



**AQUIND Limited**

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# **AQUIND INTERCONNECTOR**

## Design and Access Statement

The Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 – Regulation 5(2)(q)

Document Ref: 5.5

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**AQUIND Limited**

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## CONTENTS

<b>1.</b>	<b>INTRODUCTION</b>	<b>1</b>
1.1.	GENERAL OVERVIEW	1
1.2.	THE PROJECT	1
1.3.	THE DESIGN AND ACCESS STATEMENT	2
<b>2.</b>	<b>CONTEXT</b>	<b>3</b>
2.1.	LEGISLATION, POLICY AND GUIDANCE CONTEXT	3
<b>3.</b>	<b>SITE CONTEXT AND SELECTION</b>	<b>8</b>
3.1.	SITE CONTEXT AND ANALYSIS	8
3.2.	SITE SELECTION	9
<b>4.</b>	<b>CONSULTATIONS</b>	<b>13</b>
4.2.	OPTICAL REGENERATION STATION (ORS)	13
4.3.	CONVERTER STATION DESIGN MEETINGS	13
<b>5.</b>	<b>DESIGN DEVELOPMENT</b>	<b>23</b>
5.1.	ONSHORE PROJECT DESIGN OVERVIEW	23
5.2.	ORS DESIGN	23
5.3.	THE CONVERTER STATION	24
<b>6.</b>	<b>THE DESIGN PRINCIPLES</b>	<b>30</b>
6.1.	INTRODUCTION	30
6.2.	THE CONVERTER STATION	30
6.3.	THE TELECOMMUNICATION BUILDING(S) AND OPTICAL REGENERATION STATION PRINCIPLES	32

<b>7.</b>	<b>ILLUSTRATIVE DESIGNS TO COMPLY WITH THE DESIGN PRINCIPLES</b>	<b>33</b>
7.2.	THE CONVERTER STATION GENERAL PRINCIPLES	33
7.3.	THE CONVERTER STATION BUILDING DESIGN PRINCIPLES	34
7.4.	LANDSCAPE DESIGN PRINCIPLES	37
7.5.	OPTICAL REGENERATION STATION DESIGN PRINCIPLES	38
<b>8.</b>	<b>COMPLIANCE OF THE DESIGN APPROACH WITH DESIGN PRINCIPLES AND LEGISLATIVE POLICY AND GUIDANCE</b>	<b>39</b>
<b>9.</b>	<b>SUMMARY</b>	<b>46</b>

## TABLES

Table 2.1 – Key Policy Documents	6
Table 8.1 – Compliance of Design Approach with the Design Principles and Legislative Policy and Guidance.	39

## PLATES

Plate 3.1- Converter Station Search Area and Initial Constraints	10
Plate 3.2- Preliminary Converter Station Investigation Options	10
Plate 3.3- Preliminary Converter Station Investigation Options	11
Plate 3.4- Options B (i) (Blue) and B (ii) (Green) sites	12
Plate 4.1- Green panels and curved roofs	13
Plate 4.2- Green panels and hipped roofs	14
Plate 4.3 – Vertically arranged green cladding	15

<b>Plate 4.4 – Horizontally arranged green cladding</b>	<b>15</b>	<b>Plate 7.1 Option West Indicative Converter Station Layout</b>	<b>33</b>
<b>Plate 4.5 – Vertically arranged brown cladding</b>	<b>15</b>	<b>Plate 7.2 Indicative Converter Station Layout Plan</b>	<b>33</b>
<b>Plate 4.6 – Site Layout Plan – indicating existing ancient woodland (green) and infrastructure exclusion zones (hatched)</b>	<b>16</b>	<b>Plate 7.3 Indicative landscape plan</b>	<b>34</b>
<b>Plate 4.7 – Design options presented</b>	<b>17</b>	<b>Plate 7.4 Example colour palette</b>	<b>34</b>
<b>Plate 4.8– Indicative illustration of “baguettes” showing patterning created by colour variations</b>	<b>18</b>	<b>Plate 7.5 Indicative Converter Station Sections</b>	<b>35</b>
<b>Plate 4.9 – Indicative illustrations of “baguettes”, showing shadowing effects to provide a layered texture to the facades</b>	<b>18</b>	<b>Plate 7.6 Converter Station compound aligned on east-west axis</b>	<b>35</b>
<b>Plate 4.10 – Contextual colour studies</b>	<b>18</b>	<b>Plate 7.7 Indicative image of curved corners</b>	<b>36</b>
<b>Plate 4.11– “Summer Greens” option.</b>	<b>19</b>	<b>Plate 7.8 Indicative elevation</b>	<b>36</b>
<b>Plate 4.12 – Graded “autumnal” colours option</b>	<b>19</b>	<b>Plate 7.9 Illustrative Landscape Mitigation Option B (ii) –North section</b>	<b>37</b>
<b>Plate 4.13 – Curved corners sketch</b>	<b>20</b>	<b>Plate 7.10 Illustrative Landscape Mitigation Option B (ii) –South section</b>	<b>37</b>
<b>Plate 4.14 – Colour palette – abstracted from contextual colour studies</b>	<b>20</b>	<b>Plate 7.11 ORS Location Plan</b>	<b>38</b>
<b>Plate 4.15 – “Autumnal” colours – indicative elevations</b>	<b>20</b>	<b>Plate 7.12 ORS Landscape Mitigation</b>	<b>38</b>
<b>Plate 4.16 – Colour palettes presented</b>	<b>21</b>		
<b>Plate 5.1 – ORS Parameter Plan (document reference 2.11)</b>	<b>23</b>		
<b>Plate 5.2 – Indicative view of Optical Regeneration Station</b>	<b>24</b>		
<b>Plate 5.3 – Converter Station Parameter Plan Option B (i) (document reference 2.6 PARA Sheet 2)</b>	<b>25</b>		
<b>Plate 5.4 – Converter Station Parameter Plan Option B (ii) (document reference 2.6 PARA Sheet 3)</b>	<b>25</b>		
<b>Plate 5.5 – Indicative site layout (Option B (ii)): illustrating the location of the compound defined by the Parameter Plans and how the access to it could be arranged to preserve the ancient woodland and land ownership constraints.</b>	<b>26</b>		
<b>Plate 5.6 – Indicative Converter Station plan (document reference 2.7 LAY): illustrating how buildings and equipment could be arranged within the compound to comply with the Parameter Plan</b>	<b>26</b>		
<b>Plate 5.7 – Converter Station – indicative elevations</b>	<b>27</b>		
<b>Plate 5.8 – Converter Station – indicative sections</b>	<b>27</b>		
<b>Plate 5.9 – Converter Station – indicative illustration</b>	<b>28</b>		

# 1. INTRODUCTION

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## 1.1. GENERAL OVERVIEW

1.1.1.1. This Design and Access Statement ('DAS') is submitted on behalf of AQUIND Limited (the 'Applicant') to accompany an application (the 'Application') for a Development Consent Order ('DCO') submitted to the Secretary of State ('SoS') for Business, Energy and Industrial Strategy ('BEIS'). The application relates to the UK elements of AQUIND Interconnector which constitutes the Proposed Development.

