for the IFA2 project in the UK and France

and was responsible for the development of the NSN interconnector project through to FID and EPC contract award. During his career Paul has been responsible for the delivery of the 600kV HVDC Western Link project and Projects Business Manager for HV Systems for cable systems from 66kV to 400kV, fluid filled and XLPE.

2.3.3 In relation to engineering and the Converter Station:

(A) Hamid Mojtabavi of WSP: Hamid is an Associate Director in the Civil and Structural Engineering team at WSP. Hamid is a Chartered Engineer, having been a member of the Institution of Structural Engineers and Engineering Council since 2013 and a Member of the Association for Project Management since 2019. Hamid holds a BSc (Hons) in Civil Engineering and MSc in Structural Engineering and his responsibilities include the role of project manager and technical design lead in relation to large capital multi-disciplinary power, energy, industrial and commercial projects. Hamid has over 18 years' experience as a consulting engineer and has worked on the Project since October 2018 as the Civil and Structural technical lead focusing on the development of the Converter Station Area.

2.3.4 In relation to the regulatory status of the Proposed Development:

(A) Silke Goldberg, Partner at Herbert Smith Freehills LLP: Silke is a solicitor qualified in England and Wales, the Republic of Ireland, Germany and France. Silke advises clients on all aspects of European and UK energy law and regulations. Silke has significant experience advising on interconnectors and other transmission and distribution systems. Silke is a professor at Queen Mary University of London where she teaches energy regulation as well as an affiliated professor with the University of Haifa. Silke is also the editor of the European Energy Handbook and regularly publishes on aspects of energy and climate change law.

2.3.5 In relation to land acquisition matters:

(A) Alan O'Sullivan of Avison Young: Alan is a Director in the Energy & Natural Resources team at Avison Young and holds a B.Sc (Hons) in Finance and a Post-Graduate Diploma in Surveying. He has over 12 years of experience advising on a wide range of property matters (land acquisition, disposals, easements, wayleaves, mineral rights, business rates, strategic advice, estates rationalisation, estate management, property management, due diligence) in relation to the energy and utilities industries for both public and private sector clients and is leading the acquisition of land and land rights for the Proposed Development.

2.3.6 In relation to ground conditions at Milton Common:

(A) Joshua Kaufmann of WSP: Joshua is a Geotechnical Engineer at WSP in the Civil, Bridge and Ground team and holds a BSc (Hons) in Applied Geology and MSc in Geotechnical Engineering. Joshua has worked on the Project since November 2016, as part of the geotechnical team looking at the Onshore Cable Route and Converter Station and has worked under the guidance of chartered engineers throughout his involvement on the Project.

2.3.7 In relation to of alternatives and the environmental studies undertaken:

(A) Greg Irvine of WSP: Greg is an Associate Environmental Consultant at WSP, with 8 years' experience in environmental impact assessment. Greg's holds a BSc in Geography obtained in 2011 and an MSc degree in Environmental Management (Integrated Environmental Studies) in 2012, both obtained from the University of Southampton. Greg has been a Practitioner member of the Institute of Environmental Management and

Assessment since 2013. Greg's role on the Project to date has consisted of coordination and management of the onshore EIA team, from scoping through to the preparation and submission of the Environmental Statement.

3. SUMMARY OF DCO PROVISIONS

Question 3.1

The Applicant to set out very briefly which Articles engage Compulsory Acquisition and Temporary Possession powers.

3.1 The articles of the draft DCO (dDCO) (REP3-003) (**CB-1**) which engage compulsory acquisition powers are:

3.1.1 Article 20 (Compulsory acquisition of land), which empowers the undertaker to acquire land within the 'permanent limits' as shown on the land plans;

3.1.2 Article 23 (Compulsory acquisition of rights and the imposition of restrictive covenants), which authorises the undertaker to create rights and impose restrictions over land as indicated in the book of reference, as well as acquiring existing rights and the benefit of existing restrictions; and

3.1.3 Article 22 (Time limit for exercise of authority to acquire land compulsorily), which restricts the time within which powers of compulsory acquisition may be exercised to 7 years from when the Order is made.

3.2 Articles 25 (Application of the Compulsory Purchase (Vesting Declarations) Act 1981) and article 26 (Modification of Part 1 of the Compulsory Purchase Act 1965) make provision for the application of the relevant Acts to the exercise of powers of compulsory purchase. Articles 27 (Acquisition of subsoil and airspace only) and article 28 (Acquisition of part of certain properties) make provision as to the ability of the undertaker to acquire less than the entirety of land held by a land owner.

3.3 The articles of the dDCO (REP3-003) (**CB-1**) which engage temporary possession powers are:

3.3.1 Article 29 (Rights under or over streets), which authorises the temporary use of land under or over streets;

3.3.2 Article 30 (Temporary use of land for carrying out the authorised development), which authorises the temporary use of the parcels of land listed in Schedule 10 for the purposes set out in that Schedule;

3.3.3 Article 31 (Time limit for exercise of authority to temporarily use land for carrying out the authorised development), which restricts the temporary use of land for carrying out the development to 5 years from the day the Order is made; and

3.3.4 Article 32 (Temporary use of land for maintaining the authorised development), which authorises the undertaker to temporarily use land for maintenance within 5 years of operational use commencing and to stay in possession of such land as long as reasonably necessary for that purpose.

Question 3.2

The Applicant to summarise very briefly any other provisions in the draft DCO (dDCO) relating to Compulsory Acquisition and Temporary Possession.

3.4 The following articles deal with the acquisition of land held by statutory undertakers and special category land:

3.4.1 Article 33 (Statutory undertakers), which confirms that the powers of compulsory purchase and interference with rights provided for in the dDCO apply to land and rights held by statutory undertakers, subject to compliance with the protective provisions in Schedule 13;

3.4.2 Article 36 (Special category land), which relates to land identified as common, open space, or fuel or field allotments, and provides that such land will be discharged from any rights etc. where their continuance would conflict with the Order powers; and

3.4.3 Article 47 (Crown rights), which contains protections relating to Crown interests and Crown land.

3.5 The following articles do not directly relate to powers of compulsory purchase or temporary possession, but enable the undertaker to carry out the authorised development without being restricted by rights and interests which burden the relevant land:

3.5.1 Article 21 (Statutory authority to override easements or other rights), which provides that the undertaker has statutory authority to carry out the authorised development notwithstanding any interference with or breach of rights which burden the Order land. Article 33(1)(b) provides that this right also applies in relation to rights held by statutory undertakers, albeit subject to the Protective Provisions in Schedule 13; and

3.5.2 Article 24 (Private rights of way), which provides that all private rights of way are extinguished when land is compulsorily acquired or appropriated for the purpose of the authorised development, unless the undertaker provides notice otherwise.

Question 3.3

Winchester City Council to explain why the landscaping rights, or 'deeds of covenant', sought may need 'reinforcement' 'if confidence continues to be 'low' [PDB-006].

3.6 The Applicant is seeking the compulsory acquisition of landscaping rights and restrictions in the event that it is not able to acquire the relevant rights and restrictions by way of voluntary agreement with the owner of the land on which the existing vegetation is located over which the rights and restrictions to be acquired are located.

3.7 To secure the necessary rights and restrictions by way of private agreement a Deed of Grant of an easement will be entered into. In summary, this grants rights to the Applicant and imposes restrictions on the Grantor, so as to ensure the landscaping activities required can be undertaken and the exercise of those rights will not be interfered with. An easement is a legally enforceable property interest. As such, where any breach occurs the Applicant as the person with the benefit of the easement will be in a position to enforce compliance with the covenants granted (i.e. the rights and restrictions).

3.8 From a DCO requirements compliance perspective, in accordance with Article 3 of the dDCO (REP3-003) (**CB-1**) the undertaker is to be granted development consent for the authorised development subject to the provisions of the Order and the requirements. The Applicant is therefore required to comply with the requirements, as to not do so would constitute an offence in accordance with s161 of the Planning Act 2008 (the 'Act'), and could be subject as necessary to the enforcements powers provided for in Part 8 of the Act.

3.9 Taking into account that the Applicant will have the benefit of the rights and restrictions proposed in relation to landscaping (either by way of voluntary agreement or acquisition by compulsion), that those rights and restrictions are legally enforceable, and that the Applicant will be required to comply with the requirements relevant to landscaping (Requirement 8), as where it does not it may be subject to enforcement powers provided for by law, it is the view of the Applicant that the approach taken is entirely appropriate, and that there is no sound basis on which confidence could be said to be 'low' in relation to the effectiveness of the arrangements. .

3.10 The Applicant has liaised further with Winchester City Council on this matter, and has provided a copy of a precedent landscaping easement and an explanation of the position in respect of enforcement.

4. STATUTORY CONDITIONS AND GENERAL PRINCIPLES

Question 4.1

The Applicant to confirm that the application includes a request for Compulsory Acquisition in accordance with s123(2) of the Planning Act 2008 (PA2008).

4.1 The Applicant confirms that the Application includes a request for powers of compulsory acquisition in accordance with section 123 Act. The application when made included a request for the compulsory acquisition of land to be authorised (satisfying the condition at s123(2) of the Act). Subsequent to the Application being made the Applicant made a request for additional land to be included in the Order limits. The prescribed procedure provided for by the Infrastructure Planning (Compulsory Acquisition) Regulations 2010 is being followed in relation to the additional land (satisfying the condition at s123(4) of the Act).

Question 4.2

The Applicant to set out briefly whether and how the purposes for which the Compulsory Acquisition powers are sought comply with section 122(2) of the PA2008.

4.2 Section 122(1) Planning Act 2008 provides that the Secretary of State must be satisfied that in relation to all land over which compulsory acquisition powers are sought, the following conditions in s122(2) are met in relation to the land:

4.2.1 it is required for the development to which the development consent relates,

4.2.2 it is required to facilitate or is incidental to that development, or

4.2.3 it is replacement land which is to be given in exchange for the order land under section 131 or 132.

4.3 Condition 122(2)(c) is not engaged as replacement land is not required. As explained in sections 1.5.1 to 1.5.5 of the Statement of Reasons (REP1-025) (**CB-12**), the Applicant is seeking powers of compulsory acquisition of rights over land forming open space (as defined at section 132(12) of the Act), known as special category land. The Eastney Lake and Milton Piece Allotments had previously been identified as Special Category Land, but it has since been confirmed by the owner that this land is not a fuel or field garden allotment as defined at section 132(12) of the Act.

4.4 The rights sought would authorise the laying and operation of the HVDC onshore cable circuits in the special category land, beneath its surface only. The Applicant therefore considers that this special category land if burdened with the rights sought in the Order would be no less advantageous to any person or the public than it was before, and therefore the test provided for at section 132(3) of the Act is satisfied, meaning no replacement land is required. It is acknowledged that for the duration of the period of construction activities on them access to parts of the Special Category Land will not be available, however this is for a temporary period only and it is considered that it is not necessary to provide, and that it would be disproportionate to require, replacement land during this temporary period.

4.5 With respect to conditions 122(2)(a) and (b), the Applicant considers that all of the land within the 'permanent limits' as shown on the Land Plans (REP1-011a) (**CB-18**) is required for the authorised development and/or to facilitate the authorised development. The location and extent of the land onshore, which the compulsory acquisition powers relate to, has been carefully considered and designed to optimise the route, to cause as little disruption as possible, to take the minimum amount of land possible, and to avoid the unnecessary sterilisation of land in the future.

4.6 Where further engagement with land owners and further engineering work suggested that the Order limits (and the area of land over which powers of compulsory purchase are required) could be reduced without affecting the Applicant's ability to implement the authorised development, the Applicant sought a reduction to the Order limits through its request for a change to the DCO application. The ExA accepted these changes on 11 November 2020. In certain locations where necessary in response to constraints, the

Applicant has sought compulsory acquisition powers over areas of land which are less optimal for delivery than the typical areas required. However, this approach has been taken so as to reduce the impacts of the authorised development and to ensure delivery.

4.7 The 'permanent limits' include a limit of deviation in respect of the Onshore Cable Route, known as the Onshore Cable Corridor. Where the Order limits for the Onshore Cable Corridor relate to the highway they have been drawn to reflect the highway boundary. The reason why a limit of deviation is provided is to ensure that there is a necessary level of flexibility to allow the Applicant to route around existing constraints, for example in highway land existing utilities. By taking this approach the likely impacts are lessened, for instance in relation to the highway there will be more opportunity to route around utilities which will improve the rate of delivery of the Onshore Cable Route by requiring less works to be undertaken overall.

4.8 Within the highway the Applicant has carried out surveys of utilities apparatus to ensure that there is sufficient space within the Order limits for the Onshore Cable Route to be laid, whilst in the main avoiding the need to relocate existing utilities apparatus. Desktop surveys of utilities are inherently imprecise, and at this stage the Applicant has not undertaken intrusive surveys in the highway to confirm the precise locations of utilities apparatus, as it would be unnecessarily disruptive and not be proportionate to do so before consent is granted . Intrusive surveys will be undertaken by the relevant contractor as necessary, who will have responsibility for confirming the location of the cables within the limited limits of deviation provided, as is appropriate.

4.9 Furthermore, the Order limits are determined taking into account the need for working areas in addition to the areas of actual installation, for example areas for the HDD working compounds. Taking the above into account, the approach of including a limited lateral limit of deviation and providing for appropriately sized working areas within the Order limits, the Onshore Cable Corridor within which the Onshore Cable Route is laid, has identified land over which rights are required for the authorised development to be to be constructed (and thereafter operated and maintained), in satisfaction of s.122(2)(a).

4.10 The extent of the land which would be subject to compulsory acquisition powers under the dDCO is therefore considered by the Applicant to be no more than is reasonably necessary in connection with the construction, operation and maintenance of the proposed development, and therefore necessary and proportionate.

Question 4.3

The Applicant to explain whether and how the rights to be acquired, including those for Temporary Possession, are necessary and proportionate.

The explanation should include an end-to-end explanation of the need for Order land widths using visual aids to assist with the appreciation of construction methods and the use of the Order land sought and be an illustration and expansion of the information in the Environmental Statement – Volume 1 - Chapter 3 Description of the Proposed Development [APP-118], paragraphs 3.6.4.57 to 5.15 and other submissions.

4.11 **Introduction**

4.12 Development consent is sought for the UK elements of AQUIND Interconnector (the “Proposed Development”), and in connection with the onshore elements of the Proposed Development the Applicant is seeking the necessary rights over the land which is required for the construction, future operation and maintenance of the Proposed Development.

4.13 The Order limits are shown on the Land Plans (REP1-011a) (**CB-18**) and the Works Plans (REP2-003) (**CB-20**), being represented by the red line on each. The Land Plans identify the acquisition or class of rights sought over the land within the Order limits, with the Book of Reference (REP4-003) (**CB-10)** providing a further level of granularity by identifying the sub-classes of rights which are sought within the rights class identified on the Land Plans. The Works Plans (REP2-003) (**CB-20**) identify the areas over which the works which comprise the authorised development are to be undertaken. In respect of the onshore

elements in relation to which powers of compulsory acquisition are sought, the Proposed Development is broken down into 5 main works as follows:

4.13.1 Work No.1 – Substation Connection Works;

4.13.2 Work No.2 – Works to construct the Converter Station;

4.13.3 Work No.3 – Temporary working area of up to 5 hectares associated with Work No.1, Work No.2 and Work No.4.

4.13.4 Work No.4 – Onshore HVDC Cables; and

4.13.5 Work No.5 – Onshore Connection Works.

4.14 The order of the works as presented in paragraph 4.13 above form the onshore components of the Proposed Development running from the north to the south, and it is in this order that the onshore elements of the Proposed Development are presented to the ExA today, so as to demonstrate why the land included in the Order limits is necessary to be included, and how a proportionate approach has been taken to identify the extent of this land and the types of rights sought in relation to it.

4.15 **Substation Connection Works**

4.16 Work No.1 (and in addition Work No2 and Work No.3) is shown on Sheet 1 of the Works Plans (REP2-003) (**CB-20**) within the area shaded in blue. To the west of the blue shaded area, there is a hatching overlap, which corresponds to the two proposed siting location options for the Converter Station compound.

4.17 As is explained in Appendix 3.5 to the Environmental Statement, Additional Supporting Information for Onshore Works (APP-359) (**CAH-16**), to facilitate the connection of the Converter Station, there will be a requirement to provide additional electrical infrastructure at Lovedean Substation. There is a need to connect two HVAC cable circuits to the Lovedean Substation, with one connection point proposed to be located on the western side of the substation and one connection point on the eastern side of the substation.

4.18 Whilst the extent of the outdoor electrical infrastructure required to connect the Converter Station to the Lovedean Substation is understood and assessed, being similar to the outdoor equipment which forms part of the proposed Converter Station and is also found within typical electrical substations, the precise design and location of these connections within the existing Lovedean Substation is yet to be confirmed by National Grid. The process of confirming the location of the infrastructure will be undertaken post-consent, within the areas identified for these works, as shown on Sheet 1 of the Works Plans (REP2-003) (**CB-20**).

4.19 So as to provide National Grid with the required flexibility and scope to confirm the location of the additional electrical infrastructure at Lovedean Substation, the whole of the substation has been included on the Land Plans (REP1-011a) (**CB-18**), with this being shown on Sheet 1 as Plots 1-27, 1-28 and 1-31. Each of those Plots has been identified as to be subject to all sub-classes of New Connection Works Rights. This approach is appropriate and necessary as it ensures all activities can be undertaken on this land to deliver Work No.1 and restrictions imposed so as to protect the works once delivered. However, it is in any event anticipated that protective provisions will be included for the protection of National Grid (and SSE Ltd in relation to substation they lease from National Grid at Plot 1-31) and that this will authorise the development and use of land in National Grid ownership in connection with the authorised development.

4.20 **Works to Construct the Converter Station (Including Temporary Works Areas)**

4.21 The Converter Station and associated equipment forming Work No.2 and detailed at schedule 1 to the dDCO (REP3-003) (**CB-1**) is to be constructed to the west and south of the Lovedean Substation. The Converter Station Area has been developed based on the temporary construction and permanent operational requirements as well as the landscaping and ecological requirements.

4.22 The Converter Station Area will accommodate the Converter Station, the connection between the HVAC cables and the existing Lovedean Substation, the HVDC cables, the Works Compound and Laydown area and areas associated with the construction of the permanent Access Road and associated haul roads, surface water drainage and associated attenuation ponds and soakaway, landscape and ecology, incoming utilities and Telecommunications Buildings and the compound in which they are located. For the purpose of explaining the land required for and to facilitate the construction of the Converter Station it is necessary to break Work No.2 down into its constituent parts.

4.23 The Indicative Converter Station Area Layout Plans - Rev 02 (REP1-018) (**CAH-5**) identifies indicatively the layout of the Converter Station Area and the temporary areas over which rights are required to facilitate the delivery of the temporary laydown and works compound areas required during the period of construction. These also identify existing constraints within the Converter Station Area, such as the location of overhead lines, karstic features and ancient woodland. It will assist with the explanation of the Converter Station Area for these plans to be on screen whilst this explanation is provided. For ease of presentation, it is suggested that the plan for option B(ii) is used for this explanation.

4.24 **Converter Station**

4.24.1 The Converter Station will occupy an area of approximately 200 m x 200 m to satisfy the operational and functional requirements and to meet relevant guidelines, including maintaining electrical and magnetic separation. A description of the buildings and equipment to be located within this 200m x 200m compound and the equipment and operational requirements which drive this overall size requirement is presented in section 5.2 and 5.3 of the Design and Access Statement (REP1-031) (**CB-15**). For the purposes of today's explanation and noting no specific questions on this issue have been asked, it is assumed that there is not a need to further explain why the Converter Station compound area is the size that it is.

4.24.2 As the Panel will be aware, there are two proposed siting options for the location of the Converter Station, known as Option B(i) and Option B(ii). The location of each option is shown on Sheet 1 of the Converter Station and Telecommunications Buildings Parameter Plans (REP1-017) (**CAH-4**). As discussed above, there is an area shown on Sheet 1 of the Works Plans (REP2-003) (**CB-20**) which shows an area of overlap between Work No.1 and Work No.2 which reflects the siting options. This is likewise reflected on the Land Plans (REP1-011a) (**CB-18**), with Plot 1-27 identified as permanent acquisition of land or new connection works rights.

4.24.3 The area on which the Converter Station Compound is to be located, and the new landscaping to be provided to mitigate the visual impacts associated with the buildings (and discussed further below), is identified on the Land Plans (REP1-011a) (**CB-18**) as permanent land acquisition (shown pink) (see Plots 1-20, 1-23, 1-27, 1-29 and 1-32). It is necessary to have exclusive possession of this land for the Converter Station and the landscaping and ecological enhancements to be located on these plots.

4.24.4 The Land Plans submitted at Deadline 5 have been updated to reflect additional assessment of the landscaping requirements, reflecting the two siting options of the Converter Station. The permanent acquisition of land is sought over all of Plots listed above for siting Option B(i), however in the event that Option B(ii) is chosen no rights will be sought over Plots 1-23a and 1-29a (shown pink and hatched white on the Land Plans) as no landscaping would be proposed in these plots and New Landscaping Rights (rather than permanent acquisition) would be required over the areas of existing native hedgerows shown on the Land Plans as Plots 1-23b, 1-29b and 1-29c (shown pink and hatched green) to restrict removal,

maintain at the existing height and gap up with new hedgerow planting where necessary.

4.24.5 Permanent acquisition is sought in respect of the area on which the Converter Station will be located and the immediate area surrounding this. The Converter Station is to be located within a secure compound within security fencing. Furthermore, whilst the footprint of the Converter Station is circa 4 hectares, and the Converter Station will be securely fenced, as will the Telecommunications Buildings, it is necessary for the Applicant to have exclusive possession of the area around the Converter Station and Telecommunications Buildings so as to deter potential trespassers who may seek to intrude into the Converter Station/interfere with the Telecommunications Buildings.

4.24.6 By having exclusive possession of these areas, the Applicant is able to control who can and cannot access those areas and thus more adequately deter any potential for interference with the apparatus, in addition to ensuring the landscaping and ecological enhancements are undisturbed and perform their desired function. For this reason, in addition to matters relevant to drainage discussed below, permanent acquisition is sought in relation to the area where the Converter Station is to be located and the immediate area surrounding this.

4.24.7 The proposed Converter Station site slopes gradually from north to south. The earthworks at the site would mainly comprise cutting into the existing slope in the north of the site, and site raising in the south of the site. The initial site investigation has confirmed that the natural slope of 1:4 can be formed in the south using suitable excavated material from the proposed cutting in the north. Therefore, the civil work associated with the construction of the Converter Station platform will extend beyond the Converter Station footprint, and the Order limits are drawn taking this into account also.

4.25 **Works Compound and Laydown Area (Work No.3)**

4.25.1 Temporary laydown and works compounds are required in connection with the construction of the Converter Station. The temporary works compound and laydown areas are the areas identified as Work no.3 on the Works Plans (REP2-003) (**CB-20**), shown with an orange shading.

4.25.2 Within these areas, which are approximately 5 hectares in total, site offices, welfare facilities, storage areas and car parking for up to 206 vehicles may be located. This number of car parking spaces provided for reflects the maximum number of employees to be on the site at any one time, so whilst it is not anticipated all employees will individually drive to site this ensures adequate parking provision is secured for if necessary.

4.25.3 An image showing how 206 car parking spaces may be accommodated in the areas identified for Work No.3 is shown on the image located at **CA1- Exhibit 1**.

4.25.4 It is common practice to provide site offices and car parking adjacent to each other and as near as possible to the main area of construction (in this case the area on which the Converter Station is to be constructed) to facilitate access and egress and to minimise commuting to and from the site of construction. It is also preferable to locate the laydown at closest possible distance to the site of construction for the same. Together this provides for an efficient construction process.

4.25.5 As an example of a typical laydown and works compound for similar construction activity, an aerial image of the laydown and works compound required for the construction of the Hornsea 2 Onshore Substation is provided at **CA1- Exhibit 2**. The size of the laydown and works compound shown is approximately 3.5 hectares ,and car parking is provided for approximately 215 vehicles. The requirements of this laydown and works compound are similar to those required for the Converter Station, evidencing how an appropriate approach has been

taken to identifying the areas required and in relation to which appropriate powers are sought within the Order (REP3-003) (**CB-1**).

4.25.6 For the Proposed Development, because of the constraints that are imposed by existing features such as the sensitive hedgerows, the ancient woodland, overhead lines (OHLs) and pylons, as well as Lovedean Substation, the laydown and works compound are spread within the site boundary and are linked with the main Access Road to each other and to the Converter Station, as identified as Work No.3 on the Works Plans (REP2-003) (**CB-20**) and shown on the Indicative Converter Station Area Layout Plans - Rev 02 (REP1-018) (**CAH-5**).

4.25.7 On the Land Plans (REP1-011a) (**CB-18**), the areas to be used for temporary works compounds and laydown areas to the east (predominantly Plots 1-39 and 1-60) are identified for Temporary Use of Land only. This land will not be required in connection with the operation of the Proposed Development and is therefore not required following construction being undertaken and completed.

4.25.8 The areas to be used for temporary works compounds and laydown areas to the west (being located to the north of Stoneacre Copse) are included within Plot 1-32 which is identified to be permanent acquisition of land. This is not because the land is needed permanently for the works compounds and laydown areas, but because other buildings, landscaping and ecological measures are to be located on this land following its temporary use in connection with the construction of the Converter Station.

4.26 **Areas for storage/stockpiling**

4.26.1 In addition to the temporary works and laydown areas, it is necessary for the period of the construction of the converter station for there to be a suitably sized area for the storage/stockpiling of materials. The broad location of this area can be seen on the Indicative Converter Station Area Layout Plans - Rev 02 (REP1-018) (**CAH-5**) labelled "*Area Allocated for Stockpiling / Segregation of Excavated Material*".

4.26.2 This location has been chosen for the storage of the excavated excess subsoil and topsoil so as to limit HGV movements during the peak construction period. The peak construction period is anticipated to be within the first 6-9 months of construction. The approximate size of the area is 30,000m^2. This ensures that there is sufficient space to store approximately 70,000m^3 of material which will be generated during the bulk earthworks to construct the Converter Station platform explained at paragraph 4.24.7 above.

4.26.3 It is necessary to split the subsoil and topsoil because careful management of topsoil and subsoil is an important aspect of sustainable use of materials that are being stripped, whether for disposal off-site or for retention on-site for later landscaping works. Without a proper soil resource plan, there is the risk of losing, damaging or contaminating valuable soil resources. A drawing indicatively showing how the area is split between use for storage of subsoil and topsoil separately is provided at **CA1- Exhibit 3**.

4.26.4 Taking into account that the use of this area is for a temporary period during the construction of the Converter Station only, Plot 1-73 as shown on the Land Plans (REP1-011a) (**CB-18**) is identified for temporary use of land only, as is appropriate.

4.27 **Access Road**

4.27.1 It is necessary for an access route to be provided to the Converter Station both in connection with its construction and its continued operation thereafter. The proposed access road to the Converter Station is located to the south of Lovedean Substation, taking access off of Broadway Lane.

4.27.2 Access to the Converter Station from the existing Lovedean Substation was considered but discounted due to safety and security concerns. Alternative access routes from Old Mill Lane to the north-west and Broadway Lane to the south-east were considered, but discounted as they were unsuitable for the size of vehicles required.

4.27.3 The areas on which the access road is to be constructed are broadly identifiable by reference to Plots 1-47, 1-48 and 1-51 on the Land Plans (REP1-011a) (**CB-18**), before this heads into Plot 1-32. The indicative layout of the access road is otherwise shown on the Indicative Converter Station Area Layout Plans - Rev 02 (REP1-018) (**CAH-5**).