1.1.1.2. The DAS sets out the 'Design Principles' which, alongside the Parameter Plans (document reference 2.6), and Parameters Table (Table WN2 of document reference 3.1) would set the framework for the detailed design of the Converter Station, Telecommunications Buildings and Optical Regeneration Stations ('ORS'). The document presents the process of concept development which have informed these principles and parameters, an illustrative example of how these could be developed into a detailed design and how these principles ensure the Proposed Development will achieve 'good design'.

## 1.2. THE PROJECT

1.2.1.1. The purpose of the project is to make a significant contribution towards increasing the cross-border capacity between the UK and France, providing a net transmission capacity of 2,000 megawatts ('MW'). Greater cross-border transmission capacity improves competition in energy markets, delivers security and flexibility of energy supply in both countries as well as helping to tackle climate change by enabling countries to integrate more renewable energy sources like solar and wind in their electricity supply.

1.2.1.2. The wider benefits of the Project are outlined and described in the Needs and Benefits Report (document reference 5.6)

1.2.1.3. The Proposed Development includes:

- High Voltage Direct Current ('HVDC') Marine Cables from the boundary of the UK Exclusive Economic Zone ('EEZ') to the Mean High Water Springs ('MHWS') at Eastney in Portsmouth;
- Jointing of the HVDC Marine Cables and HVDC Onshore Cables;
- The Onshore Cable consisting of two HVDC Circuits from Mean Low Water Springs ('MLWS') at Eastney to the Converter Station;
- Up to two ORS. These are structural unit(s) housing telecommunication equipment for the Proposed Development and responsible for optical signal amplification purposes. They will be located at the Landfall within Fort Cumberland car park at Eastney;
- The Converter Station Area and associated electrical and telecommunications infrastructure;
- High Voltage Alternating Current ('HVAC') Onshore Cables and associated infrastructure connecting the Converter Station to the UK Grid at the existing National Grid substation at Lovedean; and
- Smaller diameter Fibre Optic Cables ('FOC') together with the HVDC and HVAC Cables and associated infrastructure ('FOC Infrastructure').

1.2.1.4. Chapter 3 (Description of the Proposed Development) of the Environmental Statement ('ES') Volume 1 (document reference 6.1.1) contains a detailed description of the Proposed Development for which consent is sought under the Applicant's Application

### 1.3. THE DESIGN AND ACCESS STATEMENT

- 1.3.1.1. This DAS has been prepared in support of the Application and is submitted pursuant to Regulation 5(2)(q) of the Infrastructure Planning (Applications: Prescribed Forms and Procedures) Regulations 2009 to assist in the determination of the application, as a document considered necessary to support the application. Although Regulation 5(2)(q) does not explicitly refer to the need for a DAS it does state that the application must be accompanied by “any other documents considered necessary to support the application”. The Planning Inspectorate Advice Note 6: Preparation and submission of application documents (2016) lists examples of documents that this might cover, including a DAS.
- 1.3.1.2. The purpose of this DAS is to demonstrate the design process that has been followed during the development of the onshore elements of the Proposed Development at the pre-application stage and how the final design will be confirmed in accordance with the requirements of the DCO once granted
- 1.3.1.3. The DAS explains the principles and concepts that have influenced the form and appearance of the onshore elements of the Proposed Development and provides a tool to communicate how the requirements for good design and access provision have been considered.
- 1.3.1.4. This DAS importantly also sets out the design principles for the onshore components of the Proposed Development, which will be required to be adhered to when confirming and obtaining approval for the final design post the grant of the DCO.
- 1.3.1.5. Paragraph 4.5.4 of NPS EN-1 (the Overarching National Policy Statement for Energy) notes that applicants should be able to demonstrate in their application documents how the design process was conducted and how the proposed design evolved. In the absence of any specific guidance relating to the preparation and reporting of Design and Access Statements for infrastructure projects of national significance this DAS has been prepared in line with national guidance on the subject, specifically:
- Design and Access Statement: How to Read, Write and Use them, produced by CABE (2007).
  - Guidance on Information Requirements and Validation, published by the Department for Communities and Local Government (2010).
- 1.3.1.6. The Proposed Development has been developed in accordance with formal EIA procedures, the outcomes of which have been reported in an Environmental Statement (ES) that accompanies the Application (document reference 6.1.1 to 6.4).

- 1.3.1.7. Information contained within the ES has been used to inform the preparation of this DAS, and reference should be made to this document for full details of both the onshore and marine elements of the Proposed Development and their relationship to the receiving environment.
- 1.3.1.8. The Planning Statement submitted in support of the Application (document reference 5.4) provides information regarding the relevant planning policies applicable to the Proposed Development, and the needs case statement (document reference 5.6) explain the need for the Proposed Development.
- 1.3.1.9. The DAS is structured as follows:
- Section 2: an overview of the legislative policy and planning guidance context.
  - Section 3: a summary of consultation meetings with Local Planning Authorities (‘LPAs’) and the South Downs National Park Authority (‘SDNPA’) outlining the responses to matters raised and explaining how this informed the Design Principles
  - Section 4: an analysis of site selection and design development
  - Section 5: the Design Principles derived from the functional and operational requirements of the Proposed Development; the site context; feedback from the consultation process; and initial design development
  - Section 6: review of the illustrative proposals to explain how they comply with the Design Principles.
  - Section 7: an explanation of how the design approach complies with the relevant planning policies, and of how the DAS complies with the relevant legislative guidance.
  - Section 8: summary



## 2. CONTEXT

### 2.1. LEGISLATION, POLICY AND GUIDANCE CONTEXT

#### 2.1.1. INTRODUCTION

2.1.1.1. This DAS should be read in conjunction with the Planning Statement (document reference 5.4) which sets out a comprehensive review of the legislative context and policy framework relevant to the Proposed Development.

2.1.1.2. This section of this DAS provides a summary of the legislative context and policy framework for the Proposed Development, with particular emphasis on the relevant National Policy Statement ('NPS') EN-1 and how it promotes good design as part of the application process

#### 2.1.2. NATIONAL LEGISLATIVE CONTEXT

##### The Climate Change Act 2008

- The Climate Change Act 2008 established a legal requirement for an 80% reduction in the GHG emissions of the UK economy by 2050 in comparison to the 1990 baseline. In June 2019 the UK Government updated this commitment to net zero emissions by 2050.
- As set out in more detail in the Needs and Benefits Report (Application document reference: 5.6), interconnector projects can make important contributions to help the UK meet its climate change objectives by facilitating renewables integration.

##### Planning Act 2008

- The objective of the Planning Act 2008 (the Act) is to improve the process for delivering major infrastructure projects by making the process more certain. The Act makes provision for the Government to produce NPS's setting out the national policy. The NPSs set out the strategic policy framework against which individual proposals will be assessed prior to a recommendation being made to the SoS.
- NPSs are of primary importance to the determination of applications for development consent. Section 104 of the Planning Act 2008 (as amended) states:
  - (2) In deciding the application, the Secretary of State must have regard to:
    - (a) any national policy statement which has effect in relation to development of the description to which the application relates (a "relevant national policy statement") ...

- (3) The Secretary of State must decide the application in accordance with any relevant national policy statement, except to the extent that one or more of subsections (4) to (8) applies.
- In accordance with the direction issued by the Secretary of State pursuant to section 35 of the Act dated 30 July 2018, NPS (EN-1) is to have effect in relation to the Proposed Development "in a manner equivalent to its application to development consent for the construction and extension of a generating station within section 14(a) of the Act of a similar capacity as the proposed project so far as the impacts described in EN-1 are relevant to the proposed Development". Therefore the Secretary of State is required to consider the Application pursuant to Section 104 of the Act.
- Section 10 of the Act 'Sustainable development' is of relevance, and provides that when designating an NPS and in turn setting the policy framework against which an application where an NPS applies will be considered the SoS must have regard to the desirability of achieving 'good design'.

##### The Town and Country Planning (Development Management Procedure) (England) Order 2015

- Whilst not applicable to an application for development consent under the Planning Act 2008, the Town and Country Planning (Development Management Procedure) (England) Order 2015 ('DMPO') (which applies to applications for planning permission under the Town and Country Planning Act ('TCPA') 1990 (as amended)) has been referred to as an example of good practice with regard to the matters to be addressed within a DAS.
- Article 9(3) 'Design and access statements' states that a DAS must:
  - explain the design principles and concepts that have been applied to the development
  - demonstrate the steps taken to appraise the context of the development and how the design of the development takes this context into account;
  - explain the policy adopted as to access, and how policies relating to access in relevant local development documents have been taken into account
  - state what, if any, consultation has been undertaken on issues relating to access to the development and what account has been taken of the outcome of any such consultation; and
  - explain how any specific issues which might affect access to the development have been addressed.



- Whilst the proposed Converter Station and ORS at the Landfall involve new buildings and structures, the other works (e.g. the proposed Onshore HVDC Cable) for the most part represent engineering works. Article 9(4) of the DMPO confirms a DAS is not required for an application for planning permission for engineering works. Accordingly, this DAS is therefore concerned with the Converter Station and ORS only.

### 2.1.3.

#### NATIONAL POLICY

##### NPS EN-1 - The Overarching National Policy Statement for Energy

- NPS EN-1 contains government policy applicable to all types of nationally significant energy infrastructure. As explained above (with reference to the direction issued by the Secretary of State dated 30 July 2018 pursuant to section 35 of the Ac) EN-1 has effect in so far as the impacts described in EN-1 are relevant to the Proposed Development.
- EN-1 notes that it is critical that the UK continues to have secure and reliable supplies of electricity as it makes the transition to a low carbon economy.
- EN-1 also recognises the important role that interconnection can play in compensating for the intermittency of renewable generation. The NPS notes that:
  - ‘existing transmission and distribution networks will have to evolve and adapt in various ways to handle increases in demand’.
- The need for interconnector projects, and AQUIND specifically, is addressed in detail in the Needs and Benefits Report (document reference 5.6)

##### Good Design as Part of NPS EN-18

- Section 4.5 of EN-1 promotes the use of good design in the DCO process and includes criteria for ‘good design’ for energy infrastructure.
- Paragraph 4.5.1 notes that whilst visual appearance of a building:
  - ‘is sometimes considered to be the most important factor in good design.... high quality and inclusive design goes far beyond aesthetic considerations. The functionality of an object - be it a building or other type of infrastructure - including fitness for purpose and sustainability, is equally important. Applying “good design” to energy projects should produce sustainable infrastructure sensitive to place, efficient in the use of natural resources and energy used in their construction and operation, matched by an appearance that demonstrates good aesthetic as far as possible. It is acknowledged, however that the nature of much energy infrastructure development will

often limit the extent to which it can contribute to the enhancement of the quality of the area’.

- Whilst therefore placing a requirement on the Applicant to satisfy the SoS that the Proposed Development is sustainable and demonstrate good aesthetics as far as possible, EN-1 recognises that the nature of energy infrastructure will often limit the extent to which it can enhance the quality of an area.
- This DAS therefore sets out how the Applicant has taken into account both functionality (including fitness for purpose and sustainability) and aesthetics (including its contribution to the quality of the area in which it would be located and the sensitivity of its location) as far as possible.
- Paragraph 4.5.2 notes that good design is also a means by which many of the policy objectives in the NPS can be met, for example the siting and use of appropriate design measures can help mitigate flood or noise impacts.
- Paragraph 4.5.3 states that the decision maker needs to be satisfied that energy infrastructure developments are sustainable are as attractive, durable as adaptable as they can be – and that the Applicant has taken into account both functionality and aesthetic as far as possible.
- Paragraph 4.5.3 also recognises that the Applicant may not have any or very limited choice in the physical appearance but ‘there may be opportunities for the applicant to demonstrate good design in terms of siting relative to existing landscape character, landform and vegetation. Furthermore, the design and sensitive use of materials in any associated development assist in ensuring that such development contributes to the quality of the area’.
- Paragraph 4.5.4 requires Applicants to be able to demonstrate in their application how the design process was conducted and how the proposed design evolved. This includes the reasons for favoured choices where a number of different designs were considered. It also states that the decision maker should “take into account the ultimate purpose of the infrastructure and bear in mind the operational, safety and security requirements which the design has to satisfy”.
- The concept of good design has therefore not only informed the selection of the technologies, the location of the Converter station and the ORS at Landfall but also those embedded mitigation measures which will minimise adverse effects both during the construction and operation of the Proposed Development.