4.27.4 The width of the corridor provided for by Plots 1-48 and 1-51 as shown on the Land Plans (REP1-011a) (**CB-18**) is 24m and 28m respectively (plot 1-51 is slightly wider than plot 1-48 to accommodate the turn in the access road), with the maximum width of the Access Road within this area being 7.3m. This width of access road is required so as to provide the necessary functional access route during the construction of the Converter Station and during its operation. The corridor width provided for in Plots 1-48 and 1-51 reflects that the corridor will also accommodate landscaping, a drainage swale and utilities which will be routed alongside the access road. The largest vehicles to utilise the Access Road will be the abnormal indivisible loads (AILs), which will transport the transformers to the Converter Station.

4.27.5 A transformer has a typical size of 5 m length x 3 m width x 4 m height and seven of these will be located at the Converter Station (six in active use with three required in connection with each HVDC Cable Circuit, and a spare which is critical for the operation of the Proposed Development). Where a transformer fails for any reason, it will be replaced by the spare, and in those circumstances the transformer which has failed will be removed and replaced with another spare transformer.

4.27.6 The vehicles necessary to transport the transformers to site, both during construction and at any time when necessary during operation, are circa 80m in length and 6m in width (**CA1- Exhibit 4**). An access road suitable to accommodate such vehicles is therefore required, to allow for access and egress the Converter Station Area. It is for this reason the areas of land identified on the Land Plans (REP1-011a) for the access road are a minimum of 24m in width, providing a limited level of flexibility for siting and ensuring an operationally sound access road can be delivered whilst also accommodating landscaping, drainage and utilities adjacent to the access road.

4.27.7 New Access Rights are sought over the eastern part of the access road as identified on the Land Plans (REP1-011a) (**CB-18**) as Plots 1-47, 1-48 and 1-51, with permanent acquisition of land required for the western part located in Plot 1-32 in line with the justification set out in Paragraphs 4.24.3 to 4.24.6 above.

4.27.8 There are a number of underground high voltage cables circuits in the eastern part of Plot 1-47, the joints of which need to be avoided by the new Access Road for operational reasons. As a result, to facilitate the access requirements of the AILs a section of the new access road will be located on the opposite side of Broadway Lane and will run from Day Lane to the eastern side of Broadway Lane opposite the entrance to the Access Road on the west side of Broadway Lane. The area on which this is to be located is identified as Plot 1-49 on the Land Plans (REP1-011a) (**CB-18**) and is identified for permanent acquisition of land. A strip of land along the verge of Broadway Lane (Plots 1-35 and 1-52) has also been identified for permanent acquisition in the event works are required which would result in part or all of these areas being adopted as highway thereafter (e.g. removal of verge to improve sight lines).

4.27.9 A drawing showing the indicative location of this section is provided at **CA1-Exhibit 5**. The proposed haul road and temporary holding area comprises a new

highway link to be provided between Day Lane, east of the existing bend, and at Broadway Lane, south of the existing bend. This will provide a managed facility for vehicles entering the site during the Construction Stage, with vehicle movements across Broadway Lane able to be marshalled. This link also accommodates HGV / abnormal load movements and would be retained as a permanent feature (unadopted) to allow future access for such vehicles where required.

4.27.10 The reason this land is identified for permanent acquisition of land is because the land will be gated when not in use, and therefore in the exclusive possession of the undertaker. This is necessary to ensure that the land is not subsequently occupied unlawfully and used for any other purpose, as this would give rise to concerns in respect of its continued use in connection with the safe operation of the Converter Station.

4.27.11 The access road will not serve a highway function, being gated when not in use, and therefore it is not the intention for this to become part of the adopted highway in the future, save for the parts of Plots 1-35 and 1-52 referenced at paragraph 4.27.8 above which could be adopted should that be required.

4.27.12 Temporary Use of the track which forms Plot 1-65 is required to accommodate access for construction traffic to the Works Compound and Laydown Area in the initial stages of the project whilst the new Access Road is being built. If this was not provided the offloading of plant and machinery would have to take place on the highway at the junction of Broadway Lane and Day Lane, which would not be acceptable. Temporary access over this track is provided further west through Plots 1-60, 1-63 and 1-71 and plot 1-57 has also been identified to support early access to the Converter Station area for plant and machinery.

4.27.13 Further assessment by the Applicant has identified that it will be possible to remove the western extent of Plots 1-60 and 1-71 (i.e. in the areas to the west of Plot 1-57). These changes are proposed to be incorporated for Deadline 6.

4.28 **11kv Overhead Line Undergrounding**

4.28.1 An 11kv overhead electricity line is present in the area immediately adjacent to where the access road into the Converter Station Area begins. This is shown indicatively with a red dashed line on the Indicative Converter Station Area Layout Plans - Rev 02 (REP1-018) (**CAH-5**). It is necessary to underground parts of this overhead line so as to ensure it is not a constraint to future safe and unhindered use by HGV's and AIL's associated with the construction and operation of the Proposed Development.

4.28.2 The area where this 11kv overhead line (OHL) is located across the proposed access road and to the south of this is an area identified as being subject to New Connection Works Rights on Sheet 1 of the Land Plans (REP1-011a) (**CB-18**) (see Plots 1.-33, 1-36, 1-47, 1-63, 1-74, 1-75, 1-76, 1-77 and 1-80), which ensures the necessary rights are granted for this OHL to be undergrounded in this location.

4.29 **Drainage**

4.29.1 As part of the Sustainable Urban Drainage System (SuDS) proposed in connection with the future drainage and surface water management of the Converter Station, two attenuation ponds are proposed to be provided to the south of the Converter Station compound. The indicative location of the proposed attenuation ponds are shown on Sheets 2 and 3 of the Indicative Converter Station Area Layout Plans - Rev 02 (REP1-018) (**CAH-5**).

4.29.2 Closer to the Converter Station is the proposed detention basin, which will be lined and impermeable though it will contain a layer of added filter media to allow for treatment by infiltration. This indicative basin design provides for

approximately 2300 m³ of surface water storage based on a Microdrainage Quickstorage Estimate of between 1700m3 - 2400m3 for an event with a 1:100 year return period plus 40% Climate Change and a discharge rate of 3.4 l/s.

4.29.3 A geocellular soakaway is proposed to the south of detention basin to allow infiltration of surface water to ground. The soakaway has also been selected as it provides flexibility to suit the site gradients and to maximise the discharge volumes.

4.29.4 Further to the south and on the other side of the proposed location for the Telecommunications Buildings is the second attenuation pond, an infiltration basin at a low point in the existing topography. By being located at a low point in the existing topography run-off from the access road is able to be conveyed along infiltration swales to the north and east.

4.29.5 The indicative design for this infiltration basin is the same as the detention basin further north, providing approximately 2300 m³ of surface water storage with a maximum bank gradient of 1:3 and a depth of approximately 2m.

4.29.6 Both attenuation ponds and the geocellular soakaway are necessary in connection with the Converter Station to ensure the site is adequately drained. These are proposed to be located on land which is comprised within Plot 1-32, identified on Sheet 1 of the Land Plans (REP1-011a) (**CB-18**) for the permanent acquisition of land, as is appropriate where permanent features of this nature are to be sited and maintained for the operational period of the Proposed Development.

4.30 **Telecommunications Buildings**

4.30.1 The Proposed Development includes a compound containing two Telecommunications Buildings which house equipment associated with the Fibre Optic Cables (FOCs).

4.30.2 One FOC will be installed alongside each circuit of HVDC cables (Marine and Onshore). As a standard industry practice and requirement, FOC cables are installed together with HVDC cables for the purposes of control, monitoring and protection of the HVDC cables as well as communication between the Converter Stations in the UK and France, and thus are an essential part of the Proposed Development.

4.30.3 The spare capacity within the FOC can be used to provide telecommunications services to third parties. The management of the third-party telecommunication data signals will require appropriate equipment to be installed, and it is proposed that this is installed in the Telecommunications Buildings.

4.30.4 The Telecommunications Buildings compound is required to be external to the Converter Station, so as to limit the footprint of the Converter Station itself (and the earthworks required in connection with this) and to accommodate health and safety and operational needs associated with third party access. Entrance to the Converter Station Compound, containing high voltage electricity equipment, will be more stringent than for access to the Telecommunications Buildings in connection with the FOC.

4.30.5 The spatial requirements for the Telecommunications Buildings are explained at section 5.4.1 of the Design and Access Statement ((REP1-031) (**CB-15**). Each building is a maximum of 8m long x 4 m wide x 3 m high with a 10m separation distance between the two buildings, to maintain independence of each FOC and provide greater resilience in event of equipment failure, fire, adverse weather conditions, vandalism, accident etc.

4.30.6 The Telecommunications Building compound is located within the Converter Station Area and in close proximity to the Converter Station compound to prevent impacts on the permanent features of the Converter Station such as infiltration

and attenuation ponds as well as landscaping and to avoid affecting existing features, including ancient woodland and sensitive hedgerows whilst also avoiding OHLs. The location of the compound is identified on Sheets 2 and 3 of the Converter Station and Telecommunications Buildings Parameter Plans (REP1-017) (**CAH-4**).

4.30.7 The land on which the Telecommunications Building and the associated compound are to be located is within Plot 1-32, identified for permanent acquisition of land as shown on Sheet 1 of the Land Plans (REP1-011a) (**CB-18**). This is appropriate, as exclusive possession of this land is required during the operational period.

4.31 **Landscaping and ecological enhancements**

4.31.1 Landscaping and ecological enhancements are to be provided at the Converter Station, primarily to assist with the visual screening of the Converter Station by receptors in closer proximity to it, but also to improve the ecological function of the area by providing new habitats and increasing connectivity for biodiversity features.

4.31.2 The approach to the provision of new landscaping and ecological enhancements at the Converter Station Area is detailed within the Outline Landscape and Biodiversity Strategy (REP1-034) (**CB-26**) and the indicative landscape mitigation plans (REP1-036 and REP1-037 for Option B (i) (**CB-27 and CB-28**) and REP1-137 (**CB-31**) for Option B (ii)).

4.31.3 Where new planting and ecological enhancements are to be provided in close proximity to the Converter Station the permanent acquisition of land is sought (see Plots 1-20, 1-23, 1-29 and 1-32 on Sheet 1 of the land Plans (REP1-011a) (**CB-18**). This is because the restrictions that would otherwise apply to such areas would need to provide that no rights could be enjoyed over these areas in light of the need for the landscaping and ecological enhancements to be maintained and otherwise not disturbed. It is not the case that the land could be used to continue the activities currently undertaken on it where an approach of acquiring rights and restrictions is taken instead of permanent acquisition of the land. For this reason, as is appropriate, freehold acquisition of the relevant areas is proposed.

4.31.4 In the event that siting Option B(ii) is chosen for the Converter Station, no rights would be sought over Plots 1-23a and 1-29a as no landscaping would be proposed in these Plots. As such, Plots 1-23a and 1-29a have been shown on the Land Plans submitted at Deadline 5 as permanent acquisition of land or no rights sought (pink and hatched white) to reflect the land requirements in relation to this optionality. New Landscaping Rights (rather than permanent acquisition) would be required over the areas of existing native hedgerows shown on the Land Plans as Plots 1-23b, 1-29b and 1-29c (shown pink and hatched green) to restrict removal, maintain at the existing height and gap up with new hedgerow planting where necessary.

4.31.5 It is also the case that these areas are to be acquired for security purposes, allowing the Applicant to have exclusive possession of and control over the immediate surrounding area, and thus more adequately being able deter any potential for interference with the Converter Station and the Telecommunications Buildings.

4.31.6 Rights and restrictions are sought over areas where vegetation is already existing which provides a screening benefit, to ensure that screening is retained and managed as necessary during the operational lifetime of the authorised development. New Landscaping Rights are sought over land shown as green on the Land Plans (REP1-011) (**CB-18**) for this purpose.

4.31.7 Where such rights and restrictions are not secured, the mitigation relied upon would not be within the control of the undertaker. The Applicant considered whether freehold acquisition of these areas should be sought, however it was not considered such an approach would be justified taking into account the reasons for which the vegetation is required and the activities which are to be undertaken in relation to the existing vegetation during the operational lifetime of the authorised development.

4.31.8 The plots identified with New Landscaping Rights should be reviewed against the revised indicative landscape mitigation plans Figure 15.48 and 15.49 (REP1-036 and 037 (**CB-27 and CB-28**) respectively) and landscape mitigation plans for Option B(ii) (REP1-137) (**CB-31**) and the Outline Landscape and Biodiversity Strategy ('OLBS') (REP1-034) (**CB-26**). Both the plans and OLBS provide further context and explain the landscaping and ecological measures to be provided and how specific areas will be managed in the future.

4.31.9 An explanation of the reasons why New Landscaping Rights have been sought in respect of the individual plots identified for this on the Land Plans (REP1-011a) (**CB-18**) in proximity to the Converter Station Area is provided at Annex A to this statement.

4.32 **HVAC Cables**

4.32.1 As explained above in relation to Work No.1, the Substation Connection Works, it is necessary to connect the Converter Station to the National Grid at Lovedean Substation.

4.32.2 The Proposed Development will require three HVAC Cables for each 1000 MW circuit, totalling 6 cables with 3 cables per circuit in one trench, each of which will be up to 1 km in length and buried between National Grid's site and the Converter Station. The HVAC Cables will leave the Converter Station on the eastern side of the compound before heading to the Lovedean Substation to provide the connections to the east and west of the Lovedean Substation. The land in which those HVAC Cables will be buried is identified for permanent acquisition when leaving the compound and New Connection Works Rights when entering the National Grid Land, for the reasons explained above in relation to the respective areas.

4.33 **HVDC Cables**

4.33.1 In addition, approximately the first 400m of the HVDC Cable Circuits form part of Work No.2 and run south from the Converter Station Compound through the area identified on Sheet 1 of the Land Plans (REP1-011a) (**CB-18**) as Plots 1-37,1-62 and 1-69, which are identified for New Connection Works Rights, being appropriate to provide for the rights and restrictions to install and operate the HVDC Cable Circuits in this land. As there will be no infrastructure or landscaping otherwise located on this land, it is not necessary and it would not be appropriate to seek the permanent acquisition of these plots.

4.33.2 The width of the Order limits identified for the installation of the Onshore HVDC Cables in Plot 1-62 is 45m at the narrowest point and 90m at the widest point. The full width of the construction corridor required to facilitate the installation of the HVDC Cables in this land (and in agricultural land more generally) is 23m, with suitable space needed for top soil / subsoil storage and a haul road to bring the necessary equipment to construct the works to the site of construction.

4.33.3 The width of each trench is 700-1000mm, with a separation distance of 5000mm between trenches to minimise thermal interaction between the two cable circuits. A cross section showing the typical layout of the construction area required for the installation of the HVDC Cable Circuits in agricultural land is provided at **CA1-Exhibit 6**. This also shows that the typical width of the permanent easement to be secured under the New Connection Works Rights would be 11m.

4.33.4 The reasons why the land identified for the installation of the HVDC Cables in sections 1-3 (which are located within a Groundwater Source Protection Zone 1) is larger than the 23m corridor is to allow for the risk that Karstic features could be encountered during the works (see **CA1- Exhibit 8**). In addition, in off road sections unidentified archaeology could be encountered. Having the flexibility to adjust the location of the trenches is required to allow micro siting around these features should they be encountered.

4.34 **Onshore HVDC Cables**

4.35 Work No.4 comprises the Onshore HVDC Cables. The Onshore HVDC Cables consist of two 320kv cable circuits up to 20km in length which are to be laid, with each circuit being made up of two cables for the transmission of electricity together with a fibre optic data transmission cable for the purpose of control, monitoring and protection of the HVDC Cables and commercial purposes.

4.36 Up to 25 joint bays are proposed per cable circuit, which will be positioned at intervals of approximately 600-2,000m along the 20km route. The dimensions for the joint bays, which once installed are buried underground with the surface reinstated above, are up to 6 metres in length by 3 metres in width and 1.85 metres in depth. The joint bays are required to join the sections of cables to one another to form a continuous circuit. In addition to the joint bay excavation, which will be large enough to accommodate the construction of the joint bay, space will be required for cable handling during installation and jointing. This includes delivering the cables to site on drums, pulling the cables through the ducts at the joint bays, and for a site set-up during jointing. A diagram of the typical areas required to construct a joint bay is shown on **CA1- Exhibit 11**.

4.37 In addition, up to 6 link boxes per cable circuit (installed underground but accessible from a manhole cover from the surface) will also be installed along the route, with a link box positioned at intervals of approximately 5 km along the route. The link boxes are required to provide access for routine maintenance of the cable system.

4.38 Further, up to 6 link pillars per cable circuit, which are above ground permanent infrastructure, are provided for in relation to each cable circuit, with the link pillars positioned at intervals of approximately 5m intervals along the route and which would be used as an alternative to link boxes if necessary. Link pillars are traditionally used in agricultural land on field boundaries

4.39 There are five trenchless crossings provided for within Work No.4, four of which are to be undertaken using Horizontal Directional Drilling (HDD), and the fifth of which is proposed to be undertaken by an installation method known as micro-tunnelling. Each of these trenchless crossings, including the reasons why they are required and the varying spatial parameters associated with them, is described below within the sequence in which they are located.

4.40 Temporary work areas and laydown areas associated with the installation and pulling of the Onshore HVDC Cables are also provided for within the Order limits.

4.41 In respect of Work No.4, the area in which the Onshore HVDC Cables will be installed is known as the Onshore Cable Corridor, which is represented by the extent of the Order limits as identified on Sheets 1 to 10 of the Works Plans (REP2-003) (**CB-20**).

4.42 Large parts of the Onshore Cable Corridor encompass land which is within highways. Where the Onshore Cables are installed in highway land, this is to be undertaken pursuant to statutory authority provided for by Article 11 of the dDCO (REP3-003) (**CB-1**). No acquisition powers are sought over interests which are vested in the relevant local highway authority in that capacity and this is expressly confirmed in the Book of Reference (REP4-003) (**CB-10**).

4.43 In certain limited instances where required as a consequence of existing constraints, it may be necessary to excavate and locate the cables at a greater than typical depth. In doing so, the Onshore Cables may be located within land which does not form part of the vertical plane of the highway. The position in relation to land which forms the highway, and of the

position in relation to land which is beneath this depth and which is therefore in private ownership, is explained in the Highway Subsoil Acquisition Position Statement (REP1-131) (**CAH-2**). Where the Onshore Cables are located at such a depth where they are not in the highway, but below this, the Applicant is seeking powers to compulsorily acquire rights over that subsoil land to facilitate the delivery, operation and maintenance of the Onshore Cables.

4.44 No freehold acquisition of this subsoil land is proposed, and it would not be authorised by the DCO (REP3-003) (**CB-1**), with the Land Plans (REP1-011a) (**CB-18**) and the Book of Reference (REP4-003) (**CB-10**) clearly providing for the acquisition of rights and restrictions over such land (New Connection Work Rights), not its outright acquisition. This is not an unusual approach where highway land is included within Order limits. The same approach has been taken and was authorised in relation the Norfolk Vanguard Offshore Windfarm Order 2020. From a legal perspective, it is absolutely necessary to take this approach so as to facilitate the acquisition of rights and restrictions in land at such a depth where necessary so as to avoid any disputes arising in this regard in the future, which may jeopardise the delivery of the authorised development and the nationally significant benefits which it is to provide when operational.

4.45 To assist with the description and assessment of the Onshore Cable Corridor this was broken down into ten individual sections within the Application documents. In relation to the explanation of the Onshore Cable Corridor for the purpose of explaining why and how the rights to be acquired, including those for Temporary Possession, are necessary and proportionate, the same ten sections are used. The sections are shown on the plans located at Figure 3.9 Order Limits Sections (Onshore) (APP-154) (**CA1- Exhibit 7**).

4.46 Below is a description of the Onshore Cable Corridor from north to south.

4.47 **Section 1 – Lovedean (Converter Station Area)**

4.47.1 Section 1 is an area in which the Onshore Cable Corridor will be located as it moves south from the proposed Converter Station. Apart from the existing Lovedean Substation, pylons and overhead transmission lines, the area is predominantly rural, comprising agricultural land and woodland as well as a number of residential properties around the peripheries of the Order limits. The section is located within the administrative boundaries of Winchester City Council and East Hampshire District Council.

4.47.2 The extent of Section 1 is shown on Sheet 2 of **CA1- Exhibit 7**, and is comprised within Work No.2. This has therefore been discussed above at paragraph 4.33 to this statement, which discusses the order limits provided for in connection with that stretch of Onshore HVDC Cables.

4.47.3 No further explanation of the need for and appropriateness of the Order limits in this location is therefore provided.

4.48 **Section 2 - Anmore**

4.48.1 The extent of Section 2 is shown on Sheets 2 and 3 of **CA1- Exhibit 7**, with the land in this section comprised of agricultural fields. The majority of the land included within the Order limits in this section is included within Plot 1-83, with plots 3-01, 3-02, 3-03 and 3-04 also being located in Section 2.

4.48.2 The Onshore HVDC Cables are to be installed in the large agricultural fields which are included within Plot 1-83, 3-01 and 3-02 by open trenching. The width of the construction corridor required to facilitate the installation of the HVDC Cables in this land is 23m. A cross section of the typical construction corridor, identifying the areas and the uses for which they are required for is located at **CA1- Exhibit 6**.

4.48.3 The Order limits within Section 2 vary, being approximately 50m at the narrowest point at the northern end of Plot 1-83 to approximately 356m at their widest point.

This extended width of the Order limits is necessary to ensure that karstic or archaeological features can be navigated should they be encountered.

4.48.4 The Order limits then significantly narrow as the Onshore Cables proceed through Plots 3-03 and 3-04. The extent of the Order limits in this location have been reduced in response to feedback received from the respective landowners so as to reduce the impacts on this land. The width of the Order limits through Plots 3-03 and 3-04 varies approximately between 14m and 31m.

4.48.5 A reduction in the width allowed for the construction and installation of the HVDC cables is possible over short distances where constraints are identified. In such circumstances the construction methodology and the installation system design can be modified accordingly, however this inevitably impacts on the construction programme. There is less space available within the Onshore Cable Corridor for the installation to take place in this location (plots 3-03 and 3-04) due to engagement with the landowners identifying their aspirations to undertake further development in this area and the Applicant is seeking to not unnecessarily constrain this. This, combined with the presence of a large oak tree (subject to a Tree Preservation Order) and the presence of the existing buildings and utilities, has resulted in the narrower order limits. A cross section of the typical construction corridor in this area, which is also applicable to other areas located further south along the Cable Corridor where similar spatial constraints apply, is provided at **CA1- Exhibit 6A**.

4.49 **Section 3 – Denmead/Kings Pond Meadow**

4.49.1 The extent of Section 3 is shown on Sheet 4 of **CA1- Exhibit 7**. Section 3 encompasses the area between Anmore Road and the junction of Hambledon Road and Soake Road. It is a predominantly rural area comprising agricultural land located to the east of the settlement of Denmead and west of the settlement of Waterlooville with a number of dispersed agricultural and residential properties. The area immediately south of Anmore Road comprises Kings Pond Meadow SINC with agricultural land known as Denmead Meadows located further south.

4.49.2 Plot 3-06, as shown on Sheet 3 of the Land Plans (REP1-011a) (**CB-18**) is the first plot to be included in Section 3 and comprises Anmore Road. The width of Plot 3-06 is approximately 9m, and a length of approximately 43m of Anmore Road has been included to provide sufficient space for the Onshore HVDC Cables to cross it whilst also facilitating the creation of a temporary access into the land to the south (by modification of an existing agricultural access) so as to allow for the installation of the Onshore HVDC Cables in Plots 3-08, 3-09 and 3-10. Being agricultural land, the working corridor width of the construction corridor required to facilitate the installation of the Onshore HVDC Cables in this area is 23m. The broad width of Plots 3-08 and 3-09 & 3-10 is 93m. The reasons why this is wider than 23m is to allow some flexibility with regards to routing of the cables in these areas during the detail design phase because there are a number of trees on the boundary of plot 3-08 and 3-10 which, if possible, will be avoided (the Onshore HVDC Cables could pass either to the east of west of these).

4.49.3 HDD-5 Kings Pond is to be undertaken between Plot 3-10 in the north and either Plot 3-13 or Plot 3-16 located approximately 500m further south and will pass beneath the environmentally sensitive area referred to as Denmead Meadows. The Applicant's preferred Entry Pit (where the HDD bores would enter the ground) in the south would be located in Plot 3-13, located immediately north of Hambledon Road (B2150), and the Exit Pit (where the HDD bores exit the ground) in the north located in Plot 3-10. A drawing showing indicative locations for the entry and exit compounds in this location is included at **CA1- Exhibit 9**.

4.49.4 Plot 3-11 as identified on Sheet 3 of the Land Plans is identified for temporary use. Plot 3-11 is to be used for the delivery, temporary storage and welding of the HDD 'product pipe' (the duct). These are delivered to site in 12m long sections

and are then joined together using a butt-welding process to form longer sections (known as a string) which are laid out on site and then pulled through the underground bores formed by the HDD, lining the bores through which the Onshore HVDC Cables will be pulled. The full extent of this area is required for this activity to feasibly be undertaken.

4.49.5 The chalk bedrock in this area is an aquifer used as a source for drinking water. Consequently, HDD works will not be allowed to create a pathway between the overburden and underlying Chalk aquifer. The HDD will therefore be required to be entirely located within the overburden, and targets clays within the Lambeth Group. As the rockhead level rises to the north and overburden thickness reduces, HDD-5 is to be completed between Soake Road and Anmore Road only with the preference for the exit location to be located in Plot 3-10 rather than 3-08 further north. A longer HDD terminating north of Anmore Road was considered but discounted due to the significant shallowing-up of the chalk to the north of Anmore Road. This created a high risk of puncturing the chalk aquifer, which was deemed an unacceptable environmental risk.

4.49.6 At Plot 3-13 or Plot 3-16, an entry compound of sufficient size will be required to house all ancillary equipment and materials which will include, but not be limited to 50kVa Generator (2m x 2m), Toilet Block (6m x 2m), Drying / changing room (6m x 2m), 2no Office Blocks (6m x 2m), 21ton Tracked Excavator, Drill Pipe Storage (10m x 2m), Power Pack (6m x 2m), Control Cabin (6m x 2m), Mud Lab (3mx 2m), Mud Entry Pits (3m x 4m), High Pressure Mud Pumps (6m x 2m), Mud Mixing Tank (7m x 2m), 350kVa Generator (5m x 2m), Recycling Unit (6m x 2m), Water Storage Tank (6m x 2m), Dry Drilling Fluid Storage (4m x 10m), Workshop (6m x 2m) and Stores (6m x 2m).

4.49.7 The entry compound has been reviewed and minimised in size to reduce the impact on the lowland meadow habitat, whilst providing the minimum space for the facilities listed above. The length of HDD5 dictates the need for a larger exit side compound, as an area with sufficient space available to weld the product pipe into strings, which then need to be laid out in sections, is required. Accordingly, the exit compound has been indicatively sized at 12,188m^2.

4.49.8 As installation is being undertaken by HDD there will be no works undertaken and no impact at ground level in the area in between the entry and exit compound locations. As such, the rights sought over Plots 3-12 and 3-13 are predominantly those required for the installation and operation of the Onshore HVDC Cables. In addition New Access Rights are sought over Plot 3-12a and 3-13a shown on Sheet 3 of the Land Plans to allow access for inspection of the Onshore Cable Corridor during operation to ensure there are no activities taking place which would have the potential to impact it (e.g. excavation or piling). Plot 3-12a and 3-13a would be used to access the parts of Plot 3-12 and 3-13 which would not be otherwise be accessible because of the presence of hedgerows which impede access.