#### 2.1.4. OTHER NATIONAL AND LOCAL PLANNING POLICY

2.1.4.1. Whilst EN-1 forms the primary basis for determining DCO applications to which it relates, paragraph 4.1.5 of EN-1 is clear that other matters that the SoS can consider “*important and relevant*” in decision making can include Development Plan documents or other documents in the Local Development Framework. It is also clear, however, that where there is any conflict, the NPS prevails for the purposes of decision making given the national significance of infrastructure.

2.1.4.2. This section considers other national and local planning policy in so far as it may be considered important and relevant in regard of Section 104 of the Planning Act 2008.

##### **National Planning Policy Framework 2019**

- Paragraph 5 of the (National Planning Policy Framework) NPPF makes it clear that the document does not contain specific policies for NSIPs and that applications in relation to NSIPs are to be determined in accordance with the decision-making framework set out in the PA 2008 and relevant NPSs (where applicable), as well as any other matters that are relevant, which may include the NPPF. The NPPF is built around the concept of sustainable development, with paragraph 10 stating that a presumption in favour of sustainable development is “at the heart of the framework”. As detailed in NPPF paragraph 8, the achievement of sustainable development has three (economic, social and environmental) interdependent objectives which should be delivered through the preparation and implementation of plans and the application of policies in the NPPF.

#### 2.1.5. LOCAL PLAN POLICIES

- As set out previously, NPS EN-1 represents the primary policy document for the determination of the Application. Local policy may, however, be an important and relevant, in particular with regard to local context and defining local mitigation measures where considered relevant. The DAS has had regard to key policies relevant to good design and access from the host local authorities as set out in Table 2.1 below. This is not an exhaustive list of all planning policy, and more detail is set out at Appendix 4 of the Planning Statement (document reference 5.4).
- The policies of East Hampshire District Council (‘EHDC’), the SDNPA and Winchester City Council (‘WCC’) are relevant to the Converter Station having regard to its location, with the policies of Portsmouth City Council (‘PCC’) relevant to the ORS building.

#### 2.1.6. SUMMARY

2.1.6.1. The development plan policies in Table 2.1 highlight the importance of high quality and sustainable design which acknowledges local character and enhances the local environment. The development plan policies do not provide criteria for determining the acceptability of nationally significant infrastructure to be consented pursuant to the Act. However, the themes highlighted by the development plan policies have helped to guide the development of the Proposed Development.

2.1.6.2. The DAS has been provided to demonstrate how the Proposed Development has taken into account the criteria for good design contained within EN-1 as well as other legislation and policy.

2.1.6.3. The DAS describes how the design has evolved to reflect the functional and operational requirements of the Proposed Development, to provide an appearance that demonstrates good aesthetic, as far as possible, taking into account the site context and feedback received from the relevant stakeholders.

**Table 2.1 – Key Policy Documents**

Host local Authority	Local Plan	Policy Relevant to Good Design
<b>EHDC and SDNPA</b>	Local Plan Part 1: EHDC and South Downs National Park Authority Joint Core Strategy adopted June 2014	<p>Policy CP20 Landscape – requires development to conserve and enhance the natural beauty, tranquillity, wildlife and cultural heritage of the South Downs National Park and its setting.</p> <p>Policy CP28 Green infrastructure – requires new development to maintain, manage and enhance the network of new and existing green infrastructure. Requires new green infrastructure to be provided through either on-site provision or financial contributions.</p> <p>Policy CP29 Design – states that the built environment must be of an exemplary standard and highly appealing in terms of visual appearance. Requires new development to respect the character, identity and context of the district’s towns, villages and countryside.</p> <p>Policy CP31 Transport – encourages the fullest possible use of sustainable modes of transport and a reduction in dependence on private cars through implementation of Hampshire Local Transport Plan (2011-2031). Sets out the transport requirements / standards new development is expected to meet.</p>
<b>SDNPA</b>	Local Plan 2019	<p>SD4 Landscape Character - development proposals will only be permitted where they conserve and enhance the landscape character. Details how development proposals should demonstrate accordance with this requirement.</p> <p>SD5 Design – states that development proposals will only be permitted where they adopt a landscape-led approach and respect the local character, through sensitive and high-quality design that makes a positive contribution to the overall character and appearance of the area. Design principles that should be adopted are outlined.</p> <p>SD6 Safeguarding Views – development proposals will only be permitted where they preserve the visual integrity, identity and scenic quality of the National Park. Key views and views of key landmarks should be preserved and enhanced.</p> <p>SD7 Relative Tranquillity – requires development proposals to conserve and enhance relative tranquillity. Outlines the impacts that should be considered</p> <p>SD8 Dark Night Skies – requires development proposals to converse and enhance the intrinsic quality of dark night skies and the integrity of the Dark Sky Core. Requires proposals to demonstrate that all opportunities to reduce light pollution have been taken. Sets out hierarchy that development proposals should follow.</p>
<b>WCC and SDNPA</b>	Local Plan Part 1: WCC and SDNPA Joint Core Strategy adopted March 2013	Policy CP10 Transport – states that the Local Planning Authority will seek to reduce demands on the transport network, manage existing capacity efficiently and secure investments to make improvements. Requires development to be located and designed to reduce the need to travel.

Host local Authority	Local Plan	Policy Relevant to Good Design
		<p>Policy CP12 Renewable and decentralised energy – outlines the Local Planning Authorities support of renewable and decentralised energy generation in the district. Sets out details of how proposals for energy schemes will be assessed.</p> <p>Policy CP13 High quality design – requires new development to meet the highest standards of design and details how proposals are expected to demonstrate this.</p> <p>Policy CP15 Green infrastructure – development proposals which maintain, protect and enhance the function / integrity of the existing green infrastructure network and/or provide a net gain of green infrastructure will be supported.</p>
<b>WCC and SDNPA</b>	Local Plan Part 1: WCC and SDNPA Joint Core Strategy adopted March 2013	<p>CP19 South Downs National Park – new development should be keeping with the context and the setting of the landscape and settlements of the South Downs National Park.</p> <p>CP20 Heritage and Landscape Character – states that emphasis should be given to conserving local distinctiveness, especially in terms of characteristic materials, built form and layout, tranquillity, sense of place and setting.</p>
<b>WCC</b>	Local Plan Part 2: Development Management and Allocations adopted April 2017	<p>Policy DM15 Local distinctiveness – requires development to respect the qualities, features and characteristics that contribute to the distinctiveness of the local area. States that regard will be had to the cumulative effects of development on the character of an area.</p> <p>Policy DM16 Site design criteria – outlines design criteria proposals will be expected to accord with.</p> <p>Policy DM18 Access and parking – sets out parking and access requirements new developments will be expected to accord with.</p>
<b>PCC</b>	Portsmouth Plan (Portsmouth Core Strategy) adopted January 2012	<p>Policy PCS17 Transport – states that the council will work to deliver a strategy that will reduce the need to travel and provide a sustainable and integrated transport network. Encourages development around transport hubs. Safeguards land for new transport infrastructure</p> <p>Policy PCS23 Design and Conservation – requires all new development to be well designed and to respect the character of the city.</p>

(Note: as the DAS deals with the Converter Station and ORS, HBC Policies relating to the below ground cable routes are not included in this table)



## 3. SITE CONTEXT AND SELECTION

### 3.1. SITE CONTEXT AND ANALYSIS

#### 3.1.1. INTRODUCTION

3.1.1.1. A full description of Proposed Development is set out in Chapter 3 of the ES (Description of the Proposed Development) with a full description of Site Context set out in the Chapter 15 of the ES (Landscape and Visual Amenity (document reference 6.1.15)). As noted in Section 1.2 above, the main focus of this DAS is the Converter Station and ORS at Landfall. The context below focuses on these areas.