4.49.9 As mentioned above, the entry compound may be located in Plot 3-13 or Plot 3-16, with Plot 3-13 being the Applicant's preference. In the event the entry compound is located on Plot 3-13, the onshore cable route would continue south-east along Hambledon Road (Plot 3-20) or would cross Hambledon Road and run through Plots 3-16 and 3-17 south of Hambledon Road before joining Hambledon Road.

4.49.10 In the event the entry compound is located at Plot 3-16, the alignment of the HDD to reach the exit pit location in Plot 3-10 would necessitate drilling from Plot 3-16 with one of the bores likely passing under Plots 3-14 and 3-15 at depth. From the potential entry compound location on Plot 3-16 the onshore cable route would continue south and would be located in Hambledon Road (Plot 3-20) or could be routed through Plots 3-16 and 3-17 south of Hambledon Road before joining

Hambledon Road (noting there is a high degree of utilities congestion in this part of Hambledon Road which necessitates the level of flexibility provided for).

4.49.11 A new temporary access will need to be constructed from Hambledon Road to Plot 3-13 to access the entry compound. In the event the compound is located at Plot 3-16, an existing access would need to be modified to enable access from Hambledon Road.

4.50 **Section 4 - Hambledon Road to Farlington Avenue**

4.50.1 The extent of Section 4 is shown on Sheets 4 - 7 of **CA1- Exhibit 7**.

4.50.2 The Order limits for Section 4 run predominantly within the Highway Boundary along the B2150 Hambledon Road. They continue south along the A3 London Road from Maurepas Way roundabout through Waterlooville, Purbrook and Widley and under the B2177 Portsdown Hill Road bridge before turning east up the slip road to Portsdown Hill Road. The Onshore Cable Route will then run through the car park immediately south of Portsdown Hill Road, before continuing south-east down Farlington Avenue (Section 5).

4.50.3 Trench dimensions within the highway in Section 4, and all further sections within the highway, are typically 700mm in width, 1150mm in depth with a separation distance of 5000mm between circuits.. A cross-section showing typical approach to installation within the highway is shown on **CA1- Exhibit 10**.

4.50.4 Whilst the Order limits provided for in the highway are wider than the dimensions of the trench and the separation distance between the two cable circuits, this limited lateral limit of deviation is necessary to ensure that constraints within the highway can be navigated and the need to relocate existing apparatus minimised whilst also providing flexibility to minimise traffic impacts.

4.50.5 Taking into account the length of this stretch of highway it will be necessary to install a number of joint bays. Whilst the location of joint bays will be determined as part of the detailed design, the description below identifies locations where it would be possible to install joint bays.

4.50.6 Beginning on Sheet 3 of the Land Plans (REP1-011a) (**CB-18**), the highway and land adjacent to this included within the Order limits incorporates Plots 3-18, 3-19, 3-20 and 3-21. Plot 3-18. A car park off the public highway has been identified as a possible location for joint bays. The width of the Order limits along the northern part of Hambledon Road is approximately 14m, widening out to approximately 39m where the Order limits comprise Hambledon Road and Southdown View.

4.50.7 Continuing down Hambledon Road from Southdown View (and onto Sheet 4 of the Land Plans (REP1-011a) (**CB-18**) the Order limits again narrow to approximately 10m, before widening out to incorporate the highway boundary on the approach to the roundabout with Elettra Avenue. Plots 4-03 and 4-04 forming part of the exits of the roundabout are included to allow the optimum route design during the detailed design phase, including the potential diversion or relocation of existing utilities should it be required.

4.50.8 Moving southwards, the Onshore HVDC Cables approach the next roundabout, which provides access to the east to Wellington Retail Park and the Berewood development to the west. The land encompassing the roundabout contained in Plots 4-10, 4-11, 4-12, 4-13 and 4-14 is included within the Order limits. This land is all necessary to be included to allow optimum route design during the detailed design phase, including the potential diversion or relocation of existing utilities should it be required.

4.50.9 Section 4 of the Order limits continues south along Maurepas Way (Plots 4-15 to 4-20 inclusive), with the width of the Order limits again matching the width of the

highway boundary, and being approximately 30m wide, until the roundabout with London Road to the south is reached.

4.50.10 The inset on Sheet 4 of the Land Plans (REP1-011a) (**CB-18**) best illustrates the extent of the land included which comprises this roundabout. Flexibility to install across the whole of this area (Plots 4-19 to 4-28 and the northern part of Plot 4-42) is necessary to allow optimum route design during the detailed design phase, including the potential diversion or relocation of existing utilities should it be required.

4.50.11 Following on from the roundabout between Maurepas Way and London Road the Onshore Cable Corridor continues down London Road, with the approximate width of the Order limits being 25m within the highway boundary. A triangular plot of land is included on the western side of London Road which comprises Plot 4-36, shown on Sheet 4 of the Land Plans (REP1-011a) (**CB-18**) to accommodate joint bays off the highway. Joint bays could also be accommodated at Campbell Crescent (plots 5-04 – 5-06 and the area of plot 4-42 north of plot 5-04).

4.50.12 The Order limits continue southwards from this point along London Road until the roundabout at the junction with Ladybridge Road. North of the roundabout, Plot 5-11 could be used to accommodate joint bays.

4.50.13 From the roundabout at the junction with Ladybridge Road the Onshore Cable Route heads due south to Portsdown Hill, with the length of the Onshore HVDC Cables to the junction with Portsdown Hill Road being approximately 1,500m and the average width of the highway along this part of the Onshore Cable Corridor being 25m.

4.50.14 Plot 5-20 at Downside Road has been included within the Order Limits as it could be used as a potential location to accommodate a joint bay.

4.50.15 Plot 5-28, which incorporates part of the car park of the Hampshire Rose Pub, along with Plots 5-31 to 5-39 and the area of plot 4-42 east of these have been included within the Order Limits as potential locations to accommodate joint bays.

4.50.16 The Onshore Cable Corridor then heads south of the Portsdown Hill Road bridge over the A3 London Road before turning east up the slip road to Portsdown Hill Road and through the public car park adjacent to it. Plot 6-15, as shown on Sheet 6 of the Land Plans (REP1-011a) (**CB-18**). This plot incorporates the slip road and an area of verge adjacent to it and is an average of 20m in width, and therefore adequate for the installation of the Onshore HVDC Cables whilst retaining sufficient flexibility to route the cable circuits around utilities constraints.

4.50.17 Plot 6-15 joins Plot 6-11, 6-12 and 6-10. It is necessary for all of this land to be included within the Order limits to facilitate the onshore cable route where it moves east from the highway south of the junction between the slip road and Portsdown Hill Road (Plots 6-11 and 6-15) to the car park south of Portsdown Hill Road (the eastern part of Plot 6-11 and Plot 6-10) and to allow the optimum route design during the detailed design phase, including the potential diversion or relocation of existing utilities should it be required.

4.50.18 Plot 6-10 comprises the public car park (part of which is adopted highway), which is also a viewing point over Portsmouth and an area west of the car park which is not surfaced but it also used for car parking. The Onshore Cable Route would run east via open trenching with one circuit likely to be located in the verge north of the car park and one circuit likely to be located in the car park and would re-join Portsdown Hill Road from the eastern end of Plot 6-10, approximately opposite Hilltop Crescent. The width of the construction corridor for installation via trenching in this location is anticipated to be 5m per circuit, providing a total width of 10m to minimise the impact on the open space whilst installation is undertaken.

4.50.19 From the area opposite Hilltop Crescent the Onshore HVDC Cables head along Portsdown Hill Road in an easterly direction via Plot 6-09 before heading south

east on Farlington Avenue. At the junction between Farlington Avenue and Portsdown Hill Road an area of land which is identified as Plot 6-14 on Sheet 6 of the Land Plans has been included within the Order limits as it is possible it could be used to accommodate the cable route in this area and to allow selection of the optimum route during the detailed route engineering phase.

4.51 **Section 5 - Farlington**

4.51.1 The extent of Section 5 is shown on Sheets 7 and 8 of **CA1- Exhibit 7**. Section 5 is located within the urban areas of Drayton and Farlington, which are suburbs of Portsmouth, and encompasses the highways of Farlington Avenue, Evelegh Road (south of Solent Infant School), Havant Road, the area of open land between Evelegh Road and Havant Road, and the northern part of Eastern Road.

4.51.2 Farlington Avenue is made up of Plots 6-16, 6-17, 6-18 and 6-19, shown on Sheet 6 of the Land Plans (REP1-011a) (**CB-18**) before the junction with Evelegh Road is reached. The average width of Farlington Avenue is approximately 11m, and therefore adequate for the installation of the Onshore HVDC Cables in the highway in accordance with the typical approach to installation within the highway shown on **CA1- Exhibit 10**.

4.51.3 The Order limits then include options for the installation of the Onshore HVDC Cables at the southern end of Farlington Avenue. Option 1 is for both circuits of the Onshore HVDC Cables to continue down Farlington Avenue and then turn eastwards along Havant Road. Option 2 would involve both circuits heading east along Evelegh Road (Plot 6-21) and then south through the area of open land between Evelegh Road and Havant Road (shown as Plot 6-22), and then turning west to join Eastern Road at the junction with Havant Road. Option 3 would be for one circuit to be routed along each of the routes set out at Option 1 and 2.

4.51.4 Option 1 would remain entirely within the highway which, based on assessments undertaken, is heavily constrained by the presence of existing utilities. Option 2 would require installation both in the highway and also in Plot 6-22 (owned by Portsmouth Water), which is also constrained by the presence of water pipes which run from the reservoir on Portsdown Hill to Havant Road. The Applicant's preference would be for Option 1 as set out above as it would result in a shorter cable route with less bends. The options are not mutually exclusive as it is possible one cable circuit could need to be routed via each option in light of the utilities constraints known to be present in this location.

4.51.5 From the junction with Havant Road the Onshore HVDC Cables will then head south along Eastern Road (Plot 7-02 and 7-03) for a distance of approximately 340m before reaching and moving eastwards into Zetland Field.

4.51.6 The Eastern Road, including the areas of footway and verge included along this stretch, is approximately 36m in width in this area, and therefore adequate for both HVDC Cable Circuits to be installed. The full extent of the carriageway in this location is needed to allow optimum route design during the detailed design phase, including the potential diversion or relocation of existing utilities should it be required, and to ensure an appropriate separation distance can be provided to maintain thermal efficiencies.

4.52 ***Section 6*** **– Zetland Field and Sainsbury's Car Park**

4.52.1 The extent of Section 6 is shown on Sheet 8 of **CA1- Exhibit 7**. Section 6 includes the A2030 Eastern Road, the western part of Zetland Field and western side of the Sainsbury's car park north of the Network Rail railway line.

4.52.2 As mentioned above, within Section 6 the Onshore HVDC Cables will exit Eastern Road and will then proceed to be installed via open trenching within Zetland Field.

4.52.3 Whilst Zetland Field is Special Category Land, it is confirmed that it would not be appropriate to install via a trenchless installation method through Zetland Field for the reasons set out below.

(A) a HDD approach would not be able to pass under the whole 250m length of Zetland Field as adequate space for stringing out ducting and establishment of compounds would be required and which would not be available taking into account the space needed for this and the existing surrounding constraints.

(B) open trenching will have a shorter programme as the mobilisation timescale for open trenching is much shorter than for HDD.

(C) open trenching would result in a reduced permanent easement width as the HDD bores would require greater spacing due to greater depths to minimise thermal interaction between the cables.

(D) open trenching is readily achievable in this area and there are no significant ecological or technical constraints which would require HDD to be implemented;

4.52.4 The width of the area of Zetland Field included within the Order limits and comprised in Plot 7-04 as shown on Sheet 7 of the land Plans (REP1-011a) (**CB-18**) is approximately 43m, narrowing to approximately 30m at the southern end to avoid the basketball court and the trees located immediately south of it. The width of the construction corridor for installation via trenching in this location is anticipated to be 5m per circuit, providing a total width of 10m to minimise the impact on the open space whilst installation is undertaken. Whilst it is most likely the Onshore HVDC Cables will be installed in the western edge of the Order Limits, a degree of flexibility has been retained to allow for any unforeseen ground conditions.

4.52.5 The Onshore HVDC Cables leave Zetland Field and cross Plot 7-07, 7-08 and Fitzherbert Road (Plot-7-09). Whilst there used to be trees and scrub at the southern end of Plots 7-04, 7-07 and 7-08, the majority of these have been removed in the past year (not by or on behalf the Applicant but more likely by a statutory undertaker to protect their assets from roots as there are a significant amount of utilities buried in this area) and therefore there is a corridor to take the cables through this area.

4.52.6 Plot 7-10 comprises land in the Sainsbury's Car Park, where the Onshore HVDC Cables will be installed via open trenching before trenchless installation methods are employed to take the cables beneath the Network Rail railway line.

4.52.7 The HVDC cables will enter the car park via the existing entrance from Fitzherbert Road and continue south west to the roundabout before heading south along the existing access road or in the area immediately east of the existing access road to the southern end of the car park.

4.52.8 The Applicant did consider whether it would be appropriate to route the cable along the Eastern Road in this location before heading into Farlington Playing Fields, however this approach was discounted for the following reasons:

(A) a route along Eastern Road would involve installing the Onshore HVDC Cables in the existing bridge over the railway line. From a cable engineering perspective, the overriding preference is to install cables such as those being installed by the Applicant under railway lines rather than installing them in bridges which pass over railway lines. There are numerous reasons for this.

(B) the need to avoid threats to the structural integrity of the bridge. Excavations in the bridge to reach the required depth of installation would need to be supported by substantial structural investigations to take place

to assess the condition of the bridge and any impacts the excavations might have on it.

(C) the potential for significant impacts on traffic and the operation of the railway whilst works were taking place.

(D) the need to avoid the potential for damage to the cables by works to the bridge during the design life of the cables in the event that to the bridge requires significant maintenance, upgrades or replacement. The risk of such damage would be likely to result in the interconnector being taken offline while such works are taking place. As a result, the installation of the cables under the railway, which significantly reduces the operational risks to the authorised development was highly preferred over installation in the bridge.

4.52.9 It should also be noted that the Applicant has removed a substantial amount of highways land from the Order limits for the Proposed Development, including removals from Eastern Road as detailed in the Position Statement in relation to the refinement of the Order Limits (REP1-133) **(CAH-17)**. The remaining areas of Eastern Road within the Order Limits have been retained where there is no other alternative available (e.g. the section between the Great Salterns Harvester and the pitches south of Kendall's Wharf) or where there is a degree of geotechnical/installation risk which results in the need to maintain an alternative route (e.g. the area of Eastern Road opposite Milton Common).

4.52.10 At the south of Section 6 is the exit pit in connection with HDD 4 which passes under the railway. Due to the relatively short length of crossing at this location (approximately 90m), micro-tunnelling is favoured over HDD. Micro-tunnelling involves digging two pits, an entry pit and an exit pit, to a prescribed depth and then boring a tunnel or tunnels between them. It is envisaged two micro-tunnels would be bored under the railway, one for each cable circuit. Ducts would be pulled through the tunnels with the remaining void within the tunnels being filled with grout to minimise any settlement risks.

4.52.11 As the nature of micro-tunnelling does not require an area for welding or stringing out product pipe, a reduced compound footprint can be utilised. Both the entry and exit site compounds have been reviewed and reduced in size to minimise the impact on both Sainsburys Car Park and Farlington Playing Fields, whilst maintaining sufficient space to deliver the required construction activities.

4.52.12 A drawing showing indicative locations for the entry and exit compounds in this location is included at **CA1- Exhibit 12**.

4.52.13 The Applicant is continuing to engage with Sainsbury's appointed agent (appointed in May 2020 following direct engagement since March 2019) to agree a number of potential measures to minimise the impact of the construction of the authorised development on the operations of the Farlington store. This includes agreeing restrictions on undertaking certain activities during peak trading times (e.g. a restriction on undertaking open trenching works during the period before and during Christmas and Easter) as well as potential refinement of the rights to be sought over the car park such as limiting the areas over which the works are undertaken. The Applicant will update the ExA further as these matters are progressed with Sainsbury's.

4.53 **Section 7 - Farlington Junction to Airport Service Road**

4.53.1 The extent of Section 7 is shown on Sheets 8 and 9 of **CA1- Exhibit 7**. Section 7 is located within Farlington and Baffin's, both of which are urban areas of Portsmouth, and it includes a large area of Farlington Playing Fields (Plot 7-12), the A27 (Plot 7-22) and Langstone Harbour (a SSSI, SPA, SAC and Ramsar site) (Plots 7-23, 7-24, 7-25 and part of Plot 8-01). It also includes land at Kendall's Wharf (a wharf used for processing and distributing marine dredged aggregates)

(Plot 8-01), an area of woodland (Plot 8-02), a yard south west of Kendall's Wharf (Plot 8-03) and the amenity land south of Kendall's Wharf which includes two football pitches , one of which is used by Baffin's Milton Rovers FC (Plot 8-03a and part of 8-03e), a cricket pitch and areas used for storing equipment used by Tudor Sailing Club (Plot 8-03c and 8-03d).

4.53.2 The HDD-4 entry pit (shown indicatively at **CA1- Exhibit 12** will be positioned within Farlington Playing Fields to the south of the railway and east of A2030 Eastern Road. The alignment of the bores will be from the southeast to the northwest. As the exit pit is required to be positioned at the southern boundary of Sainsbury's car park, this has subsequently controlled the location of the entry pit in the Playing Field south of the railway line.

4.53.3 The crossing will be undertaken at approximately 90° to the railway line following confirmation of the detailed design.

4.53.4 The Onshore HVDC Cables will then be installed via open trenching to the location of the exit pit in connection with HDD 3. The construction corridor is to be limited to 5m per circuit in order to minimise the impact on the open space whilst the trenched installation is undertaken.

4.53.5 HDD 3 will be installed between the yard located south west of Kendall's Wharf and Farlington Playing Fields, crossing below the Broom Channel in Langstone Harbour and the A27. HDD 3, including the indicative layouts of the entry and exit compounds, is shown at **CA1- Exhibit 13**.

4.53.6 HDD 3 has been specifically chosen as it allows for installation beneath the ecologically designated Langstone Harbour and also would pass under the A27 at depth.

4.53.7 The Order limits in this location include a large area of Farlington Playing Fields, comprised in Plot 7-12 as shown on Sheet 7 of the Land Plans (REP1-011a) (**CB-18**). The extent of the area of Farlington Playing Fields included within the Order limits is to a large degree dictated by the requirements of the HDD in this location, without which it would not be possible to install the Onshore HVDC Cables in an acceptable manner.

4.53.8 Traditionally the HDD stringing area equals the length of the crossing, as it minimises risk of pulling the product pipe by allowing continuous operation. At HDD-3 exit location space is minimal due to 3rd party constraints. Reducing footprint further would cause additional risk to the pipe pull operation. Traditional 1500m pipe string is proposed to be divided into 5 strings to accommodate the reduced pipe pull area. The footprint of the compound has therefore been reduced as far as reasonably practicable to minimise impacts reflecting the installation risks. An exit compound with a footprint of approximately 300m x 150m is required to provide sufficient space to undertake the required activities in this location. As is evident from the drawing at **CA1- Exhibit 13**, there is not sufficient space for the exit compound on the other side of the HDD at Kendall's Wharf, and therefore there is no alternative to using the area identified on Farlington Playing Fields to facilitate the delivery of the Proposed Development.

4.53.9 Access to Farlington Playing Fields (Plot 7-12) will be taken via the existing access road from Farlington Avenue (Plots 7-13, 7-16 and 7-17) and egress from the site will use these plots along with plots 7-18, 7-19, 7-20 and 7-21 as there is a one-way system in place along this stretch of road to get back to the Eastern Road. New Access Rights are identified in these areas as the roads are not adopted highway.

4.53.10 Flexibility has been retained to use the existing car park (Plots 7-14 and 7-15) adjacent to the playing fields to support the construction works within Section 7.

4.53.11 As is shown on **CA1- Exhibit 13** the HDD crosses beneath Kendall's Wharf, the A27 and the Broom Channel from the entry location at the yard south west of

Kendall's Wharf. An entry compound of sufficient size will be located in the yard and is required to house all ancillary equipment and materials which will include, but is not limited to, 50kVa Generator (2m x 2m), Toilet Block (6m x 2m), Drying / changing room (6m x 2m), 2no Office Blocks (6m x 2m), 21 ton Tracked Excavator, Drill Pipe Storage (10m x 2m), Power Pack (6m x 2m), Control Cabin (6m x 2m), Mud Lab (3mx 2m), Mud Entry Pits (3m x 4m), High Pressure Mud Pumps (6m x 2m), Mud Mixing Tank (7m x 2m), 350kVa Generator (5m x 2m), Recycling Unit (6m x 2m), Water Storage Tank (6m x 2m), Dry Drilling Fluid Storage (4m x 10m), Workshop (6m x 2m) and Stores (6m x 2m).

4.53.12 As with the exit compound on Farlington Playing Fields, the size of the entry compound has been reviewed in line with engineering requirements and has been reduced as far as reasonably practicable to minimise impact on the land, whilst maintaining sufficient space to deliver the required construction activities.

4.53.13 Plots 8-03b, 8-03c and 8-03d, as shown on Sheet 8 of the Land Plans (REP1-011a) (**CB-18**), are included within the Order limits and are identified for Temporary Use only. These Plots are necessary to be included to facilitate temporary laydown and storage that cannot be accommodated at Plot 8-03 and access to the storage area, which is a yard used by Tudor Sailing Club.

4.53.14 From the entry compound for HDD 3 located in Plot 8-03 on Sheet 8 of the Land Plans (REP1-011a) (**CB-18**), the Onshore HVDC Cables will continue south via open trenching through the Baffins Milton Rovers Football Ground. The working width provided for by Plot 8-03a and 8-03e is approximately 24m and is approximately 33m in the area at the north of the pitch to provide additional flexibility to route the cables around existing structures and buildings at the northern end of the pitch. The width of the construction corridor to be employed in this location will be kept to a maximum width of 5m per circuit.

4.53.15 The Onshore HVDC Cables then head onto the Eastern Road (at the southern end of Plot 8-03e or Plot 8-05) into Section 8 and are to be installed via open trenching, which is further discussed below.

4.54 Section 8 - Eastern Road (adjacent to Airport Service Road) to Moorings Way

4.54.1 The extent of Section 8 is shown on Sheets 9 and 10 of **CA1- Exhibit 7**. The Onshore HVDC Cables will run south within the carriageway of Eastern Road between Airport Service Road and Burrfields Road (opposite Great Salterns Harvester). South of this point it will run in the highway and/or the verge of the highway of Eastern Road to the northern end of Milton Common.

4.54.2 The distance of the Onshore Cable Corridor from the point at which it joins the Eastern Road to the northern end of Milton Common is approximately 1300m. The width of the verge next to the Eastern Road varies but increases further south, with the width of the Order limits including the Eastern Road being approximately 46m.

4.54.3 Taking into account constraints inherent with the highway and the need to minimise the impacts on traffic, it is envisaged that installation in this location will be undertaken in a combination of both the southbound carriageway as well as the eastern verge where possible.

4.54.4 There is the option for a pair of joint bays to be located in the eastern verge of Plot 8-10, immediately south of Plot 8-09 (the car park of the Great Salterns Mansion Harvester). Should this area be used for a joint bay, access for large vehicles and plant would be taken from the Eastern Road. Temporary Use of Plot 8-09 is also sought to facilitate deliveries to the site and provide an alternative means of access to minimise impacts on the Eastern Road and the adjacent cycle path. It is also possible the southern part of Plot 8-09 would be used for laydown to support the construction of the joint bay.

4.54.5 Optionality is then provided for how the Onshore HVDC Cables will be installed across or around the edge of Milton Common, with three options provided for within the Order limits.

4.54.6 The first option is for the Onshore Cable Route to progress south through the corridor adjacent to the path which runs from north to south through Milton Common, parts of which form the coastal flood defences. This is the Applicant's preferred option, and this area was included within the Order limits following feedback received regarding the impacts associated with undertaking installation in Eastern Road.

4.54.7 However, whilst this is the Applicant's preferred approach and ground investigations have been undertaken to evidence the feasibility of this approach, it is not yet possible to confirm this approach and remove the other options for reasons set out below at paragraph 4.54.13 and further explained in the direct responses relating to Milton Common and ground conditions at questions 9.4 and 9.5 of this Statement.

4.54.8 Where the approach of routing the Onshore HVDC Cable Circuits across Milton Common is taken forward following detailed design, HDD 6 will be positioned where the cable route crosses below the existing Coastal Defence. The HDD 6 entry and exit positions are located approximately 50m apart, with the Entry Pit in the north located off Eastern Road (A2030)and the Exit Pit in the south located north west of the Frog Lake.

4.54.9 The HDD Entry compound provides the minimum space required for all drilling and ancillary equipment which will include, but not be limited to, generators, mud recycling unit, mixing tank and HDD mini rig.

4.54.10 Due to the short length of the HDD the compound space required at the exit compound is minimal in comparison to other HDD exit compounds across the route, and provides sufficient room for the product pipe fabrication to be in one continuous length.

4.54.11 A drawing showing HDD 6, including the indicative location and size of the entry compound is located at **CA1- Exhibit 14**.

4.54.12 From the exit location from HDD 6 the Onshore HVDC Cable Circuits would proceed south via trenching adjacent to the existing path to the south-east corner of Milton Common. The width of Plot 9-06 as shown on Sheet 9 of the land Plans (REP1-011a) (**CB-18**), which runs north to south across Milton Common is approximately 30m. The construction corridor through Milton Common will aim to be kept to a width of 2.5m for both circuits with trench dimensions of 700mm in width 900mm in depth. To achieve these dimensions a reduced separation between the circuits is required whilst still maintaining the required circuit rating. To protect the cables they would be installed in a concrete duct block, which provides improved thermal characteristics and greater protection. This method of construction, allowing both the depth and separation to be reduced in this area, is not optimal because future accessibility is compromised as well as requiring significant amounts of concrete to be used during construction. As such, this approach should only be adopted for very limited distances as required to address specific issues. In addition, the reduced width does not allow for adequate storage for topsoil and subsoil or for ease of construction access during the works. Whilst this can be managed over short distances it becomes difficult and impractical over longer distances . A cross-section showing the typical arrangement of the construction corridor across Milton Common is located at **CA1- Exhibit 15**.

4.54.13 Whilst there is a potentially viable route through Milton Common, given the nature of the ground conditions associated with its former landfill use, flexibility is maintained should further ground investigations find the conditions unsuitable for

the development, with two alternative routes also included within this section for the Onshore Cable Corridor.

4.54.14 Both of the alternative routes would result in the Onshore HVDC Cables continuing southwest along Eastern Road (Plot 9-02) where they would be installed in Eastern Road or the western verge of Milton Common. One option would cross Milton Common to Moorings Way (immediately south of Plot 9-04). The other option would continue further south along Eastern Road to the junction with Eastern Avenue, and then continue south-east along Eastern Avenue to Moorings Way (via Plots 9-09, 9-10, 9-12 and 9-13).

4.54.15 The width of the verge along the Eastern Road adjacent to Milton Common is approximately 10m, with the width of the Order limits across the carriageway as a whole being approximately 25m. It is envisaged that both circuits would be installed in the verge of Milton Common or one circuit in the southbound carriageway and one in the verge. In the event it is not technically feasible to carry out installation in the verge it would be necessary for both circuits to be installed in the Eastern Road.

4.54.16 For the option which would cross Milton Common to Moorings Way, the width of the Order limits in this location is approximately 31m, and the construction corridor would be kept to a maximum width of 2.5m for both cable circuits with trench dimensions of 700mm in width and 900mm in depth, implementing the measures set out at paragraph 4.54.12 above and this would only be confirmed as part of the detailed design process

4.54.17 Last in terms of preference would be the continuation of the Onshore HVDC Cable Circuits along Eastern Road to the junction with Eastern Avenue, before heading east along Eastern Avenue. The width of Eastern Road once past Milton Common narrows to approximately 18m and both circuits would be installed in the highway. The width of Eastern Avenue, Plot 9-10 as identified on Sheet 9 of the Land Plans (REP1-011a) (**CB-18**) is approximately 9m, and therefore would be sufficient for the installation of both cable circuits where necessary. However, in order to install both circuits in Eastern Avenue a parking suspension will need to be implemented to maintain traffic flow.

4.54.18 Should the option through Eastern Avenue be pursued the cables would join Milton Common (Plots 9-13 and 9-06) or Moorings Way (Plots 9-11 and 9-14 via plot 9-13). In this area the construction corridor through the western side of Milton Common would be a maximum width of 2.5m for both cable circuits.

4.54.19 From this point the Onshore HVDC Cable Circuits would either be installed in the southern edge of Milton Common or within Moorings Way. Given the nature of the ground conditions associated with Milton Common's former landfill use, flexibility is maintained should further ground investigations find the conditions unsuitable for the development, with Moorings Way being retained as a contingency.

4.55 **Section 9**

4.55.1 The extent of Section 9 is shown on Sheets 10 and 11 of **CA1- Exhibit 7**. The Onshore Cable Route in Section 9 progresses from the southern end of Milton Common through the playing fields at the east side of the University of Portsmouth Langstone Campus. The width of Plot 9-26 which comprises the eastern part of the University playing fields is shown on Sheets 9 and 10 of the Land Plans (REP1-011a) (**CB-18**) and, is approximately 65m at its widest point whilst narrowing to 30-40m in width at the northern and southern parts of this plot..

4.55.2 The construction corridor will have a maximum width of 5m per circuit, as per the typical arrangement shown on **CA1- Exhibit 6**. The Applicant's preference in this area is to install the Onshore HVDC Cables as far east as possible to minimise

the impacts on the University's playing pitches. The wider area within the Order limits has been retained to reflect that surveys will need to be undertaken to ensure there are no below ground structures or impediments which would obstruct the installation of the cables in the eastern verge of the pitches.

4.55.3 From the south of the University of Portsmouth Playing Fields, the Onshore HVDC Cable Circuits will be routed down Longshore Way or the area of open land adjacent to Longshore Way (Plot 9-29) before turning south towards the car park located west of the Thatched House Pub (the Pub itself is excluded from the Order limits) where the entry compound for HDD2 will be located (Plot 10-11). The exit compound for HDD2 will be located in the grassed area adjacent to Kingsley Road to the west of the Eastney and Milton Allotments. A drawing showing HDD 2, including indicatively the entry and exit locations, is contained at **CA1- Exhibit 16**.

4.55.4 Due to the lack of space available given the location of the pub to the east and Milton Locks Nature Reserve to the west, a smaller entry side compound will house all ancillary equipment and materials which will include, but not be limited to a Welfare Unit, Generator, Mixing unit, Recycling Unit, Excavator Drill Pipes and a drilling rig.

4.55.5 Reflecting the constrained space availability at Plot 10-11, Temporary Use of plots 10-02, 10-03, 10-08 and 10-09 is identified to facilitate temporary laydown and storage that cannot be accommodated at Plot 10-11. It is envisaged this would take the form of a fenced compound at the eastern end of Plot 10-03 with temporary access taken over the other plots identified.

4.55.6 No works will take place on the Allotments. However, it is necessary for access on foot to be available over the existing internal network of paths within the Allotments to allow for the inspection of the area whilst the HDD works are ongoing. Furthermore, in the event of any breakout of Bentonite drilling fluid (which is a non-toxic Centre for Environment, Fisheries and Aquaculture Science (CEFAS) approved clay-based lubricant), rights of temporary use of the land is sought to allow for any required clean up to be undertaken whilst minimising any potential for damage as a result.

4.55.7 As with other HDD's explained above, the length of HDD2 (approximately 420m) dictates the need for an exit side compound with an area available to fabricate and facilitate the manoeuvring of the pipe string which will be used to line each of the respective HDD bores. Accordingly, the exit compound located at the grassed area adjacent to Kingsley Road has been has been sized as indicatively requiring 11400m^2.

4.55.8 From the HDD exit location, the cables will be installed through the remainder of the grassed area adjacent to Kingsley Road using open trenching to its north western corner (Plot 10-14c). From this point, flexibility has been retained to run the Onshore Cable Route through Yeo Court to Bransbury Park and/or along Kingsley Road to the junction with Ironbridge Lane before turning south through the pedestrian access to Bransbury Park.

4.55.9 The reasons why this flexibility is necessary are that both Yeo Court and the entrance to Bransbury Park are narrow and it may not be possible to install both cable circuits at each location. The Applicant's preference is to install both circuits via Yeo Court but in the event this is not possible it is likely one circuit would be installed via Yeo Court and one would be installed via the entrance to Bransbury Park.

4.55.10 Plots 10-15, 10-16 and 10-17 have been included to allow for any utilities diversions which may be required in these areas to facilitate the installation of a cable circuit via Kingsley Road.

4.55.11 The Onshore HVDC Cable Circuits are then proposed to continue through Bransbury Park, in Plot 10-21 as identified on Sheet 10 of the Land Plans (REP1-

011a) (**CB-18**). The extent of Plot 10-21 has been specifically chosen to minimise impacts on the existing facilities within Bransbury Park. The width of Plot 10-21 within which the Onshore HVDC Cable Circuits are to be installed is approximately 30-35m in the north of the park, narrowing to 20m at the point where the Onshore Cable Route would pass to the west side of the Skate Park..

4.55.12 It is possible that a Joint Bay would be located in Bransbury Park, in the southern part of Plot 10-21 immediately west of Plot 10-22. Plot 10-22 has been included as it is possible the Onshore Cable Route would be routed through it or else it would be used to facilitate deliveries to support the installation works in Plot 10-21.

4.55.13 As with other open space over which trenching is to take place, the construction corridor will be kept to a maximum width of 5m per circuit, as per the typical arrangement shown on **CA1- Exhibit 6**.

4.56 **Section 10 – Eastney (Landfall)**

4.56.1 The extent of Section 10 is shown on Sheets 11 of **CA1- Exhibit 7**. The Onshore HVDC Cables exit Bransbury Park and head south east along Henderson Road and Fort Cumberland Road to the Fort Cumberland Car Park.

4.56.2 The width of the Order limits along Henderson Road is approximately 15m, therefore providing an adequate width within which to install the Onshore HVDC Cable Circuits. Flexibility has been retained to install the Onshore HVDC Cables via Plots 10-25 and 10-26 as there junction of Henderson Road, Ferry Road and Fort Cumberland has a significant amount of utilities congestion. From this point the Onshore HVDC Cables continue along Fort Cumberland Road, with the Order limits along this road varying in width between approximately 10m and 25m, before entering Fort Cumberland Car Park (Plot 10-32)..

4.57 **Onshore Connection Works**

4.58 Work No.5 is shown on Sheet 10 of the Works Plans (REP2-003) and comprises the Onshore Connection Works. Within the area identified for Work No.5 there will be two Transition Joint Bays where the Onshore HVDC Cables are connected to the Marine HVDC Cables, which have dimensions of up 8 metres in length by 3 metres in width by 2 metres in depth, but with an excavation of up to 15 metres in length by 5 metres in width by 2 metres in depth to accommodate their construction. The reason why the Transition Joint Bays are larger than the other Joint Bays is because the transition joint bays take the form of a chamber with a re-enforced concrete base of pre-cast concrete or block work walls or slab / base and protective covers depending on the design deemed suitable by the contractor. The additional excavation space is needed to safely install the joint bay as per the design.

4.59 HDD 1 is also to be located in the area identified for Work No.5. Options are retained for this HDD, which include drilling from marine to land designated as HDD-1A; or drilling from land to marine, designated HDD-1B. The primary factor in determining which of these options is the favoured option to progress is the onshore ground conditions at the onshore entry / exit point, with a requirement for steel casing if there is a significant thickness of soft alluvial deposits. This would favour drilling from offshore to onshore. However, this will be confirmed by the pre-installation survey, which will include boreholes along the potential HDD alignment offshore. For both options the HDD would either enter or exit the ground within the Fort Cumberland Car Park, Plot 10-32, over which New Connection Works Rights are required.

4.60 For HDD 1A an entry compound of sufficient size will be required to house all ancillary equipment and materials which will include, but not be limited to 50kVa Generator (2m x 2m), Toilet Block (6m x 2m), Drying / changing room (6m x 2m), 2no Office Blocks (6m x 2m), 21ton Tracked Excavator, Drill Pipe Storage (10m x 2m), Power Pack (6m x 2m), Control Cabin (6m x 2m), Mud Lab (3mx 2m), Mud Entry Pits (3m x 4m), High Pressure Mud Pumps (6m x 2m), Mud Mixing Tank (7m x 2m), 350kVa Generator (5m x

2m)Recycling Unit (6m x 2m), Water Storage Tank (6m x 2m), Dry Drilling Fluid Storage (4m x 10m), Workshop (6m x 2m) and Stores (6m x 2m). Accordingly, an entry compound of 3360m2 has been indicatively identified as being required, and is detailed on the drawings showing HDD 1 at **CA1- Exhibit 17**. It is possible that the compound size could be reduced in the event HDD 1B is preferred and the Applicant will only exercise rights over as much land as is necessary to facilitate the works. As these works will be below the surface when complete, New Connection Work Rights are sought over Plot 10-32 shown on Sheet 10 of the Land Plans (REP1-011a) (**CB-18**). However, due to the length of the pipe string required to line HDD1, it is anticipated that, regardless of direction of drilling, this will be pulled in from the sea, therefore avoiding the requirement for significant pipe laydown areas adjacent to the compound.

4.61 In addition, Optical Regeneration Stations ('ORS') which are required to maintain the signal strength of the FOC across the entire route and ensure reliable and high-speed communication is maintained between the UK and France Converter Stations are proposed to be located within the Fort Cumberland Car Park. The ORS compound comprises 2 buildings located in a secure compound with separation to maintain the independence of the fibre optic cables in each HVDC circuit, providing greater resilience in the event of equipment failure, fire, adverse weather, vandalism and/or accidents. This functional and independence requirement dictates the footprint required. The required parameters of each ORS building are 11 m long x 4 m wide and up to 4 m in height. The ORS buildings compound would also contain auxiliary power generation equipment and fuel tanks. The spatial requirements of the ORS Buildings are further explained in Section 5.5 of the Design and Access Statement (REP1-031) (**CB-15**). The area on which the permanent ORS is to be located is identified for the permanent acquisition of land at Plot 10-30 on Sheet 10 of the Land Plans (REP1-011a) (**CB-18**).

4.62 The Indicative Landscape Mitigation Plan (Landfall) (APP-283) (**CAH-18**) shows the indicative proposals for landscaping associated with the ORS compound. Landscaping rights are required around the ORS to plant native trees, a native hedgerow and hedgerow trees, as part of the landscaping to screen the ORS buildings and associated compound which would enhance the biodiversity of the area and improve the visual landscape around the only permanent visual installation at the Landfall during the Operational Stage. Landscaping rights for the land adjacent to the ORS compound would be secured under class (f) of the New Connections Rights, an approach adopted elsewhere within the Order Limits such as Plots 1-37, 1-55 and 1-79. Requirement 8(3) in the draft DCO confers a maintenance obligation on the undertaker in relation to this landscaping.

4.63 To explain the sequencing of the works to be undertaken in the Fort Cumberland Car Park, and the spatial requirements of the works to be undertaken, a sequence of drawings showing they key stages of construction in this location are located at **CA1- Exhibit 21**.

4.64 The spatial requirements in relation to the sequencing of works in Fort Cumberland car park are as follows

(A) Phase 1 – HDD Installation. 75% of car park required

(B) Phase 2 – Construction of transition joint bay for 1st circuit, install onshore and offshore cables, joint cables and permanently reinstate. 50% of car park required

(C) Phase 3 – Car park all clear

(D) Phase 4 - Construction of transition joint bay for 2nd circuit, install onshore and offshore cables, joint cables and permanently reinstate. 50% of car park required

(E) Phase 5 – Construction of ORS Building. 50% of car park required

4.65 Plots 10-33, 10-34, 10-35, 10-36, 10-37 and 10-38 are shown on the Land Plans as identified for New Connection Work Rights. The Onshore HVDC Cable Circuits will be installed via HDD beneath the surface in this location, and as such there will be no works undertaken on the surface of this land.

4.66 **Temporary Possession of Land**

4.67 Powers of temporary possession of land are sought over the Plots which are shaded yellow on the Land Plans (REP1-011a) (**CB-18**) and detailed in Schedule 10 of the dDCO (REP3-003) (**CB-1**), and additionally in respect of all other land over which the Applicant is seeking the power to compulsorily acquire all interests or acquire new rights.

4.68 Taking this approach allows for the land within the Order limits to be used temporarily for the purpose of constructing the authorised development. It is not necessary and would not be proportionate for the undertaker to acquire the land on which construction is to be undertaken to carry out works where in many instances there will be no permanent infrastructure. This ensures that the overall amount of acquisition in connection with the authorised development to the minimum amount possible, being that which is required on a permanent basis to be confirmed once the authorised development is fully designed/constructed.

4.69 As can be seen in the explanation of the land within the Order limits in this response to question 4.3, taking into account the manner in which the authorised development is proposed to be constructed and the necessary level of flexibility required to allow for this within the Order limits and the reasons why the ability to acquire permanent rights over the land not identified solely for temporary use is necessary and proportionate, it is not possible to de-couple all of the temporary working areas without potentially constraining the delivery of the authorised development and further impeding its delivery overall.

4.70 It is for this reason that the approach of seeking to authorise the temporary possession of all land within the Order limits, being a lesser class of right, is sought across all land within the Order limits. This is an inherently a proportionate approach to the acquisition of land in connection with the authorised development.

4.71 The approach being taken in this respect is not novel, and can for example be seen in the approach taken to the Southampton to London Pipeline Order 2020 where all land in the Order limits was also subject to temporary possession powers.

Question 4.4

The Applicant to explain, with the aid of plans, the envisaged locations and extents for any other non-HDD 'satellite contractor's compounds', 'laydown areas' and non-HDD joint bays along the 'Onshore Cable Corridor' (ES Vol 3 Appendix 22.2 paragraphs 2.4.1.2, 3 and 5, and [REP1-091] CA1.3.71).

4.72 **Onshore Cable Route Construction Working Corridor Lay-down Use**

4.73 It is not proposed that ‘satellite contractor compounds’, separate from the working corridors where the works to install the onshore HVDC cable circuits by trenched installation methods, will be provided.

4.74 Sufficient space will be made available for the establishment of a works compound, site offices, etc. at the Converter Station Area for use in connection with the construction on the Onshore Cable Route.

4.75 The working corridors to be located within the Order limits have been appropriately sized taking into account the need to accommodate sufficient space for the storage of ducts and other materials which are to be used for the purpose of installing the cables, effectively providing laydown areas within the construction working corridor.

4.76 For Onshore Cable Route construction activities in more constrained locations, for instance within the highway, or on open space land where the working corridor is narrower to minimise impacts, the area required for plant and materials will all be contained within the working corridor, and construction will proceed on a linear basis with laydown and storage areas moving along with the work front.

4.77 More specifically, this will involve delivery of cement bound sand (CBS), ducts and protective tiles to the areas of construction, which will then be set aside at a lay-down and

drop-off area contained within the working corridor. Material would then be transferred from the lay-down location within the working corridor to the point of work within the corridor using smaller plant on-site within the working corridor. This would not involve any additional vehicle movements, with the smaller plant remaining inside the confines of the working corridor as the linier route progresses.

4.78 The materials will be replenished from the main compound on a daily basis or as and when required for such items as CBS and removal of spoil.

4.79 **Joint Bay Space Requirements and Working Areas**

4.80 Typical joint bay arrangements are shown at **CA1 – Exhibit 11**.

4.81 To correspond with the lengths of cable that can fit on a drum and specific constraints on installation, joint bays will need to be positioned at approximately 600-2,000m intervals along the route.

4.82 Joint bays will be positioned in verges, fields or car parks where possible, to limit impacts on the highway during installation, with this secured in the updated Onshore Outline CEMP (REP4-005) (**CB-24**) with which compliance is secured by requirement 15 of the dDCO (REP1-031) (**CB-15**). It is also preferable to avoid the need for the DC cables to cross the highway to access a joint bay location.

4.83 In addition to the joint bay excavation, which will be large enough for the joint bay itself, plus space for cable handling during installation and jointing, additional space will be required for delivering and offloading of cable drums and winches, and for a site set-up during jointing.

4.84 The location of the joint bays cannot be confirmed now as it is a matter to be addressed at detailed design. Detailed design approvals for all works will also take place at that stage with the relevant authorities.

4.85 The number, distance between and location of joint bays along the route is an iterative process with several contributory factors. These include the following:-

- 4.85.1 maximum drum dimensions and weight determined by manufacturing, transport and site constraints.
- 4.85.2 maximum cable length that can be installed determined by the route, number and type of bends, profile, number of service crossings, duct size, type and lubricant and cable maximum pulling tension.
- 4.85.3 availability of space suitable for the locations of joint bays.

4.86 The factors that impact on the detailed route engineering differ between suppliers, meaning it is not possible to confirm the final joint bay positions until the contractor has completed the detailed design phase following contract award.

4.87 The general process will be to first survey the route to determine distances, profiles and bends. Based on this the process, the determining section lengths will commence starting with the fundamentals of maximum cable lengths to be considered. This will divide the route into a number of sections to provide a starting point. The process then becomes more granular with each section being surveyed in detail to identify the most suitable joint bay locations and to understand obstructions, services etc. and to allow calculations to be carried out to determine the maximum length of cable pull possible. As part of this process a series of trial holes will be required to confirm that the route and location of joint bays are in fact possible taking into account ground conditions, services etc.

4.88 Ideally potential joint bay locations will align with the maximum cable length that can be installed for each section. However, this is unlikely and some considerable iteration is required to reach the final route design and joint bay locations

5. FUNDING

Question 5.1

The Applicant to provide any further updates to the Funding Statement.

5.1 There are no further updates to the Funding Statement to be provided at CAH1.

5.2 However, the Applicant acknowledges that through the written questions and the responses issued to those, further information in relation to funding has been provided which is relevant to the Funding Statement, and it is confirmed the Applicant is considering any updates to the Funding Statement that are necessary to ensure the consistency of this document with the responses provided. As such, the Applicant confirms that it will seek to update the Funding Statement following CAH1.

5.3 Taking this approach also allows the Applicant to update the funding statement in relation to any relevant specific matters that are raised at CAH1 also.

Question 5.2

The Applicant to advise on whether the residual cost of completing the pre-construction stage of the project, which is forecasted at £7m, excludes Compulsory Acquisition costs [REP1-091] CA1.3.1 and 103). If this is the case, explain how the Compulsory Acquisition costs are to be funded.

5.4 The forecasted £7million in relation to the residual cost of completing the pre-construction stage of the project includes the costs anticipated to be associated with the following matters:

5.4.1 all activities related to the Examination of the Application prior to any grant of development consent;

5.4.2 all activities related to obtaining the required permits and consents in relation to the French elements of the Project (as detailed in the Other Consents and Licences Document (REP1-029);

5.4.3 all actives related to the running of the tender for procurement in relation to the Project (including both in the UK and France);

5.4.4 all activities related to obtaining the regulatory approvals required in connection with the future operation of the Project.

5.5 As is explained in the Funding Statement (APP-023) (**CAH-3**) the authorised development, and more broadly the Project, is to be funded through project finance funded and secured against the operational profits (revenues) of the Project. The Compulsory Acquisition costs as provided in CA1.3.103 (REP1-091) **(CB-2)** represent less than 0.5% of the total project capital expenditure of £1.24bn ((APP-023), section 5.2), or less than one percent of the costs of the Proposed Development.

5.6 The Applicant has provided written responses to the ExA first written questions (REP1-091) (**CB-2**) in relation to matters relating to project financing. The responses provided to written questions CA1.3.1, CA1.3.10, CA. 1.3.95, CA 1.3.96, CA 1.3.97 and CA 1.3.104 are directly relevant in this regard, responding to direct questions in relation to how funding will be secured, the viability of the Project, the interest in the provision of finance for the Project and the market engagement undertaken to date to confirm the bankability and investment attractiveness of the Project. The responses to these questions clearly demonstrate that there is a reasonable likelihood of the requisite funds for acquisition becoming available.

5.7 Specifically the response to CA 1.3.1 confirmed "*it is not unusual for the securing of funding in connection with the delivery of a project to be dependent on the securing of a development consent order, it is considered the Applicant has demonstrated that funding for the Project is likely to be available to enable the compulsory acquisition within AQUIND the 7-year period provided for in the dDCO (APP-019) for the exercise of such powers following the Order being made*".

5.8 Financing for the Project secured following any grant of the DCO will be used to fund the capital costs of the construction stage, which includes the costs associated with compulsory acquisition. Securing finance against the future revenues of the Project does not mean that financing would not be obtained until such time as the Project is generating revenues. Such financing is secured against the future revenues of the Project, taking into account the capital costs which are required to deliver the Project such that it may operate and generate those revenues which financing is secured against. This is a typical arrangement for infrastructure projects.

5.9 The requirement for such compulsory acquisition costs and their impact on the Project capital costs of construction has been fully taken into account in relevant regulatory submissions to both CRE and Ofgem.

Question 5.3

The Applicant to explain briefly why AQUIND is described as an 'additional exempt project' in terms of the cap and floor regime ([APP-115] pages 2-3, footnote 12, Near-Term Interconnector Cost-Benefit Analysis, section 2.4).

Also explain the term 'fully merchant (exempt) interconnector project' used to describe the AQUIND project and how, in this respect, AQUIND is different to other interconnector projects from Nemo in 2014 onwards ([APP-115] pages 2-3, footnote 12, Near-Term Interconnector Cost-Benefit Analysis, section 4.1.2 and [REP1-091] CA1.3.55).

5.10 In relation to the description of AQUIND as an “additional exempt project” in the Poyry report on Near-Term Interconnector Cost-Benefit Analysis for Cap and Floor Window 2, we understand this to refer to AQUIND as an additional project by comparison to those projects being considered for the cap and floor regime. At this time in January 2017, it was intended that AQUIND would be developed pursuant to an exemption instead of pursuant to the Cap and Floor regime.

5.11 Regarding the term “fully merchant (exempt) interconnector project”, a “merchant” interconnector is a project where revenues are not regulated and therefore the developer (instead of the consumer) takes the risk on the profitability of the project. This “merchant” route is possible where an interconnector has the benefit of an “exemption” from certain regulations which would otherwise impact on, for example, charging and use of revenues arising from the interconnector. Nemo however and the other Window 1 and Window 2 projects referred to in section 4.1.2 of the Near-Term Interconnector Cost-Benefit Analysis are developed under the cap and floor regime. They are therefore subject to regulation (instead of being exempt) and benefit from regulatory support (the floor) through payments under the cap and floor regime.

Question 5.4

The Applicant to explain briefly the relationship between AQUIND being described as an 'additional exempt project' in terms of the cap and floor regime and the potential for a 'cap and floor' award [REP1-091] (CA1.3.59).

5.12 As discussed, we understand that “additional” refers to AQUIND as additional by comparison to those projects considered at that time for a cap and floor regime, this does not have any other specific meaning in relation to an exempt project.

5.13 It was historically intended that AQUIND would be developed as a fully exempt project (subject to certain limitations which may have been imposed in any exemption decision) with no regulatory support required through a cap and floor award. A cap and floor would be an alternative arrangement to an exemption.

5.14 However, it is also possible for projects to be partially regulated and partially exempt. AQUIND’s pending exemption application, which was submitted to CRE and Ofgem in June 2020 only seeks an exemption in relation to the French portion of the project. In that

scenario, it would therefore be possible for the non-exempt GB portion of the project to be regulated pursuant to the cap and floor regime.

Question 5.5

The Applicant to explain whether the project would still be viable if the current exemption request is refused [REP1-091] (CA1.3.97).

5.15 By way of an update since the date of AQUIND's responses to the written questions, it was noted in AQUIND's response reference CA1.3.2 that a decision was awaited in respect of an appeal before the General Court of the European Court of Justice regarding the rejection in 2018 by ACER and the ACER Board of Appeal of AQUIND's exemption request. On 18 November 2020, the General Court found in favour of AQUIND and annulled the decision of the ACER Board of Appeal. That exemption application is now pending before the ACER Board of Appeal who will need to take into account the General Court's findings and reconsider their previous rejection.

5.16 AQUIND is liaising with ACER In this regard and it is therefore possible that an exemption may be granted pursuant to the application made in 2018.

5.17 Also as noted in AQUIND's response reference CA1.3.2, AQUIND submitted an exemption request to Ofgem and CRE in June 2020. As described in response to the previous question, such exemption is only requested in relation to the French portion of the project. That application is progressing.

5.18 AQUIND therefore currently has multiple options which would provide regulatory certainty enabling the project to proceed.

Question 5.6

Consideration of further document submission arrangements for the Funding Statement [REP1-091] (CA1.3.53).

5.19 The Applicant's response to ExA WQ CA 1.3.53 confirmed a cross-referencing error and that an update to the Funding Statement (APP-023) (**CAH-3**) has not been provided to address this given the minor nature of the error and this written response confirming the position which is a public document related to the Application. The Applicant also requested the ExA to confirm whether they consider an updated Funding Statement is required to address this error.

6. OPEN SPACE

Question 6.1

The Applicant to explain the application of s132 of the PA2008 to the dDCO, particularly in relation to s132(3), (4A) and (5).

6.1 Section 132 of the Act (Commons, open spaces etc; compulsory acquisition of rights over land) applies to an order granting development consent which authorises the compulsory acquisition of a new right over land forming part of a common, open space or fuel or field garden allotment. It provides that such an order granting development consent will be subject to special parliamentary procedure unless the Secretary of State is satisfied that one of the following tests is satisfied:

6.1.1 the land will be no less advantageous, when burdened with the right, to the persons mentioned in subsection (3) (s132(3)); or

6.1.2 replacement land will be given in exchange and will be subject to the same rights, trusts and incidents (s132(4)); or

6.1.3 in relation to open space only, there is no suitable alternative land available to be given in exchange for the order land or such replacement land is only available at a prohibitive cost and it is strongly in the interest for the development for which the order grants consent to be capable of being begun sooner than is likely possible if the order were to be subject (to any extent) to special parliamentary procedure (s132(4A); or

6.1.4 the land is open space only, and the order right is being acquired for a temporary (although possibly long-lived) purpose) (s132(B)); or

6.1.5 the land over which the right is being acquired does not exceed 200 square metres, or the right is required in connection with the widening or drainage of an existing highway or in connection partly with the widening and partly with the drainage of such a highway, and the giving of land in exchange for it is unnecessary(s132(5)).

6.2 As explained in the response to question 4.2, the Applicant is seeking powers of compulsory acquisition of rights over land forming open space (as defined at section 132(12) of the Act), known as special category land.

6.3 The open space land over which the Order seeks powers of compulsory acquisition of rights is detailed in Part 5 to the Book of Reference (REP4-003) **(CB-10)**. It should be noted that, as is also explained in the response to question 4.2, the Eastney Lake and Milton Piece Allotments had previously been identified as special category land, but it has since been confirmed by the owner that this land is not a fuel or field garden allotment, as that term is defined in section 132(12).