#### 3.1.2. LOVEDEAN (CONVERTER STATION AREA)

- 3.1.2.1. The following describes the key components proposed for the Converter Station Area:
- National Grid Electricity Transmission ('NGET') Connection;
  - High Voltage Alternating Current ('HVAC') Cable;
  - Converter Station and associated equipment;
  - Telecommunications Buildings; and
  - Access road connecting to Broadway Lane near the junction to Day Lane to the south-east of the Converter Station area site
  - Landscape and ecology measures.
- 3.1.2.2. The Converter Station Area is situated next to the existing Lovedean Substation, located in a rural fringe area east of Winchester, approximately 13.5 km north of Portsmouth city centre. The settlement of Lovedean is located approximately 1.3 km to the south-east.
- 3.1.2.3. The Converter Station Area itself is a mixture of arable and grazing farmland. The topography of the Converter Station area site falls from approximately 97 m to 67 m AOD. Surrounding the Converter Station Area site are mixed agricultural fields with established hedgerow boundaries and hedgerow trees. Some smaller fields to the west are used by off-road vehicles and horse grazing.
- 3.1.2.4. The South Down National Park boundary lies just on the edge of the Converter Station compound with Monarch's Way (Public Right of Way) approximately 600 m to the north-east.

- 3.1.2.5. There are residential and individual farm properties approximately 200 m to the north and 250m to the west on Old Mill Lane; and approximately 400m to the south and 600 m to the south-west on Broadway Lane. These are domestic scale and low-height structures.
- 3.1.2.6. The Converter Station Area will be accessed during construction and the subsequent operation of the facilities by a new vehicular access route connecting to Broadway Lane near the junction to Day Lane to the south-east of the site. The A3 public highway is approximately 2 km from this junction.
- 3.1.2.7. The existing Lovedean substation, associated transmission towers and overhead lines are dominant elements in the landscape of the Converter Station Area and the immediate surrounding area, abutting the proposed site.
- 3.1.2.8. The Environment's Agency's Flood Risk Data indicates that the site is located in an area at low risk of flooding (Flood Zone 1).
- 3.1.2.9. The Converter Station is not located within the immediate proximity of any statutory or non-statutory heritage assets. A number of Listed Buildings, predominately Grade II, lie within Lovedean, Denmead, Hambledon and along the narrow lanes mainly to the east of the Converter Station area, with the closest being at Denmead Farm (two Grade II Listed Buildings), off Edneys Lane to the south west and Ludmore Cottages to the north east (one Grade II Listed Building).
- 3.1.2.10. There are pockets of ancient woodland to the south-east of the proposed Converter Station Area.
- 3.1.2.11. The Converter Station is located within the administrative area of Winchester City Council with the wider Converter Station site including part of the existing Lovedean Substation located within East Hampshire District Council.
- 3.1.2.12. The Converter Station would therefore be viewed as part of an existing industrialised landscape, with the surrounding environment comprising agricultural land interspersed with established hedgerow boundaries and hedgerow with the settlement of Lovedean to the south-east.

#### 3.1.3. OPTICAL REGENERATION STATION INFRASTRUCTURE

- 3.1.3.1. The following describes the two ORS which will be required within 1km of the UK Landfall of the Proposed Development.
- 3.1.3.2. An ORS would be provided in a building which would be up to 4m high and located within a securely fenced compound. This compound would also potentially contain auxiliary power generation equipment and a fuel tank. It is currently anticipated that the compound for an ORS would have a maximum size of 18 m x 35 m. Outside the compound, it is anticipated that there will be parking for up to two vehicles for maintenance purposes. If there are two ORS buildings, it would be necessary for them to be located approximately 10 m apart.

- 3.1.3.3. The location of the ORS infrastructure is anticipated to be located within the Fort Cumberland Car Park which is located on the coast approximately 5km south-east of Portsmouth city centre. The existing car park south of Fort Cumberland Road is used to access a short path to Eastney beach and the Eastney Beach Site of Nature Conservation ('SINC') as well as Fort Cumberland SINC, and area of open space next to the car park.
- 3.1.3.4. There are a number of residential properties to the north, northeast and west of the site. These are a mixture of houses and three storey flats ranging in ages from late 50's to more recent developments in early C2,000's. Fort Cumberland Road which leads to Eastney Marina is the only local road which borders to the Landfall to the north. Southsea Holiday Home, Lodge and Leisure Park with static caravans bounds the site to the south and west and there is a small children's play area to the west of the car park's entrance.
- 3.1.3.5. Sustrans National Cycle Route No.2 which is also known as the Shipwrights Way follows Fort Cumberland Road and passes within 300m of the site to the north.
- 3.1.3.6. The Environment Agency's Flood Risk Data indicates that the Landfall site is located in an area at low risk of flooding (Flood Zone 1) with areas within Flood Zone 3 located to the south along the Eastney beach
- 3.1.3.7. The Fort Cumberland Scheduled Monument (a Georgian fortification) lies approximately 225 m to the east of the ORSs at the Landfall and to the west north of Fort Cumberland
- 3.1.3.8. Road and Halliday Crescent and includes one Grade II\* Listed Building and three Grade II Listed Buildings; Eastney Sewage Pumping Station Scheduled Monument. In addition, the World War II Anti-Tank defences at Eastney Beach Listed Building is located within 300 m southwest of the ORSs at the Landfall and the caravan park.
- 3.1.3.9. The ORS is located within the administrative area of the City of Portsmouth. The ORS and related compound would therefore be viewed as part of a semi-residential coastal landscape, with the surrounding environment comprising residential, leisure and open space interspersed with notable features such as the Fort Cumberland Scheduled Monument to the east and Eastney Beach to the south.

## 3.2. SITE SELECTION

### 3.2.1. CONVERTER STATION SITE SELECTION

- 3.2.1.1. The Applicant conducted a preliminary Converter Station site identification exercise in April 2016, using the agreed grid connection point of Lovedean Substation as the focus for the optioneering exercise.

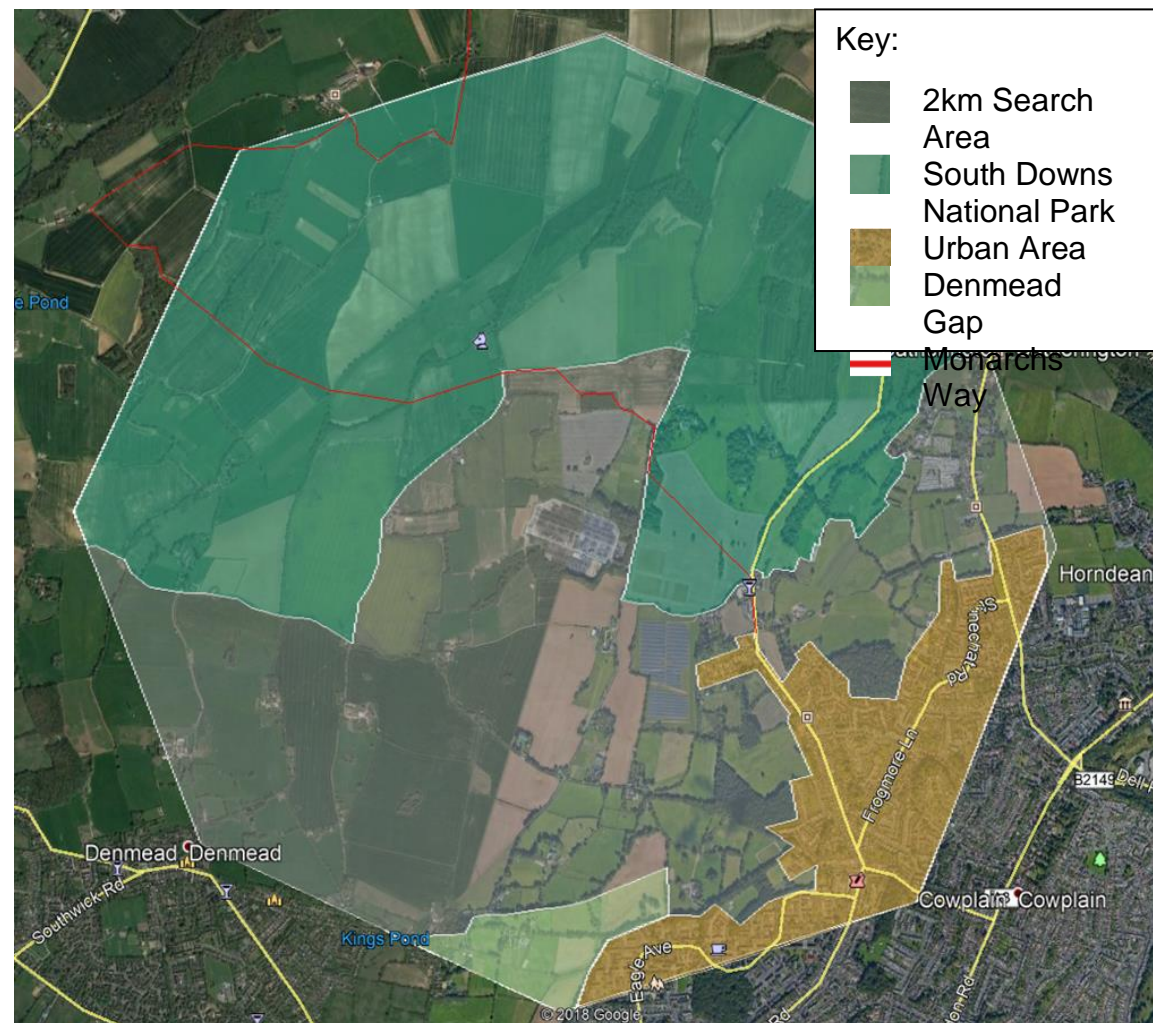
- 3.2.1.2. The following criteria were used in the initial siting exercise:

- The site should be within 2 km (radius) of the existing Lovedean Substation as a greater distance would result in greater transmission losses along an HVAC Cable (and subsequently the efficiency of the Interconnector)
- HVDC cables have a resistance loss, where AC Cables have resistance, inductive and capacitive losses, resulting in greater transmission losses
- An HVAC cable also requires a wide easement (approximately 11 m wide), creating a corridor where no tree or hedge growth is permitted, although the land can be returned to agriculture. As such, a shorter distance for the AC cable route, and thus closer proximity of the Converter Station and Lovedean Substation reduces potential disruption and impact on the local environment in terms of ecology and visual impact. The constriction corridor width for AC cables extends up to 23 m (depending on haul road requirements), and though temporary, maintaining a restricted distance of the AC cable provides an environmental benefit.
- Overall site dimensions of 200 m x 200 m with a permanent access way of at least 6 m wide (note that this area has since increased following engagement with Converter Station suppliers);
- An additional area nearby of approximately 100 m x 100 m to use as a temporary Laydown Area during the construction period;
- Beside or close to existing roads to minimise new road construction;
- Allowance for a turning radius of 30 m for the site entrance;
- Aim to avoid areas of high environmental value or public amenity, such as ridge tops and rare species habitat;
- Aim to minimise close proximity to dwellings, public buildings, and public spaces due to possible audible noise and electromagnetic interference from the Converter Station;
- Areas of high coastal salt or industrial contamination should be avoided;
- Flood plains, rivers or streams should be avoided;
- Marshland which would require piling for foundations should be avoided; and
- Footpaths and historic public rights of way should be avoided, where practicable.