6.4 The rights over the open space land sought would authorise the laying and operation of the HVDC onshore cable circuits in the special category land, beneath its surface only. The Applicant therefore considers that this special category land if burdened with the rights sought in the Order would be no less advantageous to any person or the public than it was before, and therefore the test provided for at section 132(3) of the Act is satisfied.

6.5 It is acknowledged that for the duration of the period of construction activities on the open space land, access to parts of this will not be available, however this is for a temporary period only and it is considered that it is not necessary to provide, and that it would be disproportionate to require, replacement land during this temporary period.

6.6 On this basis, since s132(2) requires only one of the tests in sub-sections (3)-(5) to be met, we believe that accordingly special parliamentary procedure is not required. However, for completeness we also address the other sub-sections referred to in the ExA's question.

6.7 Until the recent confirmation that the Eastney Lake and Milton Piece Allotments are not a fuel or field garden allotment, it was the case that allotment land had been included as special category land. Now that is confirmed not to be the case, the only special category land over which powers of compulsory acquisition of rights are sought is open space, none

of which is subject to a dual designation as any other of the special categories. As such, Section 132(4A) may now apply.

6.8 It is evidently the case that to require the grant of the Order to be the subject of special parliamentary procedure would delay the soonest point at which the authorised development may be begun. It is also the Applicant's view that in light of the significant national benefits which the authorised development will provide, as outlined in the Needs and Benefits Report (APP-115) **(CAH-8)** and the Needs and Benefits Addendum (REP1-136) **(CAH-9),** that it is strongly in the public interest for the authorised development to be begun at the earliest possible opportunity. The Applicant would draw particular attention to the significant carbon emissions benefits which the authorised development will deliver and their contribution to helping the UK meet its target of net zero carbon emissions by 2050, as well as the significant economic stimulus that the delivery of the authorised development would provide at a time when it is imperative to boost the UK economy in the short term following the Covid-19 pandemic.

6.9 The open space collectively over which powers of compulsory acquisition of rights are sought exceeds 200 square metres, as do all of the land parcels individually. It is therefore not considered that section 132(5) could be applicable to the dDCO (REP3-003) **(CB-1).**

7. OTHER SPECIAL CATEGORY LAND

Question 7.1

The Applicant to explain the application of s132 of the PA2008 to the dDCO, particularly in relation to s132(3), (4A) and (5) and allotments.

7.1 The Eastney Lake and Milton Piece Allotments had previously been identified as special category land, but it has since been confirmed by the owner that this land is not a fuel or field garden allotment, as that term is defined in section 132(12). Accordingly, section 132 of the Act is not applicable in relation to this land, and all other special category land in the Order limits is open space. The position in relation to section 132 of the Act and open space in relation to the dDCO (REP3-003) (**CB-1**) has been explained above.

Question 7.2

The Applicant to explain why four access points are required along the Order limits within the Milton Piece Allotment Gardens [REP1-091] (CA1.3.22).

7.2 Access will be required to Eastney and Milton Allotments whilst HDD activities are being undertaken to install the Onshore Cable Route at depth under the allotments. The areas over which access is required are the existing paths, as identified on the Land Plans submitted at Deadline 5. Bentonite (naturally occurring clay based material) based drilling fluid is used as part of the HDD process to lubricate and cool the drilling head whilst also transporting the cuttings back to the HDD entry compound.

7.3 There is a risk on HDD projects that bentonite can find its way to the surface via fractures or pathways in the ground. The HDD Position Statement Note (REP1-132) identifies this risk of bentonite breakout, with the risk of bentonite break out at the allotments being small to negligible as the HDD has been designed at a suitable depth in a competent homogenous geological layer. The weaker un-cohesive layers are to be cased through to prevent a breakout during the initial stages of the drill.

7.4 The bentonite to be used is on British Governments CEFAS (Centre for Environmental Fisheries and Aquatic Science) website and PLONOR (Pose Little Or No Risk) list.

7.5 Notwithstanding this small to negligible risk of bentonite break out, access will be required over the allotments in the areas shown on the updated Land Plans whilst HDD works are taking place to monitor for bentonite break-out. Having the ability to access the extent of the order limits in this area will ensure that in the unlikely event of bentonite breakout it can be identified (e.g. visually) and cleaned up as soon as practicable.

Question 7.3

The Applicant to describe briefly a Vantage Point Survey [REP1-091] (CA1.3.68).

Vantage Point Survey

7.6 A vantage point survey is a non-intrusive observational check at designated points along the route to ensure that no construction activities, or future developments take place within the area of the permanent cable easement..

Question 7.4

The Applicant to explain why covered joint boxes may be required within the Milton Piece Allotment Gardens [REP1-091] (CA1.3.34) if the 'proposed HDD alignment will lie' 'at 7m bgl' ([REP1-132] section 3.2 and [REP1-091] CA1.3.71).

7.7 The full extent of the Eastney Lake and Milton Piece Allotments will be crossed using a trenchless technique, namely Horizontal Direction Drilling (HDD). Joint bays will be needed in the vicinity of the entry and exit points; however, these points are situated outside the

allotment boundary and it is confirmed that no joint bays will be positioned within the allotment boundary.

7.8 CA 1.3.34 queried whether the absence of physical infrastructure on the surface of special category land mean that the proposed development would be constructed by a sub-surface method, such as horizontal directional drilling, within the special category land. In response to this, the Applicant confirmed that construction of the proposed development within special category land will vary (comprising trenched installation and/or HDD) depending on the location within the Order limits.

7.9 The location and methods are secured within the Onshore Outline CEMP (REP4-005) **(CB-24)** and Requirement 15 of the dDCO (REP3-003) (**CB-1**). Additions have also now been added to requirement 6 to confirm that the method of installation at the Eastney Lake and Milton Piece Allotments will be HDD, and this is also now shown on the Works Plans (REP2-003) (**CB-20**).

7.10 The question posed was not location specific, and therefore neither was the response provided. At no point was it suggested in this response that joint bays may be required within the Eastney Lake and Milton Piece Allotments.

7.11 CA 1.3.71 queried the envisaged joint bay locations. The response provided confirmed the Applicant's contractor will seek to locate the joint bays off the roads, (e.g. in verges, parks) where practicable with this secured in the updated Onshore Outline CEMP (REP4-005) **(CB-24)** and secured by requirement 15 of the dDCO (REP3-003) (**CB-1**). Where located 'in a park', this would be at the edge and the joint bay would be fully covered and not distinguishable from the surface following construction.

7.12 It is not understood which of those responses the ExA consider has suggested that joint bays would be located within the Eastney Lake and Milton Piece Allotments.

Question 7.5

The Applicant to explain, with the aid of examples to describe an occupation of the compound, the need for the larger reception HDD compounds at Milton Piece Allotment Gardens and the playing field to the north of the A27 compared to other reception compounds and also why these reception compounds are significantly larger than the launch compounds to which they relate ([REP1-132] appendix 2 and [REP1-091] CA1.3.71).

7.13 All HDD entry and exit compounds have been reviewed in line with engineering requirements, in particular the length and profile of the drill to ensure there is adequate space for all drilling and ancillary equipment at entry point compound as well as providing sufficient space for pipe storage, welding, fabrication and stringing ahead of pipe installation at the exit compound.

7.14 The footprint of both entry and exit compounds have been reduced as far as reasonably practicable to minimise impact on land, whist maintaining sufficient space to deliver the required construction activities.

7.15 The longer HDD length in these specific locations justifies the larger exit compounds.

7.16 The entry compound consists of the drilling rig and ancillary equipment required to run and maintain the drill.

7.17 There are 4 drills to conduct, one for each duct and the length of each drill is circa 420m. On the exit side all of the ducting must be delivered to site and then welded into continuous lengths ready for pulling back into the completed bore.

7.18 It is best practice to pull one continuous string of duct into a HDD bore, At HDD2 (Eastney and Milton Allotments) there is not sufficient space to do this. Ducts will be welded into lengths as long as possible within the land take, this 1st length will be pulled into the bore and then pullback will stop to enable the 2nd length of duct to be welded to the 1st length. This operation will continue until the duct has been successfully pulled back to the launch pit.

8. HIGHWAY LAND

Question 8.1

The Applicant and local highway authorities to explain briefly the differences between the powers sought under the dDCO and those available to Statutory Undertakers in the highway under other statutes.

8.1 Various statutory undertakers enjoy different statutory powers in relation to the carrying out of works in the highway depending on the undertaking of the specific undertaker and authorising statute. For the purpose of explaining the position in relation to powers available to statutory undertakers, the Applicant considers it to be most appropriate to explain the powers which are relevant to electricity undertakers, principally provided for by the Electricity Act 1989.

8.2 Section 10(1) of the Electricity Act 1989 provides that Schedule 4 to that Act (which confers other powers and makes other provisions) shall have effect in relation to the holder of a licence holder pursuant to section 6 of that Act.

8.3 Paragraph 1(1) of Schedule 4 to the Electricity Act 1989 provides that subject to paragraph 1(2), for any purpose connected with the carrying on of the activities which he is authorised by his licence to carry on, a licence holder may execute:

8.3.1 the following kinds of works, that is to say, installing under, over, in, on, along or across any street and from time to time inspecting, maintaining, adjusting, repairing, altering, replacing or removing:

(A) any electric lines or electrical plant; and

(B) any structures for housing or covering any such lines or plant; and

8.3.2 any works requisite for or incidental to the purposes of any works falling within paragraph (A) above, including for those purposes:

(A) opening or breaking up any street or any sewers, drains or tunnels within or under any street;

(B) tunnelling or boring under any street; and

(C) removing or using all earth and materials in or under any street;

8.3.3 but nothing in this sub-paragraph (1) shall empower a licence holder to lay down or place any electric line or electrical plant into, through or against any building, or in any land not dedicated to the public use.

8.4 Paragraph 1(2) provides the power of a licence holder under sub-paragraph (1) to place on or over a street any structure for housing any line or plant to be exercisable only with the consent of the street authority, but such consent shall not be unreasonably withheld.

8.5 The powers granted in this regard are materially similar to those provided for in Article 11 (1) of the dDCO (REP3-003) (**CB-1**), which provides the authority for the undertaker to enter on so much of any of the streets as is within the Order limits without the consent of the relevant street authority and to:

8.5.1 break up or open the street, or any sewer, drain or tunnel under it;

8.5.2 tunnel or bore under the street or carry out works to strengthen or repair the carriageway;

8.5.3 place or keep apparatus in, on or under the street;

8.5.4 maintain, renew or alter apparatus in, on or under the street or change its position;

8.5.5 execute and maintain any works to provide hard and soft landscaping;

8.5.6 carry out re-lining and placement of road markings;

8.5.7 removal and installation of temporary and permanent signage;

8.5.8 remove, replace and relocate any street furniture; and

8.5.9 execute any works required for or incidental to any works referred to in sub-paragraphs 8.5.1 to 8.5.8.

8.6 The activities provided for in paragraphs 8.5.5, 8.5.6, 8.5.7 and 8.5.8 are not also provided for by Paragraph 1(1) of Schedule to the Electricity Act 1989. The power to undertake those activities has been included in the dDCO (REP3-003) (**CB-1**) as they are directly relevant to the activities which it is anticipated may need to be undertaken in connection with the construction of the authorised development. The power to undertake these activities is therefore included to provide the necessary single consent for the authorised development which the Order is to provide.

8.7 It is also the case that consent from the street authority is not required for the undertaking of those activities where they are within the Order limits. This is on the basis that the works are being assessed and consented by the Order, and that through this process it will be determined that the activities to be undertaken on that land are appropriate. Consent of the street authority is required for any such works which are to be undertaken outside of the Order limits, with such consent not able to be unreasonably withheld or delayed, in the same manner as is provided by the above explained provisions of the Electricity Act 1989.

8.8 Further additional powers to undertake works in the highway are provided for by Article 10 of the dDCO (REP3-003) (**CB-1**), which provides the power for the undertaker for the purpose of constructing and maintaining the authorised development, to permanently or temporarily alter the layout of any street (and carry out works ancillary to such alterations) whether or not within the Order limits and the layout of any street having a junction with such a street. These powers must not be exercised without the approval of the relevant street authority and such approval is not to be unreasonably withheld or delayed.

8.9 It is important to note that this is not a blanket or unsanctioned power to undertake works in the highway, with it being necessary in accordance with the formulation of Article 10(1) for any works to be undertaken to be required for the purpose of constructing and maintaining the authorised development. The authorised development is the development which is to be authorised by the Order, which is clearly defined in Schedule 1 to the dDCO (REP3-003) (**CB-1**). Any such works which are not required for the purpose of constructing and maintaining the authorised development would be outside the scope of the powers to be granted by Article 10.

8.10 Article 10 is included because it is known it will be necessary for such works to be undertaken for the purpose of constructing and maintaining the authorised development, and is therefore a necessary and appropriate power to be included within the dDCO (REP3-003) (**CB-1**)

Question 8.2

The Applicant and local highway authorities to briefly explain what consents would be required to install and maintain the cable in the highway if dDCO powers were not available to undertake these operations.

8.11 The Applicant benefits from a licence authorising its participation in the operation of an electricity interconnector, granted pursuant to section 6(1)(e) of the Electricity Act 1989. As such, it benefits from the powers provided for by Schedule 4 of the Electricity Act 1989 explained above.

8.12 The Applicant does not benefit from statutory powers to undertake the additional activities provided for by Article 11 or the activities provided for by Article 10. Accordingly, it would be necessary to obtain the relevant street works licence and highways approvals, for instance pursuant to section 278 of the Highways Act 1980, to undertake the further works required for the purposes of constructing and maintaining the authorised development.

8.13 In addition, whilst the Applicant by virtue of the licence it has been granted to participate in the operation of an electricity interconnector benefits from certain permitted development rights conferred by the Town and Country Planning (General Permitted Development) (England) Order 2015 ('GPDO'), it is not the case that these would be sufficient to provide

the grant of planning permission in respect of all activities required to be undertaken to construct the authorised development.

8.14 Paragraph B of Part 15 of the GPDO provides planning permission for certain development by statutory undertakers for the generation, transmission, distribution or supply of electricity for the purposes of their undertaking. This includes (but is not limited to):

8.14.1 the installation or replacement in, on, over or under land of an electric line and the construction of shafts and tunnels and the installation or replacement of feeder or service pillars or transforming or switching stations or chambers reasonably necessary in connection with an electric line;

8.14.2 the installation or replacement of any electronic communications line which connects any part of an electric line to any electrical plant or building, and the installation or replacement of any support for any such line; and

8.14.3 the sinking of boreholes to ascertain the nature of the subsoil and the installation of any plant or machinery reasonably necessary in connection with such boreholes.

8.15 Whilst this would appear sufficient to provide the requisite planning permission for the installation of the authorised development in the highway, it does not in accordance with paragraph B.1(a)(ii) permit the installation or replacement at or above ground level or under a highway used by vehicular traffic, of a chamber for housing apparatus where the chamber would exceed 29 cubic metres in capacity.

8.16 The joint bays required to join the sections of cables which are to be installed in the highway as part of the authorised development have dimensions of up to 6 metres in length by 3 metres in width and 1.85 metres in depth, or 33.3m^3. It would therefore be unlawful to construct the joint bays under the highway, as is likely to be required in some instances in connection with the authorised development, without a planning permission being granted for this. It is also not considered that it would be in any way feasible to seek to rely on a piecemeal approach of undertaking some works pursuant to the powers already conferred on the Applicant and seeking to obtain planning permission for other works. A planning permission for the whole of the authorised development would in reality be required.

8.17 Furthermore, whilst they are not consents to install and maintain per se, the dDCO (REP3-003) (**CB-1**) provides in the remainder of Part 3 (Streets) for various approvals needed to facilitate the undertaking of works in the highway, for instance the power to temporarily stop up, alter or divert any street, public right of way or permissive path within the Order limits (Article 13) and to make, with the consent of the relevant traffic authority, traffic regulation orders (Article 16) (both such powers subject to the processes required for their exercise further detailed in the respective Articles). Where the powers to be provided by the dDCO (REP3-003) (**CB-1**) not available, it would be necessary to obtain all such approvals separately.

8.18 Accordingly, whilst the Applicant by virtue of its licence to participate in the operation of an electricity interconnector benefits from some of the powers required to install and maintain the authorised development in the highway, the vast majority of the consents required would need to be obtained separately.

9. CONSIDERATION OF ALTERNATIVES AND OPTIONS

Question 9.1

The Applicant to explain briefly how the August 2014 preliminary technical-economical study took into account traffic disruption and residential environmental effects before recommending that a highway route should be preferred [APP-117], paragraph 2.4.1.2).

9.1 The preliminary technical-economical study did not include any assessment of the traffic disruption and residential effects. As explained in response to question 9.3(a) the study presented underground route concepts only and was intended only to conceptualise a feasible means of realising the project. This was a high level report which determined the best available technology to be adopted. The report did state that "*whilst some parts of the route may need to pass through private lands (likely to be predominantly fields), it is envisaged that the cables will be installed in the verge of major highways for the majority of the route*". This simply reflected an initial high level view that a route which generally avoided agricultural land was likely to have fewer environmental effects and to be more likely to be capable of delivery within the development timeframe.

9.2 As will be seen in response to item 9.3 at this hearing, it was in April 2015 when the landfall locations were considered in detail and in February 2017 (at the time of the preliminary route study) that enough information was available about the project locations to assess the effects on traffic and the residential environment.

Question 9.2

The Applicant to explain briefly the detail of the consideration which is summarised in the 'Alternative Countryside Routes Comparison' in the Environmental Statement (ES) ([APP-117], table 2.6) and any subsequent updates.

9.3 A comparison of various factors including the potential for future development, cable installation works and environmental constraints is provided in Table 2.6 of ES Chapter 2 (Consideration of Alternatives) (APP-117) (**CAH-6**). This comparison is made between an alternative country route and the proposed highway (A3) route, identifying potential positive and negative environmental effects of proceeding with the former.

9.4 The Applicant identified key environmental topic areas for consideration. Of particular importance were the potentially significant impacts on environmental designations and protected species associated with the cable installation and compounds for any HDD works, which would likely require clearance of a greater length of well-established hedgerows, trees and other vegetation than the highway route. In addition, Table 2.6 also considers engineering and design-related constraints including narrow road widths, areas unsuitable for cable installation and the presence of buried utilities. Impacts on highways and road users were also a key consideration, identifying where there may be a need for full road closures in order to install circuits. It was considered that impacts associated with the countryside route would outweigh the temporary short-term impact on traffic.

9.5 Since the submission of the Application, both Havant Borough Council (HBC) and Winchester City Council (WCC) have requested the provision of further information to that provided at paragraph 2.6.4 of Chapter 2 to the Environmental Statement (APP-117) (**CAH-6**) regarding the considerations of the Applicant in relation to the proposed Countryside Route.

9.6 The Applicant therefore provided further information to more fully detail its considerations of the Countryside Route and provide further information in relation to the key considerations that the Applicant took into account. This is located in the Appendix 3 of the ES Addendum (Supplementary Alternatives Chapter (REP1-152) (**CAH-7**)), and contains further information in relation to the following key considerations:

9.6.1 ecological constraints and likely impacts on ecological receptors;

9.6.2 sterilisation of land;

9.6.3 impacts on land and the need to acquire it;

9.6.4 impacts on watercourses;

9.6.5 changes to the Proposed Development where the Countryside Route is followed;

9.6.6 anticipated duration of the works to construct the Countryside Route; and

9.6.7 comparison with the environmental impacts of the Proposed Development.

9.7 Whilst the temporary impacts of the construction of the Proposed Development along the highway on traffic were noted, and it was acknowledged that the installation of the cable circuits along the Countryside Route would provide for a quicker installation timeframe (which would have been a benefit for the Applicant by reducing the overall timescale to construct the Onshore Cable Route), balancing the various identified impacts against one another for each of the chosen route and the Countryside Route, the Applicant concluded that the benefit of avoiding the temporary impacts on traffic whilst the works in the highway were carried out were outweighed by the potential temporary and permanent impacts associated with construction of the Countryside Route and the sterilisation of the land for the duration of the lifetime of the development were the Countryside Route to be followed.

9.8 It was also noted that it was evidently possible for the Proposed Development to proceed without needing to be located along the Countryside Route. Therefore, it was not considered that it would necessarily be possible to justify any potential compulsory acquisition of the rights required over the land where the Countryside Route is located, as the Applicant had already identified a viable alternative without the need to do so.

9.9 For those reasons set out in Chapter 2 of the Environmental Statement (APP-117) (**CAH-6**) and in the Supplementary Alternatives Chapter (REP1-152) (**CAH-7**), the Applicant reasonably concluded that a route across the countryside in this location should not be pursued.

Question 9.3

The Applicant to explain briefly the scope and nature of the following studies beyond the level of detail provided in the ES ([APP-117], sections 2.4 to 2.6):

a. interconnector preliminary technical-economical study (August 2014);

b. preliminary converter station site identification exercise (April 2016);

c. converter station technical viability and environmental constraint detailed assessment (2017);

d. converter station environmental constraints desktop study (July to December 2017);

e. preliminary landfall locations desk study (April 2015);

f. preliminary route desk study and site visit investigation (February 2017); and,

g. Eastney and East Wittering routes detailed desk study (June 2017).

9.10 The explanation of the scope and nature of the studies requested is provided in a chronological order below:

9.11 **a. Interconnector preliminary technical-economical study (August 2014)**

9.11.1 The Applicant commissioned Parsons Brinckerhoff (now acquired by WSP) to conduct a desktop study in order to explore the project concepts and the feasibility of electricity interconnection between the United Kingdom and other European Member States.

9.11.2 This feasibility study was commissioned with three objectives in mind; (i) achieving maximum optimal power transfer with the technology available, which is in the region of 2000MW (ii) the ability to transfer in either direction across the electricity interconnector and (iii) project completion by January 2020.

9.11.3 This report was structured in four parts:

(A) Part 1 – presented the background to interconnection in the United Kingdom

(B) Part 2 - discussed the commercial feasibility and commented on the energy markets around Europe[1]

(C) Part 3 - reviewed the different technologies available and the risks associated with different alternatives

(D) Part 4 - described at a high level some potential grid connection locations and cable routings

9.11.4 This study specifically considered interconnection to France, Germany, the Netherlands, Scandinavia and Ireland. The report recommended three alternative design concepts. Two of these concepts made use of a bi-pole topology (requiring three high voltage cables) and one concept consisting of two monopole circuits (requiring four high voltage cables). The Applicant selected the preferred concept consisting of two monopole circuits since it was the only technology that was well-proven at that time and available from the largest number of suppliers; it also offered greater average availability and redundancy in case of a failure of one of the circuits.

9.11.5 Having reviewed the initial findings of the report, which for the various reasons outlined in Section 4.1 of the Supplementary Alternatives Chapter (REP1-152) (**CAH-7**), identified France as the clearly preferred interconnection location, the Applicant instructed Parsons Brinckerhoff to take forward further Part 4 of the report with respect to interconnectors to France. Four National Grid substations were identified by Parsons Brinckerhoff at this time as potential connection locations (Kemsley, Lovedean, Fawley and Canterbury North).

9.11.6 The report suggested two possible concepts for routing the underground cable between the South coast and Lovedean substation. One concept from Hayling Island along the A3(M) corridor and the other taking a very long route from Selsey via Chichester. This report did not consider the environmental impact of these early concepts, as at this time the project was at the concept stage. Underground cable routes were presented in order to demonstrate a concept only.

9.11.7 In parallel, the Applicant had preliminary engagement with National Grid to explore possible connection locations to the grid. As a result, Bramley was also mentioned as a possible connection location.

9.11.8 For completeness, it was also noted that the preliminary technical-economical study made a similar assessment of connection sites in France.

9.11.9 In conclusion, this report supported the concept of an interconnector to France. The report found that the electricity market conditions and cable lengths provided an attractive option which compared well against the other countries that were considered.[2]

9.11.10 An HVDC cable corridor between either "*Dover and Calais*" or "*Southampton/Portsmouth to Flammanville or Paluel*" was identified. However, the report identified that the corridor between Dover and Calais was expected to be heavily congested with other interconnector projects (meaning that a connection agreement with National Grid and RTE would be unlikely).

[1] It should be noted that in order to obtain a more detailed commercial assessment of electricity interconnection, the Applicant commissioned a financial modelling report from Baringa Partners in October 2015.

[2] These findings have been presented as part of the Environmental Statement (Reference: 6.1.2 Environmental Statement - Volume 1 - Chapter 2 Consideration of Alternatives, Table 2.1 – Strategic Project Alternatives Considered).

9.11.11 Alongside the preparation of this report, the Applicant established a framework for the Project and identified the specialist resources that would be required through the development stage.

9.11.12 In summary, Parsons Brinckerhoff were a reputable consultant with expert knowledge of electricity interconnectors, and this report was typical in its scope, method and findings of a project sponsor exploring the feasibility of a concept. Primarily, this report was used to inform the concept of the Project.

9.12 **e. Preliminary landfall locations desk study (April 2015)**

9.12.1 This was the first study of potential landfalls undertaken for the Project, and is described in section 2.4.3 of ES Chapter 2 (APP-117) (**CAH-6**). It comprised a high level desk top study based assessment of potential landfall sites along more than 200km of coastline. At the time of this study, the potential grid connection locations had just been shortlisted from 10 to 3 (Bramley, Lovedean and Chickerell), the onshore cable routes had not been assessed and the marine cable route was not known. This was therefore a coarse filtering exercise to focus in on areas of interest that could be subject to further, more detailed, studies.

9.12.2 It was originally scoped to consider all potential landfalls between Bournemouth to Selsey (76km as the crow flies) then, once NGET had identified the shortlist of grid connection locations, it was extended further west to West Bay (at the western end of Chesil Beach, west of Weymouth) and east to Bognor Regis (200km of coastline, 150km to the east in a straight line).

9.12.3 The desk study comprised an initial 'search' phase, followed by a more detailed 'assessment' phase.

9.12.4 Landing sites were required to provide protection to the cable whilst allowing ease of installation. Cables are particularly vulnerable to damage from human activities at the shore approaches. Therefore, burial within suitable seabed sediments needed to be optimised and existing anchorages and fishing areas avoided. Landfall construction can be by either open trench or Horizontal Directional Drill (HDD), therefore both options were considered when assessing potential landfalls.

9.12.5 With this in mind, when these potential landing sites were identified during the Search Phase, the main selection criteria were identified as being distance from grid connection, ease of landfall installation (onshore and marine aspects, including likely shelter), local land and sea / seabed use and known future developments, nature of beach and seabed, and relevant environmental factors.

9.12.6 With the aim of addressing as many of the factors given above, four selection criteria were adopted during the Search Phase desk top study, as indicated in section 2.4.3.3 of ES Chapter 2 (APP-117) (**CAH-6**).

9.12.7 Following the review of the data sources, 29 potential landing sites were identified. These were commonly located within bays as these areas are more favourable for the accumulation of sediment and therefore greater potential for cable burial. The sites were also found to be accessible by existing roads although some of these were considered to have the potential to be constrained.

9.12.8 The 29 sites were reviewed through a desk top study for the Assessment Phase. This used a combination of topographic maps, aerial photos, geology maps and nautical charts. A summary sheet was produced for each landfall including:

(A) Location name and aerial photograph of proposed landfall;

(B) Local features e.g. villages and towns, rivers, roads, coastal paths, car parks, cliffs, likely local economic types (e.g. fishing, tourism, farming, commercial, industrial, etc.);

(C) Land use based on the CORINE land cover mapping system (categories including continuous urban fabric, discontinuous urban fabric,

permanently irrigated land, sport and leisure facilities, intertidal flats, non-irrigated arable land, and pastures);

(D) Environmental designations;

(E) Nature of and seabed – likely sediment type, presence of cliffs; and

(F) Marine features – anchorages, outfalls, wrecks, harbours and any known metocean features e.g. tidal currents.