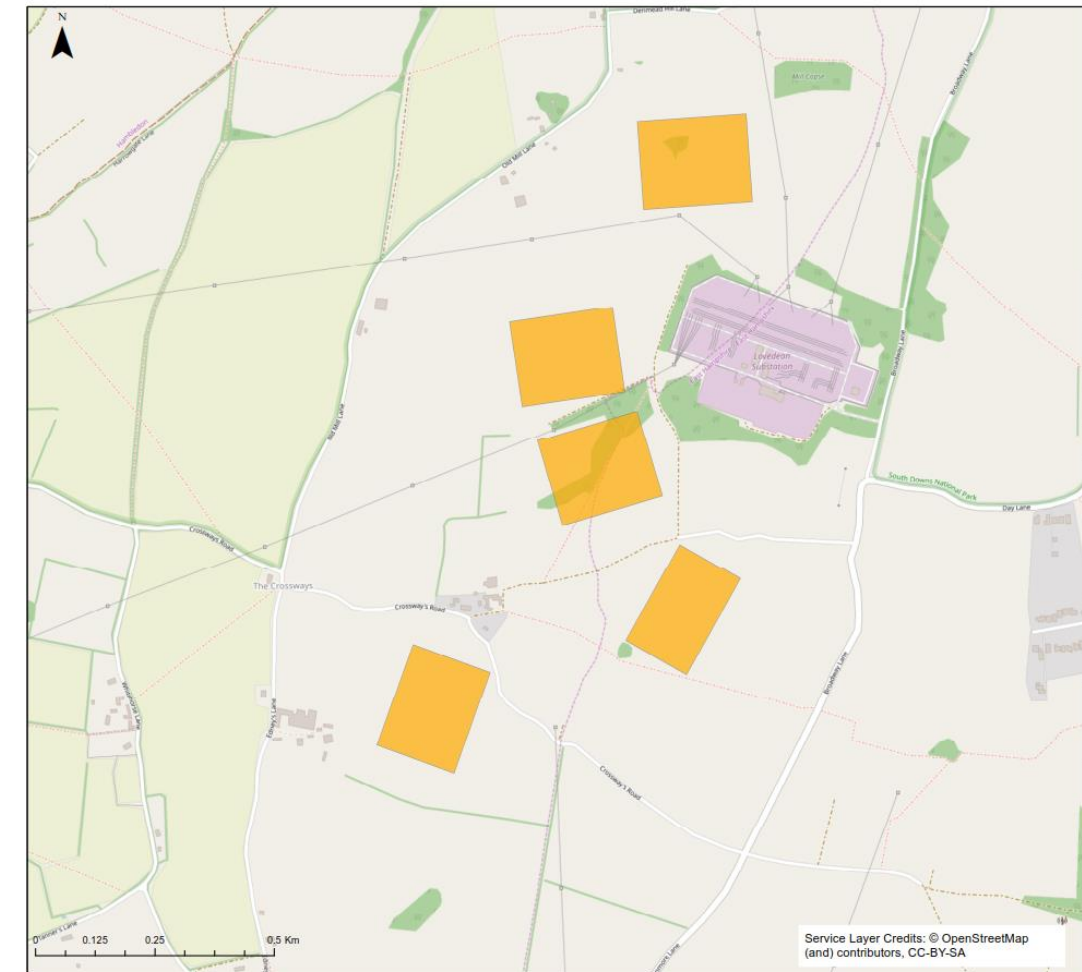
3.2.1.3. Constraints identified within the 2 km study area (Plate 3.1) from Lovedean Substation posed limitations to the potential location of the Converter Station. These included:

- SDNP and its setting (located approximately 500 m to the north, directly east and approximately 700m west of Lovedean Substation):
- Densely populated/urban areas to the east and south (Waterlooville and Denmead), with the strategic gap between;
- Numerous rural dwellings in close proximity to the Lovedean Substation;
- Listed buildings in the southwest segment of the search area;
- Existing transmission lines/towers and underground cables entering/exiting the Lovedean Substation.



**Plate 3.1- Converter Station Search Area and Initial Constraints**

3.2.1.4. The Applicant initially identified five sites within the 2 km radius as possible locations to develop the Converter Station, these are denoted by the orange areas identified in Plate 3.2



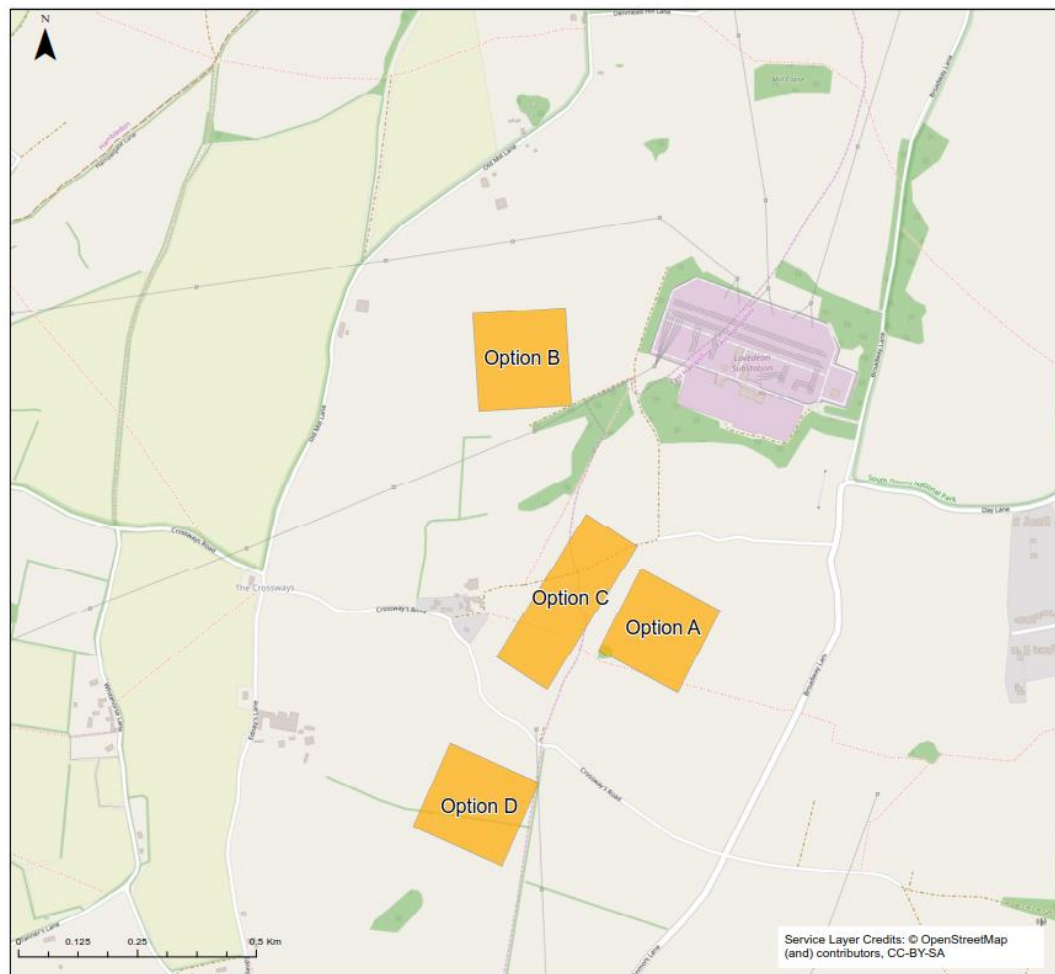
**Plate 3.2- Preliminary Converter Station Investigation Options**

3.2.1.5. After the initial identification of the five potential Converter Station site areas, the Applicant conducted further detailed assessments to ensure the technical viability and environmental constraints of siting the Converter Station within the search area.