9.12.9 To enable the longlisting process, and using the desk study assessment, each site was assigned a category based on engineering considerations, as indicated in section 2.4.3.4.

9.12.10 To allow the sites to be more clearly ranked, site characteristic parameters were developed with each site scored against each parameter, as indicated in 2.4.3.3. The model used for scoring and weighting of the selection criteria is identified in 6.3.2.2 ES Volume 3 Appendix 2.2.

9.12.11 The resulting categorisation is summarised in Table 2.3 of APP-117 and Plate 1 of ES Volume 3 Appendix 2.2 (APP-351), resulting in 9 locations classed as A/B, 13 as B, 6 as B/C and 1 as C.

9.12.12 Table 2.3 of APP-117 identifies potentially suitable landing sites based solely on the preliminary desk top study review of engineering considerations. It was noted that other considerations, such as archaeology, needed to be considered. Ideally preferred landing sites would be those with fewest engineering constraints whilst minimising the environmental (including planning) constraints and archaeological impact. In addition, if sites of reduced suitability from an engineering perspective were considered, it was recognised that more detailed consideration of the engineering constraints would be needed, potentially including proximity to other seabed assets, detailed assessment of anchorages and shipping activity, assessment of the marine cable route, and the feasibility of landing in environmentally sensitive areas.

9.12.13 It was noted that the landfall longlist should be considered to be preliminary, with a more detailed search required with associated landfall visits and consultations.

9.12.14 Subsequent to this April 2015 study, once Lovedean had been identified as the preferred Converter Station site, the 29 site longlist was reduced to a shortlist of 9 sites that scored well (A/B) or were within 35km of Lovedean (the 35km limit is explained in section 5.2.4.3 of Supplementary Alternatives Chapter (REP1-152) (**CAH-7**)). These sites were then visited and evaluated further, which ultimately narrowed them down to 2 by June 2017.

9.13 **b. Preliminary converter station site identification exercise (April 2016)**

9.13.1 Following confirmation from NGET of a connection agreement at Lovedean substation, the Applicant undertook an identification exercise of the potential locations for the converter station. The exercise considered sites within a 2km radius of Lovedean substation. This radius was chosen to minimise the length of the AC cable between the converter station and the NGET substation. A long AC cable would create operational difficulties due to the reactive power inherent in AC transmission systems. Reactive power is caused by the need to charge and discharge the AC system 50 times per second i.e. at the operational frequency (50Hz) of the system. The "effort", i.e. the reactive power, involved in this process increases with the length of the AC cable and compensation for this reactive power would add to the cost to the converter station equipment and increase the footprint of the station. Long AC cables would incur greater transmission losses than DC cables and would require a wider easement, where no deep-rooted vegetation can be allowed to grow for the lifetime of the asset. Hence there were compelling engineering, cost and environmental reasons to find a location for the converter station close to the point of connection at Lovedean substation.

9.13.2 A converter station footprint of 200m x 200m, plus a temporary construction laydown area of 100m x 100m, had been proposed by WSP and discussed with potential contractors to confirm that these were realistic dimensions and this was used for the site identification exercise. Potential sites would need to be close to suitable public roads to provide access for construction traffic and the occasional delivery of abnormal indivisible loads, which could be up to 300 tonnes and delivered on a multi-wheel low-load trailer. As the NGET Lovedean substation gave rise to similar abnormal indivisible loads as would be required for the future converter station, a location close to the existing substation would ensure that transport issues could be resolved. The potential sites would need to avoid environmentally sensitive areas, such as ancient woodland, and avoid impacts to the habitats of protected species as far as practicable. The chosen sites should also minimise the proximity to private dwellings, public buildings and public spaces. The South Downs National Park, to the north, west and east of Lovedean substation, plus the many overhead transmission lines emanating from the station, also provided constraints on the choice of sites. Initially 5 possible sites were identified (shown on **CA1- Exhibit 18**), which met these criteria. They were:

(A) Site 1 to the north of Lovedean Substation;

(B) Site 2 to the west of Lovedean Substation;

(C) Sites 3 and 4 to the south-west of Lovedean Substation; and

(D) Site 5 to the south of Lovedean Substation.

9.13.3 Site 1 was discounted due to its proximity to the South Downs National Park. The Applicant undertook a more detailed environmental assessment of the remaining 4 potential sites, which also considered amenity issues for the closest residential properties. Site 4, labelled as Option D, which was the farthest from Lovedean substation was discounted due to its proximity to Denmead and Anmore settlements and its potential visual impact on the residents. Site 3, labelled as Option C, was close to the area of ancient woodland at Crabdens Copse and would require a re-orientation of the converter station equipment and buildings, increasing its potential landscape and visual impact in the local area. Thus, Option C was set aside. The remaining 2 sites, labelled as Option A to the south of Lovedean and Option B to the west of Lovedean, which had the lesser environmental impacts were shortlisted and progressed to the further assessment and inclusion in the EIA Scoping Report submitted to PINS (APP-365).

9.14 **f. Preliminary route desk study and site visit investigation (February 2017)**

9.14.1 The preliminary Cable Route Desk Study, whilst high level, was the first step to identifying potential onshore cable corridors potentially suitable between the shortlisted landfalls and the proposed grid connection at the Lovedean substation. This was undertaken between November 2016 and February 2017. By this stage, Lovedean had been identified as the preferred grid connection location and a shortlist of 6 landfalls relative to Lovedean as the preferred gird connection location had also been identified.

9.14.2 In 2016, GIS network analysis techniques had been used as a means to identify potential routes against a number of criteria (shortest onshore route, minimal impact to land occupiers, avoidance of motorways, minimal rail / water / motorway crossings and avoidance of environmental constraints). This generated six preliminary routes, one from each of the 6 shortlisted landfalls, varying in length from 18.6km to 41.0km in length and passing through 2-5 LPA areas.

9.14.3 Subsequent to this, the landfall options were reduced from 6 to 3 (East Wittering, Hayling and Eastney).

9.14.4 The first phase of the study was undertaken by a multidisciplinary team (cable, electrical and geotechnical engineering), undertaking a virtual 'walk' of the route using Google Earth Street View, looking at the general viability of construction,

with a focus on potential crossings, joint bay locations, construction corridor width and ducting operations. Using the 3 GIS generated routes (one from each of the 3 landfalls) as a starting point, this resulted in a longlist of eleven potentially feasible routes – 4 from East Wittering, 3 from Hayling Island and 4 (quickly reduced to 2) from Eastney.

9.14.5 A preliminary utilities assessment was undertaken to obtain and map publicly available utility information for all cable routes. The information was gathered from the SSE online asset mapping tool, primarily consisting of overhead electricity lines, underground cables and some gas and water assets. It was acknowledged that more detailed utility searches would be required in a subsequent detailed desk study for the preferred routes.

9.14.6 Publicly available environmental databases from DEFRA (MAGIC.gov interactive map and Environment Agency data) were interrogated for each route, identifying areas such as ancient woodland, listed buildings, scheduled monuments, parks and nature reserves, and national and international designated sites (e.g. SSSI, AONB, SAC, SPA and Ramsar sites).

9.14.7 The potential HDD / crossing locations identified by the initial desktop cable route study were reviewed, through further desktop study, by a geotechnical engineer. Published information was reviewed in terms of site history, environmental constraints and ground conditions. The findings were summarised for each HDD location, and categorised from relatively simple to very difficult, based on comparative length, potential HDD rig size, available compound area and accessibility.

9.14.8 A site walkover was undertaken in December 2016 by a cable engineer and a geotechnical engineer. The walkover was undertaken from public roads and footpaths, with no access onto private land, which helped to inform the conclusions of the assessments.

9.14.9 Of the 11 potentially feasible routes, four routes were identified as having the potential to be feasible for construction. Of these routes, Route 3D was initially considered to be the preferred route and was recommended to be progressed to the next phase of investigation and planning, alongside Routes 1B, 1C, 1D which were also taken forward for further consideration.

9.14.10 The report detailed the findings of the above stages and identified the preferred cable routes for further consideration. These are summarised in Chapter 2 of the ES (APP-117) (**CAH-6**), with further information provided in the Supplementary Alternatives Chapter (REP1-152) (**CAH-7**).

9.15 **g. Eastney and East Wittering routes detailed desk study (June 2017)**

9.15.1 As detailed in Q9.3f above, the preliminary Cable Route Desk Study (February 2017) resulted in four routes being identified as constructible, with one of them, Route 3D, identified as the initial the preferred route subject to further consideration, and Routes 1B, 1C, 1D also shortlisted for further consideration.

9.15.2 A further detailed assessment of those routes was required to inform the planning, environmental and engineering considerations needed to be taken into account to determine which option was preferable and should be progressed by further assessment and refinement. This assessment, to allow for the merits of the options to be more readily comparable, would concentrate on the preferred Route 3D (Eastney landfall to Lovedean Substation), with a second detailed assessment report to consider Route 1D (East Wittering landfall to Lovedean Substation). Routes 1B and 1C were not considered in further detail at this stage because they followed very similar alignments to Route 1D, and at this stage Route 1D was considered to be preferable to them from a feasibility and constructability perspective.

9.15.3 Detailed desk studies were undertaken between April and August 2017 to assess the two routes. As described in section 2.4.13 of Chapter 2 of the ES (APP-117) (**CAH-6**), the assessments considered utilities at identified pinch points, third party land ownership, assessment of crossings / HDDs, geotechnical, historical and environmental constraints and sensitivities (including UXO); and designed the preliminary ground investigation that would have to be undertaken to progress the Project. Separate reports were produced for the two routes, with the final report for Route 3D issued in June 2017 and for Route 1D issued in August 2017. Work was undertaken on key aspects in parallel such, that Route 1D was able to be considered and compared against Route 3D in the June 2017 workshop (see 2.4.14 of APP-117) (**CAH-6**).

9.15.4 In addition to the findings described in section 2.4.13 (APP-117) (**CAH-6**), the Route 3D report noted that the route was heavily urbanised and as such it was anticipated that there would be a number of utilities within the existing highway and verges, particularly in the section of the route that passed through Portsmouth.

9.15.5 The reports did not provide a comparison against each other and did not draw a conclusion, however they used the same methodology and reporting criteria such that they were able to be compared to one another through multi-disciplinary workshops. Route 3D was shorter (18.6km), had fewer HDD (3) and some environmental constraints, whilst 1D was longer (35.2km), had more HDD (10), and was considered to be more environmentally sensitive. A comparison of the two routes is presented in Table 2.5 of APP-117, and further information in this regard is contained in the Supplementary Alternatives Chapter (REP1-152) (**CAH-7**).

9.15.6 The assessment undertaken in relation to each of the two routes was used as the basis for the UK Terrestrial Routes and Landfall Workshop (June 2017), as described in Section 2.4.14 of Chapter 2 of the ES (Consideration of Alternatives) (APP-117) (**CAH-6**). It was as a result of this workshop considering the two route options by comparison to one another that it was confirmed Route 3D was preferable to Route 1D, and that Route 3D would therefore be progressed for further assessment and refinement.

9.16 **c. Converter Station technical viability and environmental constraint detailed assessment (2017) (Converter Station Optioneering Stage 1)**

9.16.1 The purpose of the UK Converter Station Stage 1 Optioneering study was to undertake an options appraisal of the four converter station location options i.e. options A to D (shown on **CAH- Exhibit 18**). The study considered both environmental and engineering aspects, and aimed to identify which two options should be shortlisted and progressed for further assessment at Stage 2.

9.16.2 The Stage 1 study first outlined the baseline conditions for both environmental and engineering aspects within a local context. The environmental considerations included:

(A) Ecology;

(B) Landscape and visual amenity;

(C) Arboriculture;

(D) Flood risk and drainage;

(E) Ground conditions;

(F) Waste / earthworks;

(G) Archaeology and cultural heritage;

(H) Air quality;

(I) Noise and vibration;

(J) Transport and access; and

(K) Socio-economics.

9.16.3 The engineering considerations included:

(A) Locations suitable for siting AC Cables;

(B) Locations suitable for siting DC Cables;

(C) Land take requirements;

(D) Earthworks and site levelling requirements; and

(E) Locations suitable for the Access Road.

9.16.4 The collated baseline information was then used to inform the options appraisal, which was qualitative in nature, applying the following ranking system:

(A) Red: Loss of resource and/or quality and integrity of resource; severe damage to key characteristics, features or elements;

(B) Amber: Some measurable change in attributes, quality or vulnerability; minor loss of, or alteration to one or more key characteristics, features or elements; and

(C) Green: Very minor loss or detrimental alteration to one or more characteristics, features or elements.

9.16.5 The highest ranked options i.e. Options A and B (formerly 1 and 3 as per the site identification exercise in April 2016), were selected as the options to be carried forward, due to their lower potential for environmental impacts.

9.16.6 This assessment of four possible converter station options A - D built on the work carried out in April 2016 (preliminary converter station site identification exercise) which had identified five possible converter station locations. The exercise had concluded that of these five sites, two were preferable, although caveated that further assessment work would be required to make any conclusions, as fulfilled by the Stage 1 detailed assessment.

9.16.7 The Stage 1 assessment built on the 2016 study and allowed the project team to shortlist two options (A and B) that would then be taken forward for both the consultation and EIA scoping processes.

9.17 **d. Converter Station environmental constraints desktop study (July to December 2017) (Converter Station Optioneering Stage 2)**

9.17.1 The purpose of the UK Converter Station Stage 2 Optioneering study was to assess the two Converter Station location options, A and B, which had been identified as preferred options following completion of the Optioneering Stage 1 process. The study considered both environmental and technical/engineering constraints, and aimed to conclude which single option would be most preferable taking into account the balance of various constraints.

9.17.2 The study focussed on assessing Options A and B in further detail, building on the conclusions arrived at in Stage 1 while providing further context as to why A and B had been carried forward to the next stage.

9.17.3 The Stage 2 study contained a detailed analysis of environmental and technical constraints, and was conducted through a combination of desktop studies and on-site surveys. The study focussed on the following:

(A) the methodology applied to find suitable locations for the converter stations within the vicinity of Lovedean substation;

(B) an environmental appraisal from disciplines such as Ecology and Biodiversity, Landscape and Visual and Noise and Vibration, including a baseline summary, risk overview and appraisal of which option is likely to have the least impact;

(C) a technical assessment of the proposed converter station options to identify constraints, risk mitigation and indicative costs for each engineering activity;

(D) a review of National Policy Statement EN-1 and local planning policy with regard to both converter station options;

(E) summary of the benefits and impacts of both converter station options;

(F) recommendation on a preferred location; and

(G) further works required to reach planning submission.

9.17.4 Both Options A and B were presented at the first public consultation events held in January 2018, and were included in the EIA Scoping Report submitted to the Planning Inspectorate (PINS) in October 2018 (APP-365). In retaining both options throughout the consultation and scoping stages, this enabled consultation feedback and Scoping Opinions to be considered, and also allowed for flexibility to be retained at that stage.

9.17.5 Subsequently, it was concluded that both options were deliverable from an environmental and technical perspective. However, when weighing the environmental considerations relevant to each of the options, Option B was considered to present the least level of impact within the existing environmental constraints. On the basis of analysis of both options (see Plate 2.1 of APP-090) **(CA1 - Exhibit 19),** Option B was selected in late 2018 as the preferred Converter Station location. This decision was informed by environmental constraint data including in relation to landscape and visual amenity, ecology, arboriculture and ancient woodland, ground conditions and noise and vibration.

9.17.6 Option B was presented as the preferred converter station location in the Preliminary Environmental Information Report (PEIR) in February 2019 (see Non-technical Summary of PEIR (APP-090).

Question 9.4

The Applicant to explain how ground conditions on Milton Common could require the appointed contractor to lay one cable circuit across the Common and one along Eastern Road ([REP1-133] page 4-21 and [REP1-091] CA1.3.18).

Informing the Ground Investigation at Milton Common

9.18 The detailed desk study for the preferred route, referred to as Route 3D, informed the scoping of the site investigation. The preliminary and detailed desk studies are discussed in above in relation to Questions 9.3(f) and (g). During Quarter 1 and 2 of 2018 the planning consultation process identified three potential deviation areas, of which one included Eastern Road deviation via Bransbury Road - Langston Campus - Milton Common. An addendum report to the detailed desk study was completed in June 2018 to consolidate and summarise additional available information for the deviations. An Envirocheck professional report and utility dataset was purchased to inform the detailed desk study and addendum. The desk studies identified the formation of Milton Common was by infilling of Milton Lake with landfill material. According to the available historical mapping this occurred predominantly between 1968-1974. The Milton Common landfill capping was completed in 1974 according to historical information and maps.

Scope of Ground Investigation

9.19 The investigation in Milton Common included eleven exploratory holes to investigate the ground conditions west of the sea flood defence embankment and the south and west perimeter. Window samples were the preferred technique as they require a relatively small footprint and components, which provide quick sampling and have a narrow sampling diameter, compared to a trial pit, resulting in a more controlled investigation of the historical landfill and facilitating high quality reinstatement. Window samples were limited to 5-metres

below ground level (m bgl) since the proposed installation method of trenching is unlikely to exceed this depth.

9.20 Geo-environmental, geochemical and geotechnical samples were collected from each location. The geo-environmental samples identified potential contamination present within the ground. Geochemical sampling was to understand waste acceptance criteria, pH, sulphate content for concrete classification and organic content. Geotechnical testing was completed to understand the material composition, geotechnical characteristics and strength. In-situ testing was completed to verify the ground strength and thermal conductivity properties.

Ground Investigations Findings

9.21 The ground investigation was completed between July and November 2018. The ground investigation was supervised by a chartered engineer and registered ground engineering professional, all site supervision was completed by suitably qualified person with valid construction skills certification scheme. The contractor was competent and accredited to complete the works, all laboratory testing was completed by UKAS and MCERTS accredited laboratories.

9.22 All exploratory holes encountered Made Ground which generally ranged from 1.2m bgl to the base of the hole (5.0m bgl). The Made Ground was proven to be underlain by River Terrace Deposits at four locations and, Beach and Tidal Flat Deposits at two locations. The Made Ground, River Terrace Deposits or Beach and Tidal Flat Deposits overlay London Clay at three locations. Groundwater was identified at three locations between 1.15-5.00m bgl. The ground investigation identified the extent and quality of the landfill capping has degraded with time as Made Ground is at surface and landfill content was frequently visible at surface.

9.23 Made Ground was commonly shallower in depth and encountered fewer obstructions to the south and west perimeter when compared to eastern route parallel to the sea flood defence embankment.

9.24 The ground conditions typical descriptions are as follows:

9.24.1 Made Ground varies in composition, the following were identified within Milton Common:

(A) Made Ground - Firm grey brown orangish slightly sandy slightly gravelly silty Clay. Gravel subangular to subrounded fine to coarse flint, chalk and occasional flint, pottery, glass, metal and brick cobbles.

(B) Made Ground - Loose slightly sandy very clayey angular to subrounded fine to coarse Gravel. Gravel is flint, brick and concrete. With frequent pieces of pottery, glass, asphalt, plastic and metal.

(C) Made Ground – Brown slightly gravelly clayey Sand. Gravel is flint angular to subangular, brick and concrete. With frequent pieces of pottery, glass, asphalt, plastic and metal.

(D) Made Ground - Loose creamy white silty gravel. Gravel is angular to subrounded fine and medium Chalk.

(E) Probable Made Ground - Soft dark grey slightly sandy slightly gravelly Clay. WS08 with occasional black spots and speckling. Gravel is subangular and subrounded fine flint. Occasional brick fragment.

9.24.2 The River Terrace Deposits consisted of Soft to firm light brown grey silty slightly sandy very gravelly Clay.

9.24.3 The Beach and Tidal Flat Deposits consisted of soft to firm speckled brown and orange grey slightly gravelly Clay. Gravel is angular to subrounded fine to coarse flint.

9.24.4 The London Clay mainly comprised of bioturbated or poorly laminated, blue-grey or grey-brown, slightly calcareous, silty to very silty Clay, with some layers of sandy Clay; glauconite is present in some of the sands and in some clay beds.

9.25 Hydrocarbons were identified by scent within the soil samples at one location (WS18) during the investigation between approximately 3.0-5.0m bgl. Some locations encountered potential asbestos, obstructions or unexploded ordnance (UXO) anomalies which required terminating the hole and micro-siting to a new location to achieve investigation depth. Due to micro-siting of locations a total of 20 exploratory holes were completed within Milton Common. UXO anomalies are characterised by a ferric signal indicating a metallic presence. The UXO risk within the Made Ground in Milton Common is perceived to be low due to the formation of the of the Made Ground occurring after World War II, however, the risk of UXO is potentially high within the natural geology. The principal contractor will be responsible for UXO management including surveying and clearance during further investigation and construction.

9.26 The following exploratory holes were terminated prior to completing the investigation depth (see **CAH – Exhibit 20**):

9.26.1 WS12 terminated at 1.6m bgl due to high UXO anomaly reading and obstruction

9.26.2 WS12A terminated at 3.9m bgl due to high UXO anomaly reading

9.26.3 WS12B terminated at 0.8m bgl due to potential asbestos at the bottom of the inspection pit

9.26.4 WS12C terminated at 4.0m bgl due to UXO anomaly reading

9.26.5 WS13 terminated at 0.3m bgl due to potential asbestos at the bottom of the inspection pit

9.26.6 WS13A terminated at 0.4m bgl due to an obstruction

9.26.7 WS13B terminated at 0.8m bgl due to an obstruction

9.26.8 WS13C terminated at 0.5m bgl due to an obstruction

9.26.9 WS14 terminated at 4.0m bgl due to UXO anomaly reading

9.26.10 WS16 terminated at 3.8m bgl due to UXO anomaly reading

9.26.11 WS17 terminated at 0.85m bgl due to obstruction

9.26.12 WS48 terminated at 0.8m bgl due to high UXO anomaly reading and obstruction

9.26.13 WS48 terminated at 1.5m bgl due to high UXO anomaly reading and obstruction

9.26.14 WS49 terminated at 2.0m bgl due to possible services

9.26.15 WS49A terminated at 3.0m bgl due to high UXO anomaly

Ground Investigation Findings Implication on Cable Routing

9.27 The landfill Made Ground risks to the cable route and associated activities have been identified from the ground investigation findings:

9.27.1 Potential for contamination hazardous to human health (including asbestos).

9.27.2 Significant over-dig requirements due to obstructions (metal, old cars, construction waste etc).

9.27.3 Hard digging due to obstructions, proven by obstructions frequently encountered during ground investigation within Milton Common.

9.27.4 Potential excess settlement (total and differential). Due to the variable nature of the Made Ground settlement will be extremely difficult to predict. This may result in the landfill material within the cable trenches being replaced with suitable engineered fill, or the requirement for other engineering solutions to limit differential settlement along the cable. During the ground investigation differential settlement in Milton Common was observed.

9.27.5 Highly variable geotechnical properties including (including thermal conductivity). This will lead to difficulty in determination of appropriate design parameters.

9.27.6 Ground gas from landfill material. There is a ventilation system along the south and west of Milton Common currently in place.

9.27.7 Potential for creating gas pathways along trench backfill.

9.27.8 Aggressive ground conditions, e.g., adverse levels of sulphate content causing concrete degradation.

9.28 Remedial and design solutions are to be determined by the competent principal contractor who will produce a risk assessment and method statement to industry standards and best working practice. The required engineering solutions to manage the potential risks to the cable route are not limited to but might require the following:

9.28.1 During construction the principal contractor will follow industry standards and best practice to manage any potential asbestos and ground contamination. This can include but is not limited controlled degassing prior and during construction and the wetting of ground to reduce the potential for airborne asbestos during excavation. The plant will be decontaminated prior and post works within Milton Common and site personnel to wear personal protective equipment.

9.28.2 Ground improvement to control settlement along the cable corridor, there are various techniques, and the principal contractor will have preferred techniques.

9.28.3 Replacement of trench backfill with lightweight fill to try to balance/minimise any loadings on the underlying landfill material.

9.28.4 Specialist engineered fill should be adequate to provide a chemically, structurally and thermally stable fill to trenches.

9.28.5 Potentially incorporate geogrid/geotextile layer in the base of the excavations to bridge any voids and/or minimise any differential settlement. This can also be used to control ground gas or potential contamination pathways through the trench.

9.28.6 Trenches to be protected using geotextiles or another protective membrane to ensure ground gas does not exploit the trench as a preferential pathway. The trenches should be capped to landfill requirements to ensure ground gas does not degas from the trench. Protection against forming of contamination and ground gas pathways will allow the operational efficiency of the existing ground gas ventilation system to be unaffected by the installation of the HVDC cables.

9.28.7 Over dig and replace to attempt to minimise the influence of settlement.

9.28.8 Over dig to remove obstructions or micro-sitting around obstructions.

9.28.9 If concrete is required, the concrete class should be suitably determined during detailed design using the sulphate classification from the ground investigation test results.

9.29 These engineering remedial solutions can require the widening of the conventional trench area which will have greater land requirements than conventional methods. Therefore, it is critical to have alternate routes in the region of Milton Common to ensure the cable array can be split if the preferred engineering solution for a single trench requires the full extent of a single Order limit corridor. In addition, the principal contractor will require flexibility within this area due to the spatial requirement of any potential ground remediation.

9.30 The preliminary preferred route would be the south and west perimeter of Milton Common as it encounters relatively shallower Made Ground which reduces the risk of contamination, obstructions, or adverse settlement. There is an existing gas ventilation system along the south and west perimeter potentially reducing the available space for trenching, therefore, there is the requirement for alternative corridors in the vicinity of Milton Common. The option of Eastern Road is critical as the deeper Made Ground along the eastern side of Milton Common or even the south and west perimeter may not be able to satisfy settlement

or contamination concerns thus the ability to run the cable array along Eastern Road would be required.

9.31 Considering the potential for spatial restriction caused by existing infrastructure and the required remedial solution footprint combined with one of the routes not being feasible at detailed design it is imperative that the following three corridors are kept within the order limits:

9.31.1 Southern and western perimeter of Milton Common

9.31.2 East of Milton Common running parallel and west to the sea defence embankment

9.31.3 Eastern Road

9.32 Detailed design will inform the required remedial solutions and evaluate the practicality of these accommodating the entire cable array, informing the preferred route and the potential of splitting the cable array. This will confirm the preferred cable routing with the practical design to produce the most beneficial solution for the environmental impact and social use of Milton Common and Eastern Road.

Question 9.5

The Applicant to describe the expert views on comparative depths of made ground, contamination, ground obstructions, variable ground potentially vulnerable to differential settlement, soft ground potentially vulnerable to adverse total settlement and potential ground gas at Milton Common and the source of these views ([REP1-091] CA1.3.18).

Ground Investigation Findings

9.33 The ground investigation rationale, scope and findings within Milton Common are discussed in the response to question 9.4; where relevant this has been summarised or expanded upon to adequately respond to this question 9.5.

9.34 The ground investigation was completed between July and November 2018. The ground investigation was supervised by a chartered engineer and registered ground engineering professional, all site supervision was completed by suitably qualified person with valid construction skills certification scheme. The contractor was competent and accredited to complete the works, all laboratory testing was completed by UKAS and MCERTS accredited laboratories.

9.35 The Milton Common ground investigation targeted ground conditions west of and parallel to the sea flood defence embankment and the south and west perimeter; respectively, these are as the most direct route or where the landfill Made Ground was expected to be least prevalent. The most direct route would require the minimum land-take and the route with the least prevalent landfill Made Ground would reduce the potential for contamination, adverse settlement and obstructions.

9.36 A summary of the ground investigation findings within Milton common is set out in Table 9.1 below. A quarter of exploratory locations with Milton Common achieved the target investigation depth, the remaining locations were terminated due to potential asbestos, UXO anomaly and/or obstruction, the reasoning for each location termination is summarised in the response to question 9.4 above.

Table 9.1 - Summary of Milton Common Ground Investigation Findings

Exploratory Location	Top of Strata (metres below ground level)			
	Made Ground	Beach and Tidal Flats	River Terrace Deposits	London Clay
WS08	1.20	3.00	-	5.00
WS09	1.60	-	4.00	5.00
WS10	1.60	-	3.80	5.00
WS11	1.20	1.50	5.00	

Exploratory Location	Top of Strata (metres below ground level)			
	Made Ground	Beach and Tidal Flats	River Terrace Deposits	London Clay
WS12	1.60*			
WS12A	3.00*			
WS12B	0.80*			
WS12C	4.00*			
WS13	0.30*			
WS13A	0.40*			
WS13B	0.80*			
WS13C	0.50*			
WS14	4.00*			
WS17	0.85*			
WS18	5.00			
WS48	0.80*			
WS48A	1.50*			
WS49	2.00*			
WS49A	3.00*			
WS49B	2.70	-	5.00	

* The exploratory location was terminated due to potential asbestos, UXO anomaly and/or obstruction, the reasoning for each location termination is summarised in transcript 9.4.

9.37 The ground investigation information indicated Made Ground was commonly shallower and encountered relatively less obstructions to the south and west perimeter when compared to eastern route parallel to the sea flood defence embankment.

Difficulties and Solutions for Milton Common Ground Conditions

9.38 The landfill Made Ground risks to the cable route and associated activities have been identified from the ground investigation findings:

9.38.1 Potential for contamination hazardous to human health (including asbestos).

9.38.2 Significant over-dig requirements due to obstructions (metal, old cars, construction waste etc.).

9.38.3 Hard digging due to obstructions, proven by obstructions frequently encountered during ground investigation within Milton Common.

9.38.4 Potential excess settlement (total and differential). Due to the variable nature of the Made Ground settlement will be extremely difficult to predict. This may result in the landfill material within the cable trenches being replaced with suitable engineered fill, or the requirement for other engineering solutions to limit differential settlement along the cable. During the ground investigation visible differential settlement in Milton Common.

9.38.5 Highly variable geotechnical properties including (including thermal conductivity). This will lead to difficulty in determination of appropriate design parameters.

9.38.6 Ground gas from landfill material. There is a ventilation system along the south and west of Milton Common currently in place.

9.38.7 Potential for creating gas pathways along trench backfill.

9.38.8 Aggressive ground conditions, e.g. adverse levels of sulphate content causing concrete degradation

9.39 Remedial and design solutions are to be determined by the competent principal contractor whom will produce a risk assessment and method statement to industry standards and best working practice. The required engineering solutions to manage the potential risks to the cable route is not limited to but might require the following:

9.39.1 During construction the principal contractor will follow industry standards and best practise to manage any potential asbestos and ground contamination. This can include but is not limited controlled degassing prior and during construction and the wetting of ground to reduce the potential for airborne asbestos during excavation. The plant will be decontaminated prior and post works within Milton Common and site personnel to wear personal protective equipment.

9.39.2 Ground improvement to control settlement along the cable corridor, there are various techniques, and the principal contractor will have preferred techniques.

9.39.3 Replacement of trench backfill with lightweight fill to try to balance/minimise any loadings on the underlying landfill material.

9.39.4 Specialist engineered fill should be adequate to provide a chemically, structurally and thermally stable fill to trenches.

9.39.5 Potentially incorporate geogrid/geotextile layer in the base of the excavations to bridge any voids and/or minimise any differential settlement. This can also be used to control ground gas or potential contamination pathways through the trench.

9.39.6 Trenches to be protected using geotextiles or another protective membrane to ensure ground gas does not exploit the trench as a preferential pathway. The trenches should be capped to landfill requirements to ensure ground gas does not degas from the trench. Protection against forming contamination and ground gas pathways will allow the operational efficiency of the existing ground gas ventilation system to be unaffected by the installation of the HVDC cables.

9.39.7 Over dig and replace to attempt to minimise the influence of settlement.

9.39.8 Over dig to remove obstructions or micro-sitting around obstructions.

9.39.9 If concrete is required, the concrete class should be suitably determined during detailed design using the sulphate classification from the ground investigation test results.

9.40 The solutions proposed will be suitable to manage contamination, ground gas, adverse settlement and potential obstructions. These are industry standard solutions which a competent contractor will be able to undertake, however, the flexibility in the remedial solution is required as detailed design will confirm the preferred solution. The proposed solutions are not considered to worsen the current contamination, ground gas and settlement and are likely to improve at least one if not all of these.

9.41 Due to the difficulties of the Made Ground it is imperative the principal contractor has the option of potential routes in the vicinity of Milton Common, either to determine a preferred route at detailed design or if required use two routes and split the cable array. The importance of route flexibility in the vicinity of Milton Common is discussed at the response to question 9.4 above.

Question 9.6

The Applicant and PCC to explain their current positions on the Milton Common options [REP1-091] (CA1.3.106).

9.42 Due to the difficulties of the Made Ground at Milton Common it is imperative the principal contractor has the option of potential routes in the vicinity of Milton Common, either to determine a preferred route at detailed design or if required use two routes and split the cable array.

9.43 Considering the potential for spatial restriction caused by existing infrastructure and the required remedial solution footprint combined with one of the routes not being feasible at detailed design it is imperative that the following three corridors are kept within the order limits:

9.43.1 Southern and western perimeter of Milton Common;

9.43.2 East of Milton Common running parallel and west to the sea defence; and embankment

9.43.3 Eastern Road.

9.44 The preliminary preferred route from a ground conditions perspective would be the south and west perimeter of Milton Common as it encounters relatively shallower Made Ground which reduces the risk of contamination, obstructions, or adverse settlement.

9.45 Whilst a route along the Eastern Road is the least preferred option, albeit still in the view of the Applicant an acceptable route with the application of the mitigations in relation to the management of traffic impacts provided for in the Framework Traffic Management Strategy (REP1-068) (**CB-22**), it is absolutely necessary this option is retained in the event it is determined one or both routes across Milton Common are not feasible, so as to ensure there is no impediment to the installation of the authorised development.

10. CROWN LAND AND INTERESTS

Question 10.1

The Applicant to provide an update on discussions with the Crown Estate Commissioners.

10.1 The Applicant has agreed an Option for a Licence with the Crown Estate Commissioners for the marine elements of the Cable Corridor (including Plot 10-38).

10.2 Negotiation of the Portsea lease (in respect of Plot 7-24) is well advanced and is largely agreed in principle. A further mark-up of the documents was circulated to TCE's solicitors for review at the end of October.

10.3 The Applicant is preparing further documentation to provide to the representatives of the Crown Estate in relation to the other areas where the Applicant is seeking rights in relation to the following plots where New Connection Works Rights and/or Temporary Use is required (the Crown Estate's interest is provided in brackets); 1-66 & 1-67 (as Queen's Nominee in respect of bona vacantia land relating to a freehold formerly held by Trenac Country Homes Limited, dissolved), 3-21 (as Queen's Nominee in respect of bona vacantia land relating to a freehold formerly held by E & L Berg Limited, dissolved, in respect of subsoil), 7-22 (in respect of mines and minerals).

10.4 The Applicant does not see any reason why these documents should not be agreed before the end of the Examination and looks forward to updating the ExA further as matters progress.

Question 10.2

The Applicant to provide an update on discussions with the Ministry of Defence.

10.5 The Applicant is in discussions with the Secretary of State for Defence in relation to Heads of Terms for the granting of New Connection Works Rights over the areas in which they have a freehold interest, in the majority of cases being in the subsoil of the highway (Plots 6-08, 6-09, 6-14, 6-16, 6-17, 10-25 and 10-26). Discussions are also taking place with their tenant, Annington Property Limited, in relation to the areas over which they have a lease (Plots 6-08 and 6-14) in respect of these rights.

10.6 There are no outstanding issues to be resolved between the parties in relation to the Heads of Terms and it is expected they will be agreed by Deadline 6, or very shortly thereafter. The Option Agreement and Deed of Grant are also being drafted to enable prompt progress towards completion.

10.7 Discussions are also progressing with the Secretary of State for Defence to obtain their consent to the inclusion of provisions as required pursuant to s.135 of the Act. This applies to Plots 10-28, 10-31, 10-33 and 10-34 (in respect of possible rights reserved by a Conveyance dated 23 February 1979) and Plot 10-35 (in respect of a Deed dated 21 January 1994). It is not envisaged there are any issues which will prevent the relevant provisions to be included and the Applicant envisages this can be secured in early 2021 and, in any case, before the end of the Examination.

11. STATUTORY UNDERTAKERS AND STATUTORY BODIES

Question 11.1

The Applicant to list and briefly set out any applications made under s127 of the PA2008 and not withdrawn.

11.1 As the DCO will affect statutory undertakers' land, section 127 of the Planning Act 2008 is engaged. Section 127(2) states that an order granting development consent may only include provisions authorising the compulsory acquisition of statutory undertakers' land to the extent that:

11.1.1 the land can be purchased and not replaced without serious detriment to the carrying on of the undertaking; or

11.1.2 if purchased, it can be replaced by other land belonging to, or available for acquisition by, the undertakers without serious detriment to the carrying on of the undertaking.

11.2 Section 127(5) provides that an order granting development consent may include provision authorising the compulsory acquisition of a right over statutory undertakers' land by the creation of a new right over land only the extent that:

11.2.1 the right can be purchased without serious detriment to the carrying on of the undertaking, or

11.2.2 any detriment to the carrying on of the undertaking, in consequence of the acquisition of the right, can be made good by the undertakers by the use of other land belonging to or available for acquisition by them

11.3 Representations have been made by the following statutory undertakers:

11.3.1 Network Rail Infrastructure Limited

11.3.2 National Grid Electricity Transmission plc

11.3.3 Portsmouth Water Ltd

11.3.4 Southern Gas Networks plc

11.3.5 Southern Water Services Ltd (Sewer)

11.3.6 Highways England

11.4 None of the representations made by these parties have been formally withdrawn at this time, however adequate protection for all of these statutory undertakers will be provided by virtue of the protective provisions in Schedule 13 of the DCO and by any third party agreements entered into between the Applicant and the statutory undertaker, where required. The position in relation to protective provisions for the protection of the apparatus of those persons are provided for in response to question 11.3 below.

11.5 The Applicant remains engaged in discussions with these statutory undertakers and does not see any reason why it will not be possible to agree an appropriate form of protective provisions (or third party agreements, where necessary) by the close of the Examination and for all objections to be withdrawn.

11.6 The Applicant considers that none of the statutory undertakers affected by the Proposed Development would suffer serious detriment to the carrying on of their undertakings as a result of the compulsory acquisition powers sought in connection with the Proposed Development, and that in any event this is a matter that is regulated by the proposed protective provisions.

Question 11.2

The Applicant to explain the application of s138 of the PA2008 to the dDCO and list the Statutory Undertakers involved.

11.7 Section 138 relates to orders granting development consent which authorise the acquisition of land falling into one or more of two categories. One category is land on, under or over which a statutory undertaker has erected apparatus or where electronic communications apparatus is kept installed. The other category is land in respect of which a statutory undertaker or electronic communications code network operator has a specified right.

11.8 Orders may include a provision requiring the removal of such apparatus or the extinguishment of such rights only if the decision-maker is satisfied that it is necessary for carrying out the development. The consent of the Secretary of State to the inclusion of the provision is required even where she is not the decision-maker if the undertaker or operator makes a representation about the application for the order and that representation is not withdrawn.

11.9 The relevant statutory undertakers whose apparatus may need to be removed or extinguished to facilitate the delivery of the authorised development are as follows:

- 11.9.1 ESP Utilities Group Ltd
- 11.9.2 GTC Infrastructure Ltd – Gas
- 11.9.3 GTC Infrastructure Ltd – Electricity
- 11.9.4 Southern Water Services Ltd – Sewers
- 11.9.5 SSE PLC (Gas) (although it has recently been identified through further engagement with SSE and SGN the only asset of SSE Plc (Gas) apparatus of Indigo Pipelines Ltd)
- 11.9.6 SSE PLC (High Voltage)
- 11.9.7 SSE PLC (Low Voltage)
- 11.9.8 CityFibre Holdings Ltd
- 11.9.9 Openreach Ltd (BT)
- 11.9.10 Virgin Media Ltd
- 11.9.11 Vodafone Ltd

11.10 The Applicant has always sought to interface with other apparatus in a manner that is agreeable with the relevant Statutory Undertaker. The Applicant aims to minimise the interactions and disturbance of other apparatus during the construction works and operation of the authorised development. Nonetheless, it may be necessary in certain circumstances, for instance when undertaking works in highway land, for extinguishment of rights or removal of apparatus of statutory undertakers.

11.11 The Applicant understands that different types of utilities have very different physical characteristics and maintenance requirements. For example, a gas main is substantial apparatus and the work involved to modify or relocate this would introduce safety risks and take considerably longer than relocating a telecommunications cable. Similarly, some assets will require regular maintenance or replacement in these instances it is of mutual benefit if they are relocated or diverted away from the Proposed Development.

11.12 This is why the Applicant is seeking to apply s138 to extinguish rights or remove apparatus only where it is deemed absolutely necessary.

11.13 Further, the position with regard to the potential extinguishment of rights or removal of apparatus with all of the persons referred to above is to be regulated through appropriate protective provisions, which provide statutory protections to those persons so as to ensure matters are progressed in agreement and subject to appropriate independent arbitration where necessary, and that appropriate replacement apparatus is provided as agreed prior to any extinguishment or removal. The position with regard to protective provisions in

relation to the persons listed above at paragraph 11.9 is provided in the response to question 11.3 below.

Question 11.3

The Applicant to set out briefly whether protective provisions are in a satisfactory form that is agreed with the relevant parties listed in ExQ1 CA1.3.41, 43, 45 and 46 or if not, why not.

11.14 **ESP Utilities Group Ltd**

11.15 Having met with ESP on 25th August 2020 to discuss the designs and construction methods to be used as part of the Proposed Development, the Applicant has issued correspondence to the ESP Network Manager on four occasions since then in an effort to discuss appropriate protective provisions. To date there has been no reply.

11.16 We understand the ESP assets to be a mixture of electricity and gas assets. In earlier discussions they have commented that the gas assets are all fed by SGN Plc.

11.17 ESP have also commented that they would expect the Applicant to adopt HSG47 "Avoiding danger from underground services" when carrying out construction works but have not made the Applicant aware of any special permits or requirements which would be applicable. The Applicant can confirm that the works will be conducted in accordance with HSG47 guidelines.

11.18 Protective provisions for the protection of Electricity, Gas, Water and Sewerage Undertakers are included at Part 1 of Schedule to the dDCO (REP3-003) (**CB-1**), which are in a standard form common across many made DCOs. The Applicant's position is that appropriate protective provisions are provided within the dDCO (REP3-003) (**CB-1**) for the protection of ESP apparatus.

11.19 **GTC Infrastructure Ltd – Gas ('GTC').**

11.20 Having met with GTC Infrastructure Ltd on 28th July 2020 to discuss the designs and construction methods to be used as part of the Proposed Development, the Applicant has had a constructive technical engagement over recent months with the GTC Network Asset Manager – South East.

11.21 We understand the GTC Infrastructure assets to be a mixture of electricity and gas assets. The gas assets are all low pressure (maximum 75 millibars) and GTC have requested that a 250mm clearance is maintained.

11.22 GTC provided the Applicant with current drawings showing the position of their assets and technical guidance notes for working in the vicinity of their assets on 21st September 2020.

11.23 On 15th October 2020 the Applicant provided draft Protective Provisions to GTC for their review and comment. The parties held a virtual meeting to discuss initial comments from GTC on the protective provisions on 3 November 2020, and subsequent to that meeting the Applicant's solicitor has corresponded with GTC to clarify various matters and seek confirmation of further comments from GTC on 19 November 2020. A response from GTC is awaited in this regard.

11.24 **GTC Infrastructure Ltd – Electricity ('GTC').**

11.25 The Applicant has not had separate discussions with GTC Infrastructure Ltd – Electricity. Please refer to the response provided above which relates to both gas and electricity assets.

11.26 **Hampshire County Council**

11.27 Although the Applicant has held frequent discussions with Hampshire County Council, there have been no comments or requests for protective provisions in relation to apparatus and the Applicant is not aware of any apparatus owned by Hampshire County Council within the order limits. In any event, the regulation of the works in the highway is regulated by the New Roads and Street Work Act 1991 in accordance with Articles 11 and 12 of the

dDCO (REP3-003) (**CB-1**) so it is not considered protective provisions would be required to provide any additional layer of statutory protection.

11.28 The protective provisions previously included in relation to the management of the works in the highway have been removed following agreement that the permit scheme will be utilised, subject to alignment with the Framework Traffic Management Strategy (REP1-068) (REP1-068) (**CB-22**)

11.29 **National Grid Electricity Transmission plc**

11.30 The Applicant has liaised with National Grid Electricity Transmission Plc ('**NGET**') with regard to the form of protective provisions and these are understood to be substantially agreed. The Applicant's solicitor returned the protective provisions with very minor comments on 12 November 2020 and is awaiting a response to confirm whether the form of the protective provisions is now agreed.

11.31 **Portsmouth City Council.**

11.32 Although the Applicant has held frequent discussions with Portsmouth City Council, there have been no comments or requests to discuss the form of protective provisions. In any event, the regulation of the works in the highway is regulated by the New Roads and Street Work Act 1991 in accordance with Articles 11 and 12 of the dDCO (CB-01) so it is not considered protective provisions would be required to provide any additional layer of statutory protection.

11.33 **Southern Water Services Ltd – Sewers ('SWS')**

11.34 Since SWS provided a relevant representation to this examination in February 2020 they have not been available to the Applicant to discuss their representation or appropriate protective provisions.

11.35 The Applicant remains in regular contact with their Planning Coordinator for Kent. Through this means, SWS have provided details of their apparatus and infrastructure to the Applicant on 9th October 2020 and again on 13th November 2020.

11.36 Protective provisions for the protection of Electricity, Gas, Water and Sewerage Undertakers are included at Part 1 of Schedule 13 to the dDCO (REP3-003) (**CB-1**), which are in a standard from common across many made DCOs. The Applicant's position is that appropriate protective provisions are provided within the dDCO (REP3-003) (**CB-1**) for the protection of SWS apparatus.

11.37 **SSE PLC (Gas)**

11.38 Since September 2020 the Applicant has tried repeatedly and with increasing frequency to speak with SSE Plc in relation to the single gas asset within the Order Limits. On 19th November 2020 the Applicant was referred by SSE Plc to Southern Gas Networks. After further enquiries with Southern Gas Networks the Applicant now believes that the apparatus is owned by Indigo Pipelines Ltd (a subsidiary of SSE Utility Solutions Ltd).

11.39 The Applicant successfully made contact with Indigo Pipelines Ltd on 23rd November 2020 and issued their draft form of Protective Provisions for review and comment.

11.40 Protective provisions for the protection of Electricity, Gas, Water and Sewerage Undertakers are included at Part 1 of Schedule 13 to the dDCO (REP3-003) (**CB-1**), which are in a standard from common across many made DCOs. The Applicant's position is that appropriate protective provisions are provided within the dDCO (REP3-003) (**CB-1**) for the protection of this apparatus.

11.41 **Network Rail Infrastructure Ltd**

11.42 The Applicant has been in correspondence and discussion with Network Rail throughout 2020, with numerous discussions during February 2020 and frequent correspondence has been exchanged since October 2020.

11.43 Prior to an engineering meeting held on 5 October 2020, WSP UK Ltd (acting as a technical advisor to the Applicant) prepared a technical note to comment on the possible impact the Proposed Development may have on Network Rail's telecommunication and signal apparatus. Following this, the Applicant believes that Network Rail possess all necessary information to agree appropriate protective provisions. More information will be provided as part of the detailed design and specific studies shall be undertaken to ensure that the design has been harmonised with the existing infrastructure.

11.44 The Applicant has entered into a Basic Assessment Protection Agreement with Network Rail Infrastructure Ltd relating to the front-end discussions and survey works to facilitate the detailed design.

11.45 It is also necessary for a lease option to be entered into in relation to the land in which the Onshore HVDC Cables are to be located. Discussions are continuing in this regard.

11.46 Whilst the Applicant understands it has reached an agreed position with Network Rail in relation to the form of protective provisions to be included in the Order, this is predicated on the lease option having been entered into. Should the lease option not be entered into, the form of protective provisions will be required to be amended for inclusion in the Order. As such, at this time it cannot be confirmed that the form of protective provisions to be included in the dDCO (REP3-003) (**CB-1**) for the protection of Network Rail are agreed.

11.47 **Portsmouth Water Ltd**

11.48 The Applicant held initial meetings with Portsmouth Water to discuss the Proposed Development during March 2018. The majority of early discussions were in relation to the route for the HVDC cable which forms part of the Proposed Development.

11.49 Portsmouth Water have advised that their water pipes have a typical burial depth of 750mm but in Portsea Island it is usually slightly shallower between 400mm and 650mm. Some of the other apparatus (i.e. service pipes) could be at burial depths of 900mm. In general, the HVDC cables would pass underneath this existing infrastructure.

11.50 Portsmouth Water have conducted a preliminary risk assessment based upon the construction methodology and have discussed appropriate controls with the Applicant which limit the use of piling for foundations associated with buildings and structures.

11.51 Further, detailed discussions have been held in relation to Chapter 19 of the Environmental Statement (Groundwater)

11.52 At no stage in these discussions, which are recorded in greater detail within in Statement of Common Ground, have Portsmouth Water provided comments or requested to discuss the form of protective provisions.

11.53 Protective provisions for the protection of Electricity, Gas, Water and Sewerage Undertakers are included at Part 1 of Schedule 13 to the dDCO (REP3-003) (**CB-1**), which are in a standard from common across many made DCOs. The Applicant's position is that appropriate protective provisions are provided within the dDCO (REP3-003) (**CB-1**) for the protection of Portsmouth Water apparatus.

11.54 **Southern Gas Network PLC ('SGN')**

11.55 The Applicant and SGN have agreed the form of protective provisions for inclusion in the dDCO (REP3-003) (**CB-1**). An update to include those in the dDCO was made at Deadline 5, albeit for the time being they remain in square brackets whilst the parties deal with the completion of the private treaty required by SGN. It is expected this matter will be completed before Deadline 6, and that an updated Statement of Common Ground confirming the protective provisions are agreed for inclusion in the dDCO will be provided at that time.

11.56 **SSE PLC (High Voltage)**

11.57 Although the Applicant has held numerous meetings with SSE Plc during the development of the project, a meeting was held on 14th September 2020 to discuss the DCO process

and provide an overview of the designs and construction methods to be used as part of the Proposed Development. As part of this meeting the Applicant presented drawings which show the Land Plans (REP1-011a) (**CB-18**) and the position of SSE Plc assets.

11.58 On 30th October 2020, the Applicant had detailed discussions with SSE Plc relating to land and engineering. Following this meeting, the Applicant has set out four interface points between the Proposed Development and SSE Plc infrastructure:

11.58.1 Inclusion of the SSE 132kV sub-station at Lovedean within the Order Limits.

11.58.2 Access Road Cable Crossings at Lovedean. where surveys have recently been conducted to determine the ground conditions about the existing 132kV oil filled cable.

11.58.3 Undergrounding of the Overhead Line at Lovedean

11.58.4 Provision of an 11kV supply to the Converter Station

11.59 The Applicant's solicitor is engaged with the legal representative acting on behalf of Southern Electric Power Distribution Plc in relation to the interface with SSE Plc assets, and has sought confirmation from them of whether a particular form of protective provisions is required. The Applicant is awaiting a response in this regard.

11.60 In any event, protective provisions for the protection of Electricity, Gas, Water and Sewerage Undertakers are included at Part 1 of Schedule 13 to the dDCO (REP3-003) **(CB-1),** which are in a standard from common across many made DCOs, and these provide appropriate protective protections for SSE Plc assets.

11.61 **SSE PLC (Low Voltage)**

11.62 Please see above which summarises the position for SSE Plc (Low Voltage) also.

11.63 **CityFibre Holdings Ltd**

11.64 Having met with CityFibre on 29th September 2020 to discuss the designs and construction methods to be used as part of the Proposed Development, the Applicant provided draft protective provisions on 5th October 2020.

11.65 The Applicant made efforts to contact the Diversions Lead at CityFibre but to date there has been no reply.

11.66 Protective provisions for the protection of electronic communications networks are included at Part 2 of Schedule 13 to the dDCO (REP3-003) (**CB-1**), which are in a standard from common across many made DCOs. The Applicant's position is that appropriate protective provisions are provided within the dDCO (REP3-003) (**CB-1**) for the protection of CityFibre apparatus.

11.67 **Openreach Ltd**

11.68 Having met with Openreach on 29th July 2020 to discuss the designs and construction methods to be used as part of the Proposed Development, the Applicant has presented drawings which show the Land Plans (REP1-011a) (**CB-18**) and the position of Openreach assets. In the weeks that followed Openreach took advice from their Chief Engineers to understand the impact HVDC could have on their data and telecommunication assets.

11.69 On 5th October 2020, Openreach wrote to the Applicant to confirm that an initial assessment had been completed and setting out the terms for a more detailed investigation. These terms have been agreed by the Applicant and work in going.

11.70 The draft form of protective provisions for the protection of electronic communications networks was issued to Openreach on 20th October 2020 for review and comment. To date, Openreach have not provided any comment on this document.

11.71 Following a request from Openreach, WSP UK Ltd (acting as a technical advisor to the Applicant) prepared a technical note to comment on the possible impact on Openreach telecommunication and signal cables. This was provided to Openreach on 3rd November 2020.

11.72 Protective provisions for the protection of electronic communications networks are included at Part 2 of Schedule 13 to the dDCO (REP3-003) (**CB-1**), which are in a standard from common across many made DCOs. The Applicant's position is that appropriate protective provisions are provided within the dDCO (REP3-003) (**CB-1**) for the protection of Openreach apparatus.

11.73 **Virgin Media Ltd**

11.74 Having met with Virgin Media on 6th August 2020 to discuss the designs and construction methods to be used as part of the Proposed Development, the Applicant has presented drawings which show the Land Plans and the position of Virgin Media assets.

11.75 Virgin Media assets are usually at a depth of 450mm in the carriageway. They are therefore conducted an engineering assessment (known as a C3 enquiry) to determine the expected impact.

11.76 On 13th October 2020 the Diversionary Works Coordinator at Virgin Media provided thirteen reports all of which stated that "3rd Party apparatus owned by Virgin Media should not be affected by your proposed work and no strategic additions to our existing network are envisaged in the immediate future".

11.77 The Applicant has undertaken to provide more detailed design documents to Virgin Media once they become available.

11.78 On 7th October 2020, the Applicant issued their draft form of Protective Provisions to Virgin Media.

11.79 On 24th November 2020, Virgin Media responded with a comment that they consider that it would be more appropriate to enter into a wayleave agreement in order to properly protect the apparatus under the Electronic Communications Code. The Applicant confirmed that this is not possible because it is not known at this time if any such wayleave would be required, and that the protective provisions ensure where any such agreement are required they are entered into. The Applicant has offered further to discuss the matter with Virgin Media to confirm the position.

11.80 Protective provisions for the protection of electronic communications networks are included at Part 2 of Schedule 13 to the dDCO (REP3-003) (**CB-1**), which are in a standard from common across many made DCOs. The Applicant's position is that appropriate protective provisions are provided within the dDCO (REP3-003) (**CB-1**) for the protection of Virgin Media apparatus.

11.81 **Vodafone Ltd**

11.82 Having met with Vodafone on 6th August 2020 to discuss the designs and construction methods to be used as part of the Proposed Development, the Applicant has presented drawings which show the Land Plans and the position of Vodafone assets.

11.83 On 5th October 2020, the Applicant issued their draft form of Protective Provisions to Virgin Media.

11.84 Following a further meeting on 4th November 2020, the Applicant provided Vodafone with links to the Book of Reference, Statement of Reasons and Land Plans.

11.85 On 17th November 2020, Vodafone commissioned an impact assessment to better determine where their apparatus is affected. This assessment was not expected to conclude before 30th November 2020.

11.86 Protective provisions for the protection of electronic communications networks are included at Part 2 of Schedule 13 to the dDCO (REP3-003) (**CB-1**), which are in a standard from common across many made DCOs. The Applicant's position is that appropriate protective provisions are provided within the dDCO (REP3-003) (**CB-1**) for the protection of Vodafone apparatus.

11.87 **Highways England**

11.88 The Applicant at the request of Highways England drafted and issued protective provisions for the protection of Highways England apparatus. These were issued to Highways England on 28 October 2020. Highways England responded on 6 November seeking an amendment to confirm provisions for could be made for agreements to be entered into in the future where works are undertaken on Highways England highway. Despite it being confirmed no works are to be undertaken on Highways England highway, the Applicant agreed to the addition to move matters forward on 9 November 2020.

11.89 It is expected that the form of protective provisions will be agreed following Highways England completing their review of geo-technical data requested from the Applicant.

11.90 **National Roads Telecommunications Services ('NRTS')**

11.91 Protections necessary for NRTS are to be contained in the protective provisions for the protection of Highways England, albeit there is no expectation that any NRTS apparatus will be affected.

Question 11.4

The Applicant to explain why the Environment Agency is referred to in Appendix B of the Statement of Reasons (SoR) [APP-022] and in the Book of Reference (BoR) [APP-024] as a Category 1 and 2 person, a Part 2 person for potential claims and a Part 3 person with an affected easement or private right but not included in the SoR paragraph 8.2.1. Also, to provide a brief update, in the context of Appendix B to the Statement of Reasons [REP1-026], on the current positions of the Applicant and the Environment Agency in terms of its rights relating to watercourses ([REP1-091] CA1.3.42).

11.92 The Applicant has identified that the Environment Agency may have an interest in land in respect of the main rivers in Plots 3-13, 3-13a, 3-20, 5-12 and 8-10 as shown on the Land Plans (REP1-011a) **(CB-18)** for maintenance, improvement or construction work and have included them in Book of Reference (REP4-003) **(CB-10)** as Category 1 persons in the capacity of occupiers on a precautionary basis. The Environment Agency has been identified as a Category 2 person, a Part 2 person for potential claims and a Part 3 person with an affected easement or private right in Plot 7-22 as the Applicant understands that they hold rights as granted over that land following the interrogation of HM Land Registry records.

11.93 It is agreed that Environmental Permitting (under the Environmental Permitting (England and Wales) Regulations 2016) is separate to, and in addition to any grant of DCO consent.

11.94 The principles for Main River watercourse crossings are detailed in ES Appendix 20.3 (Watercourses Summary) (APP-308) **(CAH-11)** and sections 20.7 (embedded mitigation) and 20.9 (mitigation and enhancement) of ES Chapter 20 (APP-135) and are replicated within section 5.8 of the OOCEMP (REP4-005) **(CB-24).**

11.95 Where:

11.95.1 use of HDD supported on open watercourses, including crossing of:

(A) Soake Farm East (Main River) [WC.02] – Kings Pond (HDD) HDD-5;

(B) Broom Channel (Transitional/ Tidal Watercourse) [WC.13] – Langstone Harbour (HDD) HDD-3.

11.95.2 use of open trench supported over culverts, including crossing of:

(A) Old Park Farm (Main River) [WC.04] – Carriageway Culvert;

(B) North Purbrook Heath (North) (Main River) [WC.09] –Carriageway Culvert; and

(C) Great Salterns Drain (Main River) [WC.14] –Carriageway Culvert.

these principles are supported by the EA and are detailed within the OOCEMP (REP4-005) **(CB-24)**.

11.96 It is acknowledged that culverts are critical assets and as such the methodology of such works will require EA approval via an environmental permit. HDD works under watercourses will also require EA approval or exemption of an environmental permit. Whilst the EA cannot guarantee approval of permits until all permit application information, with full details of the proposed construction methodology, has been submitted; the Applicant and EA are in agreement of the general principles to be adopted with regards to open trench works over Main River culverts and HDD works under open channel Main Rivers to ensure there is unlikely to be any impediment to a permit/exemption being provided to enable construction of the Proposed Development.

11.97 Requirement 15 (Construction environmental management plan) of the draft DCO (REP3-003) **(CB-1)** requires the submission of a construction environment management plan, in accordance with the OOCEMP (REP4-005) **(CB-24)**, therefore securing the principles for Main River watercourse crossings. This agreement is reflected within the SoCG between the applicant and Environment Agency as submitted at Deadline 4 (REP4-018 reference EA 3.2.7.1 & EA 3.2.10.2).

11.98 It should also be noted that in reference to Ordinary Watercourses, Ordinary Watercourse Consent is separate to, and in addition to any grant of DCO consent with the relevant Lead Local Flood Authorities', including Hampshire County Council and Portsmouth City Council.

Question 11.5

The Applicant to provide an update on discussions with Natural England in respect of Denmead Meadows ([REP1-091] CA1.3.21).

11.99 The Applicant has continued consultation with Natural England in regard to Denmead Meadows.

11.100 There is agreement between the Applicant that the Onshore Cable Route runs through sensitive lowland meadow habitats at Denmead Meadows (which comprises all habitats between Hambledon Road and Anmore Road, and two SINCs; Kings Pond Meadow SINC and Soake Farm Meadow SINC). The Applicant and Natural England also agree that the avoidance of Soake Farm Meadows SINC through the use of HDD is desirable, and this has been reflected in the design of the Proposed Development.

11.101 Impacts on lowland meadow habitat are restricted to the location of the HDD launch pit and compound at field 3 which lies outside of SINC sites. As detailed in section 10.2.5 of the ES Addendum (REP-139) **(CB-13)** the Applicant has further developed a mitigation strategy for impacts on lowland meadow. This includes harvesting seed from the site which will be used for restoration post-construction, translocation of lowland meadow turves to a storage area for replacement post-construction, and maintenance of the condition of the remaining soil structure (e.g. through separating horizons and avoidance of compaction).

11.102 Although Natural England agree that the Applicant's approach is necessary, Natural England's current position is that these measures are not sufficient to offset potential adverse effects on lowland meadow habitat. It disagrees with the Applicants assessment within ES Chapter 16 Onshore Ecology (APP-131) **(CB-30)** that following mitigation there will be no residual effects on habitats at Denmead Meadows. Natural England highlight uncertainty of success in the proposed mitigation and that therefore compensation measures are sought in addition to the Applicant's proposed mitigation.

11.103 The Applicant has agreed to provide Natural England with a comprehensive review of their requests with regards to the proposed mitigation in the form of a position paper. This paper, to be submitted at Deadline 6, will demonstrate that the mitigation proposed has precedent and is supported by the scientific literature and current conservation best practice for habitat restoration. This is reflected in the Statement of Common Ground (SoCG) with Natural England updated for submission at Deadline 4.

Question 11.6

The Applicant to explain why:

- ***GTC Infrastructure Ltd Gas appears in the SoR but not in BoR, whereas GTC Pipelines Limited does;***
- ***the BoR refers to 'SSE Services plc ' as a Category 1 and 2 person, a Part 2 person for potential claims and a Part 3 person with an affected easement or private right but this is not included in the SoR paragraph 8.2.1;***
- ***Leep Networks (Water) Limited and British Gas Limited are BoR Part 1 Category 2 parties but are not in the SoR; and***
- ***Arqiva Services Limited is a BoR Part 2 party but not in the SoR.***

11.104 **GTC**

11.105 The Applicant has continued to review the official name in which apparatus is held. It is understood that the apparatus is held by GTC, which is part of the BUUK Group. GTC Pipelines Limited holds a licence as Statutory Undertaker and as such have been served relevant notices. Engagement continues with GTC and specifically with GTC Infrastructure Limited who we continue to work with in relation to protective provisions.

11.106 GTC Pipelines Limited have been identified in the Book of Reference (REP4-003) (CB-10) as a Category 2 person and Part 3 person with an affected easement or private right in respect of apparatus in Plots 3-19, 3-20, 3-22, 4-11, 4-13, 4-14, 4-15, 4-16, 4-19, 4-29, 4-41, 4-42, 9-02, 9-09, 9-10 and 10-24.

11.107 There are three locations within the Order Limits where the Applicant has planned to cross gas assets owned and operated by GTC. The first is along London Road (A3) at Plot 4-42; another outside the property named "Henderson Court" along Henderson Road at Plot 10-24; and depending upon the option taken, there may be a third crossing location along Eastern Avenue at Plot 9-10. GTC have confirmed that all gas assets are low pressure (max 75 millibars).

11.108 There are two locations within the Order Limits where the Applicant has planned to cross electricity assets owned and operated by GTC. The first is along the A3 and adjacent to the electricity distribution substation in Waterlooville at Plot 4-16; and depending upon the option taken, there may be a second crossing location along Eastern Road at Plot 9-02.

11.109 **SSE**

11.110 SSE Services plc have now been included within paragraph 8.2.1 of the Statement of Reasons submitted at Deadline 5 and the Applicant will continue to engage with the party.

11.111 **Leep Networks (Water) Limited, British Gas Limited and Arqiva Services Limited**

11.112 There is no land or apparatus affected by Leep Networks (Water) Limited, British Gas Limited and Arqiva Services Limited but they may, as outlined above, hold rights over land. The Applicant is liaising with these parties to further understand the extent to which those rights are impacted within the limits of the Proposed Development.

Question 11.7

The Applicant to advise whether the RWE Renewables UK Limited Relevant Representation [RR-018] should be considered under s127 and/ or s138 of the Planning Act 2008 ([REP1-091] and [CA1.3.78]).

11.113 From the Scoping Report submitted to the Planning Inspectorate (EN010117-000006) by Rampion Extension Development Ltd. (RED) in July 2020, the seabed area for the proposed extension (Rampion 2) is an 'Area of Search' awarded under The Crown Estate wind farm extension process. In September 2020, it was publicised that RED had signed agreements for lease with The Crown Estate for this area. Accordingly, this Area of Search became the Scoping Boundary for Rampion 2 which identifies the spatial extent of their design envelope.

11.114 The Applicant has an agreed option with the Crown Estate Commissioners to build AQUIND Interconnector within the bounds of the Marine Cable Corridor.

11.115 Although the Rampion 2 and AQUIND Interconnector areas do overlap, it is clear from the Rampion 2 Scoping Report, that Rampion 2 is still at the early stages of design development. Given that Rampion 2 is considerably further behind in the application stage than AQUIND Interconnector and that indicative dates for DCO award or construction for Rampion 2 are not yet determined, the Applicant considers that RED do not have any relevant rights to their area. Whilst AQUIND Ltd. has a duty to engage with RED under Regulation 11(3) of the Infrastructure Planning (EIA) Regulations 2017 to assist and engage where relevant in their design evolution and impact assessments to ensure that the two developments do not adversely interact, there is no remit beyond that as AQUIND Ltd. if successful, will achieve DCO award significantly before RED.

11.116 AQUIND do not consider that the RWE RR should be considered under s127 or s138 of the Planning Act 2008 as AQUIND do not propose to acquire this Crown land and RED has no relevant rights over it. Therefore, as AQUIND Interconnector is well advanced in the DCO Examination, it is for RED to consider the Rampion 2 design in the context of the presence of AQUIND Interconnector already being built within their Area for Lease.

11.117 Section 127 of the Act relates to statutory undertakers land. Statutory undertaker for the purpose of s.127 has the meaning given by section 8 of the Acquisition of Land Act 1981, and also includes undertakers which are deemed to be statutory undertakers for the purposes of that Act by virtue of another enactment, or which are statutory undertakers for the purposes of section 16 of that Act.

11.118 It is not considered that RED are a statutory undertaker in accordance with section 8 of the Acquisition of Land Act 1981, as they are not a person authorised by any enactment to construct, work or carry on:

11.118.1 any railway, light railway, tramway, road transport, water transport, canal or inland navigation undertaking, or

11.118.2 any dock, harbour, pier or lighthouse undertaking, or

11.118.3 any undertaking for the supply of hydraulic power.

11.119 The additional persons which section 16 of the Acquisition of Land Act 1981 are health service bodies. RED are not a health service body.

11.120 REDs Representation should not therefore be considered under section 127 of the Act.

11.121 Section 138 of the Act relates to the extinguishments of rights, and removal of apparatus, or statutory undertakers etc. For the purposes of section 138 statutory undertakers is defined by reference to any provision of part 11 of the TCPA 1990. The TCPA 1990 does not relate to the marine environment. RWE's Representation should not therefore be considered under section 138 of the Act.

ANNEX A – LANDSCAPING RIGHTS PLOTS EXPLANATION

1. Below is an explanation of the reasons why New Landscaping Rights have been sought in respect of the areas identified for this on the Land Plans (REP1-011a) **(CB-18)**:

1.1 **Plot 1-01**: Existing hedgerow to be retained and gapped up with new planting where necessary. The hedge partially screens views of the Converter Station for users of the unnamed road to the north of the Converter Station including those walking the Monarch's Way, it contributes to the local landscape structure and character, and it provides ecological connectivity with surrounding hedgerows / hedgerow tree belts. Enhancement works will strengthen both its biodiversity and landscape value and its visual function. The hedgerow is overgrown by brambles which need to be managed to enable new planting to establish.

1.2 **Plot 1-02**: Existing mature hedgerow / tree belt to be retained and gapped up with new planting where necessary. This hedgerow / tree belt partially screens views of the Converter Station for users of the Monarch's Way and the unnamed road to the north. It is important in terms of landscape and ecological connectivity, as a landscape feature and it serves a secondary function in providing a layering of woodland partially screening views from more elevated positions. Gapping-up, maintenance and management are required to maintain its value in the longer term.

1.3 **Plot 1-03 and Plot 1-10**: Existing hedgerow / hedgerow trees to be retained and gapped up with new planting where necessary. It provides a partial visual screening function for users of the Monarch's Way and is important in terms of landscape and ecological connectivity. It also serves a secondary function in providing a layering of woodland belts, partially screening views from more elevated positions.

1.4 **Plot 1-04 and Plot 1-08**: Existing hedgerow to be retained and gapped up where necessary with new planting. This hedgerow serves a partial visual screening function for residents to the north off Old Mill Lane and recreational users along the unnamed road to the north (including users of the Monarch's Way). It is also important in terms of landscape and ecological connectivity and as a landscape feature contributing to the local landscape structure and character. Gapping-up, maintenance and management are required to maintain its value in the longer term.

1.5 **Plots 1-05, 1-11, 1-13, 1-16 and 1-21**: Existing hedgerows and hedgerow trees to be retained and gapped up with new planting where necessary. These plots partially screen the Converter Station from transport and recreational users of Old Mill Road and from residential properties to the west. The hedgerows are important in terms of landscape and ecological connectivity, as a landscape feature and their retention reflects the extensive engagement with, and feedback from, the LPAs. Gapping-up, maintenance and management are required to maintain their value in the longer term.

1.6 **Plot 1-06**: Existing woodland to be retained and new woodland planting introduced. This plot contributes to visual screening from the Monarch's Way and from residential properties off Broadway Lane and north of the existing Lovedean Substation. It also serves a secondary function in providing a layering of woodland, partially screening views from more elevated positions. New planting is proposed to strengthen its value as a landscape feature, improve landscape and ecological connectivity and enhance biodiversity. Maintenance and management are required to maintain its value in the longer term. This plot seeks to integrate part of an important hedgerow identified through the Hedgerow Regulations (HR-01).

1.7 **Plots 1-07, 1-12, 1-14 and 1-18**: Existing hedgerow / hedgerow trees to be retained and gapped up with new planting where necessary. The hedgerow provides a partial visual screening function for users of the Monarch's Way, residents off and users of Broadway Lane (north). It is important in terms of landscape and ecological connectivity and serves a secondary function in providing a layering of woodland partially screening views from more elevated positions. This hedgerow is also identified as an important hedgerow through the Hedgerow Regulations (HR-02). Gapping-up, maintenance and management are required to maintain its value in the longer term.

1.8 **Plot 1-09**: New woodland planting. This plot is designed to provide visual screening around The Haven as well as serving a secondary function in providing landscape and ecological connectivity with existing hedgerows / hedgerow trees and enhancing biodiversity. Maintenance and management will be required to maintain its value in the longer term.

1.9 **Plots 1-15, 1-17 and 1-19**: Existing hedgerows / linear hedgerow trees retained and gapped up where necessary. These contribute to a visual screen for transport and recreational users of Old Mill Road and for residents to the west of the road. They are also important in terms of landscape and biodiversity connectivity. Their retention also reflects the extensive engagement with and feedback received from the LPAs. This hedgerow is also identified as an important hedgerow through the Hedgerow Regulations (HR-05). Gapping-up, maintenance and management are required to maintain their value in the longer term.

1.10 **Plot 1-22**: Existing hedgerow and hedgerow trees retained and gapped up where necessary. The key function of this plot is its contribution to partial visual screening for residential properties off Broadway Lane and north of the existing Lovedean Substation. It also serves a secondary function in providing a layering of woodland partially screening views from more elevated positions and contributing to the screening function of the existing Lovedean Substation. The plot incudes two important hedgerows identified through the Hedgerow Regulations (HR03 and HR04). Gapping-up, maintenance and management are required to maintain its value in the longer term.

1.11 **Plots 1-24, 1-25, 1-26 and 1-30**: Existing hedgerow / tree belts to be retained and gapped up where necessary. These form strong tree belts and are important in terms of their landscape and ecological connectivity, biodiversity and as landscape features. They add to the visual screening function of adjacent hedgerows and their retention reflects the extensive engagement with, and feedback from, the LPAs. Plot 1-24, 1-25 and 1-26 form part of HR06 and Plot 1-30 forms part of HR-09 both of which are identified as important hedgerows through the Hedgerow Regulations. Gapping-up, maintenance and management are required to maintain their value in the longer term.

1.12 **Plot 1-38**: Existing hedgerow to be retained with new tree planting where possible. The retention of this hedgerow reflects extensive engagement with and feedback received from Statutory Consultees such as Winchester City Council and South Downs National Park Authority regarding concerns over loss of vegetation in this area. The hedgerow will contribute (through additional tree planting and its maintained height) to the partial screening of the Converter Station from properties off Broadway Lane, strengthen the landscape feature and provide biodiversity enhancements. Maintenance and management will be required to maintain its value in the longer term.

1.13 **Plot 1-40**: Existing hedgerow and hedgerow trees to be retained and gapped up where necessary. These serve a visual screening function for users of Broadway Lane (south) as well as providing landscape and ecological connectivity and contribute to local landscape character. This hedgerow is also identified as an important hedgerow through the Hedgerow Regulations (HR15). Gapping-up, maintenance and management are required to maintain its value in the longer term.

1.14 **Plot 1-41**: Existing hedgerow to be retained and new tree planting introduced where feasible. The hedgerow provides screening for road and recreational users. The introduction of new tree planting will provide screening from middle distance more elevated views as well as strengthen the ‘visual layering’ effect of woodland. This hedgerow is also identified as an important hedgerow through the Hedgerow Regulations (HR11). Maintenance and management will be required to maintain its value in the longer term.

1.15 **Plot 1-42**: New woodland and scrub planting. The planting will provide visual screening for Kimberley House as well as strengthening landscape features, improving landscape and ecological connectivity and biodiversity. The planting will add to a visual layering of screening from more elevated viewpoints. The planting also includes important hedgerows identified through the Hedgerow Regulations (HR11 and HR15). Maintenance and management will be required to maintain its value in the longer term.

1.16 **Plot 1-43**: Existing hedgerow and tree belt to be retained and gapped up where necessary. Visual screening of the Converter Station from receptors utilising Old Mill Lane. The planting adds to the visual layering of screening from more elevated viewpoints and is important in terms of landscape and ecological connectivity and biodiversity. This hedgerow is also identified as an important hedgerow through the Hedgerow Regulations (HR013). Gapping-up, maintenance and management are required to maintain its value in the longer term.

1.17 **Plot 1-44**: Existing hedgerow and tree belt to be retained and gapped up where necessary. It provides visual screening of the Converter Station from users of Old Mill Lane and contributes to the visual layering of screening from more elevated viewpoints. It is important in terms of landscape and ecological connectivity and biodiversity and in its contribution to local landscape character. Its retention reflects the extensive engagement with and feedback received from the LPAs. This hedgerow is also identified as an important hedgerow through the Hedgerow Regulations (HR10 and HR14). Gapping-up, maintenance and management are required to maintain its value in the longer term.

1.18 **Plot 1-56**: Existing hedgerow to be retained with new tree planting where possible. The retention of this hedgerow reflects extensive engagement with and feedback received from Statutory Consultees such as Winchester City Council and South Downs National Park Authority regarding concerns over loss of vegetation in this area. The hedgerow will contribute (through additional tree planting and its maintained height) to the partial screening of the Converter Station and Access Road from PRoW DC16/HC04, PRoW DC19/HC28 and properties off Broadway Lane. The planting will strengthen its value as a landscape feature, improve landscape and ecological connectivity to new hedgerows and provide biodiversity enhancements. This hedgerow is also identified as an important hedgerow through the Hedgerow Regulations (HR20). Maintenance and management will be required to maintain its value in the longer term.

1.19 **Plot 1-58**: New woodland planting. This planting will contribute to the visual screening of the Telecommunications Buildings and Access Road. It will help reinforce the local landscape character, and it will provide landscape and ecological connectivity. The planting adds to the visual layering of screening from more elevated viewpoints and will enhance biodiversity. The planting also includes an important hedgerow identified through the Hedgerow Regulations (HR13). Maintenance and management are required to maintain its value in the longer term.

1.20 **Plot 1-59**: New woodland planting forming part of Plot 1-55. This plot is designed to provide visual screening for Broadway Cottages and partial screening for users of Broadway Lane, as well as strengthening landscape character, improving landscape and ecological connectivity and enhancing biodiversity. Maintenance and management will be required to maintain its value in the longer term.

1.21 **Plot 1-61**: New hedgerow and tree planting to the north of PRoW DC16/HC04. The introduction of this hedgerow responds to feedback received from Statutory Consultees such as Winchester City Council and South Downs National Park Authority regarding concerns over loss of vegetation in this area. The hedgerow will contribute to the partial screening of the Converter Station and Access Road from PRoW DC16/HC04, PRoW DC19/HC28 and properties off Broadway Lane and Broadway Lane (south), strengthen landscape features, improve landscape and ecological connectivity and provide biodiversity enhancements. Maintenance and management will be required to maintain its value in the longer term.

1.22 **Plot 1-64**: Existing hedgerow to be retained with new tree planting where feasible. The hedgerow contributes to the partial screening of the Converter Station and Access Road from properties off Broadway Lane and Broadway Lane (south) and for users of PRoW DC19/HC28. The additional tree planting will strengthen its value as a landscape feature and provide biodiversity enhancements as well as reinforcing its screening value. This hedgerow is identified as an important hedgerow through the Hedgerow Regulations (HR25). Maintenance and management will be required to maintain its value in the longer term.

1.23 **Plot 1-69**: Existing hedgerow and hedgerow trees adjacent to new planting covered under plot 1-62 and gapped up with new planting where necessary. The inclusion of this hedgerow reflects extensive engagement with, and feedback from, Statutory Consultees such as Winchester City Council and South Downs National Park Authority regarding concerns over loss of vegetation in this area. Retention of the vegetation will contribute to the screening of the Telecommunications Buildings and Access Road and will also retain landscape character, landscape and ecological connectivity. The planting adds to the visual layering of screening from more elevated viewpoints and will enhance biodiversity. Maintenance and management are required to maintain its value in the longer term.

1.24 **Plot 1-70**: Existing hedgerow and hedgerow trees to be retained. The inclusion of this hedgerow reflects extensive engagement with, and feedback from, Statutory Consultees such as Winchester City Council and South Downs National Park Authority regarding concerns over loss of vegetation in this area. The retention of part of this hedgerow and its links with new hedgerow planting to the south of the Access Road will significantly strengthen the landscape features in this area, improve landscape and ecological connectivity as well as provide biodiversity enhancements, to address the feedback received. This hedgerow is also identified as an important hedgerow through the Hedgerow Regulations (HR19). Maintenance and management are required to maintain its value in the longer term.

1.25 **Plot 1-72**: Existing hedgerow to be retained with new tree planting where possible. The inclusion of this hedgerow reflects extensive engagement with, and feedback from, Statutory Consultees such as Winchester City Council and South Downs National Park Authority regarding concerns over loss of vegetation in this area. The hedgerow contributes to the partial screening of the Converter Station and Access Road from PRoW DC16/HC04, PRoW DC19/HC28 and properties off Broadway Lane and Broadway Lane (south) as well as providing ecological connectivity. The additional tree planting will strengthen its value as a landscape feature and provide biodiversity benefits as well as reinforcing its screening value. This hedgerow is also identified as an important hedgerow through the Hedgerow Regulations (HR26 and HR27). Maintenance and management are required to maintain its value in the longer term.

1.26 **Plot 1-82 and Plot 2-01**: Both plots seek to reintroduce lost hedgerows previously grubbed out. Replacement hedgerows (and where feasible hedgerow trees) will contribute to visual screening from Broadway Lane (south) providing a layering effect in terms of visual screening as well as enhancing landscape character and improving both landscape and ecological connectivity. Maintenance and management will be required to maintain its value in the longer term.

APPENDIX 1

CA1 EXHIBITS

Document description	Exhibit
Image showing car parking spaces in Work No. 3 areas	CA1- Exhibit 1
Images showing laydown and works compound required for the construction of the Hornsea 2 Onshore Substation	CA1- Exhibit 2
Drawing showing indicative split between use for storage of subsoil and topsoil separately	CA1- Exhibit 3
Transformer Transport Arrangement	CA1- Exhibit 4
Drawing showing indicative proposed haul road on the opposite side of Day Lane	CA1- Exhibit 5
Cross section showing typical layout of the construction area required for the installation of the HVDC Cable Circuits in agricultural land	CA1- Exhibit 6
Cross section of the typical construction corridor	CA1- Exhibit 6A
Plans showing ten sections of the Onshore Cable Corridor	CA1- Exhibit 7
Plan showing location of karstic or other surface water features	CA1- Exhibit 8
Drawing showing indicative locations for the entry and exit compounds at HDD-5	CA1- Exhibit 9
Cross-section showing typical approach to installation within the highway	CA1- Exhibit 10
Diagram of typical areas required to construct joint bays	CA1- Exhibit 11

Drawing showing indicative locations for the entry and exit compounds at Sainsbury's Car Park	CA1- Exhibit 12
Drawing showing HDD 3	CA1- Exhibit 13
Drawing showing HDD 6	CA1- Exhibit 14
Cross-section showing the typical arrangement of the construction corridor across Milton Common	CA1- Exhibit 15
Drawing showing HDD 2	CA1- Exhibit 16
Drawings showing HDD 1	CA1- Exhibit 17
Plan showing location of possible sites for Converter Station (Options A – D) (Question 9.3)	CA1-Exhibit 18
Plate 2.1 of APP-090 - Shortlisted Converter Station Locations (Question 9.3)	CA1 - Exhibit 19
Plan showing location of exploratory holes (Question 9.4)	CA1 - Exhibit 20
Drawings showing the key stages of construction at Fort Cumberland Car Park	CA1 - Exhibit 21