3.2.1.6. Localised constraints such as the widespread coverage of the SDNP to the northeast and west of the Lovedean Substation meant that Converter Station locations to the north of the Lovedean Substation were considered not viable and the northernmost location was discounted. One of the proposed sites was situated on Ancient Woodland (Stoneacre Copse). This option was relocated further south and the site footprint was elongated to avoid the Ancient Woodland. In addition, due to proximity of residential receptors at the settlements of Denmead and Anmore, the southwestern-most option was also discounted. The result of this exercise identified three potential Converter Station locations to be progressed.

3.2.1.7. Ongoing consultations with Planning Officers from WCC and EHDC resulted in an additional option been introduced at their request, which was perceived to potentially offer reduced landscape and visual amenity effects by virtue of being located further south from residential receptors than the previous southwestern option. The four alternative locations, shown in Plate 3.3, considered further were therefore as follows:

- Option A: Southwest of Lovedean Substation;
- Option B: West of Lovedean Substation, between the existing 400 kV OHLs;
- Option C: Located between Stoneacre Copse and the existing 132 kV cable circuits of the existing Lovedean Substation; and
- Option D: Further southwest of Lovedean Substation (by LPA request).



**Plate 3.3- Preliminary Converter Station Investigation Options**

3.2.1.8. Further investigation resulted in the discounting of Option C due to its potential impact on the Ancient Woodland, impact upon visual receptors and likely permanent diversion of a PRoW. Option D was also discounted due to the location having a significant visual impact on the settlement of Denmead. Options A and B were taken forward to further investigations.

3.2.1.9. In Quarter 3 and 4 of 2017, the Applicant conducted a desktop study and carried out site visits and on-site studies to identify the environmental constraints for the siting of the Converter Station Options A and B, alongside consultation with the LPAs.

3.2.1.10. Based on the analysis and assessment undertaken for both Converter Station options, Option B was identified as the preferred option. The preference for Option B was strongly related to its more positive environmental outcomes from a noise, ecology and landscape and visual perspective. In addition, this option also performed best from a technical engineering perspective.

3.2.1.11. It was considered that landscape and visual effects were one of the most important distinguishing factors between the sites due to the relative sensitivity of the location, including but not exclusive to their proximity to sensitive features such as SDNP.

3.2.1.12. Option B benefited from existing topography, which provided natural screening of the Converter Station site, however the associated access route would be of greater visibility in the landscape due to the route's longer length. Overall, it was considered that this option would be better screened from key receptors including the urban area, public highway and PRoWs by virtue of existing topography and vegetation to provide screening, and provided the opportunity of being mitigated by the introduction of additional landscaping. It was therefore concluded that Option B had the potential to result in a lesser visual impact.

3.2.1.13. Following the selection of Option B, the Applicant carried out further ecological and arboricultural surveys. These surveys confirmed the absence of dormice, but identified a number of badger setts within close proximity to the initial Converter Station site, to which the hedgerow retention would allow an appropriate buffer.

3.2.1.14. As a result, the Applicant looked at refining the Converter Station location to avoid or reduce these impacts, and in doing so identified a potential to microsite the Converter Station to the east (approximately 40 m east and 11 m north). This resulted in Option B (i) and Option B (ii) being established, see Plate 3.4. Both options are included in the Application, with the final siting of the Converter Station subject to landowner discussions and to be finalised following the grant of the DCO.





**Plate 3.4- Options B (i) (Blue) and B (ii) (Green) sites**

### 3.2.2.

### ORS SITE SELECTION

#### 3.2.2.1.

Consideration was given to the location of the ORS infrastructure, which in considering the parameters for the buildings and compound required an area of up to 630m<sup>2</sup>, was not considered appropriate for the open space to the east of the car park due to its designation as a SINC, and the reduced proximity the location would have on Fort Cumberland, as a scheduled ancient monument.

#### 3.2.2.2.

The marina and ferry areas beyond have no suitable open space to accommodate requirements. With the limited formal amenity space in the locality, the open areas around Lumsden Road were not considered suitable, taking into account the associated impacts on residential amenity. Other alternatives of Bransbury Park, the Royal Marines playing fields north of Driftwood Gardens, land around Eastney Swimming Pool, and Kingsley Road open space were also considered unsuitable due to the nature of the open space.

#### 3.2.2.3.

The car park, providing an area of compacted ground for car parking, with no formal open space use, directly adjacent to the proposed landfall and HVDC cables and transition joint bays (which cannot be built over) was considered to provide the most appropriate location in the area in terms of available land, reduced impact on open space, and no impact on residential amenity, with an opportunity for screening to reduce the visual impact of the above ground elements.

## 4. CONSULTATIONS

### 4.1. OVERVIEW

4.1.1.1. This section of the DAS sets out the design specific consultations that have occurred in relation to the Converter Station Area and the ORS and how they have influenced the formulation of the Design Principles.

### 4.2. OPTICAL REGENERATION STATION (ORS)

4.2.1.1. The ORS facility is located within the jurisdiction of PCC. The concept of an ORS within 1 km of Landfall was identified with the Consultation Document presented at the statutory consultation stage. In the response from PCC to this consultation there was no reference to the ORS. However, as the Project was keen to ensure the views of PCC were captured on this matter the ORS was discussed on a conference call with PCC on the 16th August. This was followed up with plans tabled at the meetings held on the 22nd August, 10th September and 25th September following the confirmed location of the ORS within the car park at Landfall. Regular update calls and meetings were agreed with PCC to ensure regular contact was maintained as the project evolved. The location and design of the ORS was part of a wider project agenda with indicative designs, as shown in this DAS, shared with PCC as they evolved through August and September. The indicative design for the ORS is functional with limited opportunity to alter the aesthetics. The siting of the ORS has been selected to minimise the impact upon the area with the parameters, as shown in Plate 5.1, controlling the limited mass and footprint of the facility.

### 4.3. CONVERTER STATION DESIGN MEETINGS

4.3.1.1. This section summarises items discussed at consultation meetings attended by the LPA's and the SDNPA relevant to the Converter Station design, and outlines the design responses incorporated into the indicative designs developed to support the DCO submission.

4.3.1.2. All meetings were attended by representatives from:

- EHDC
- WCC
- SDNPA

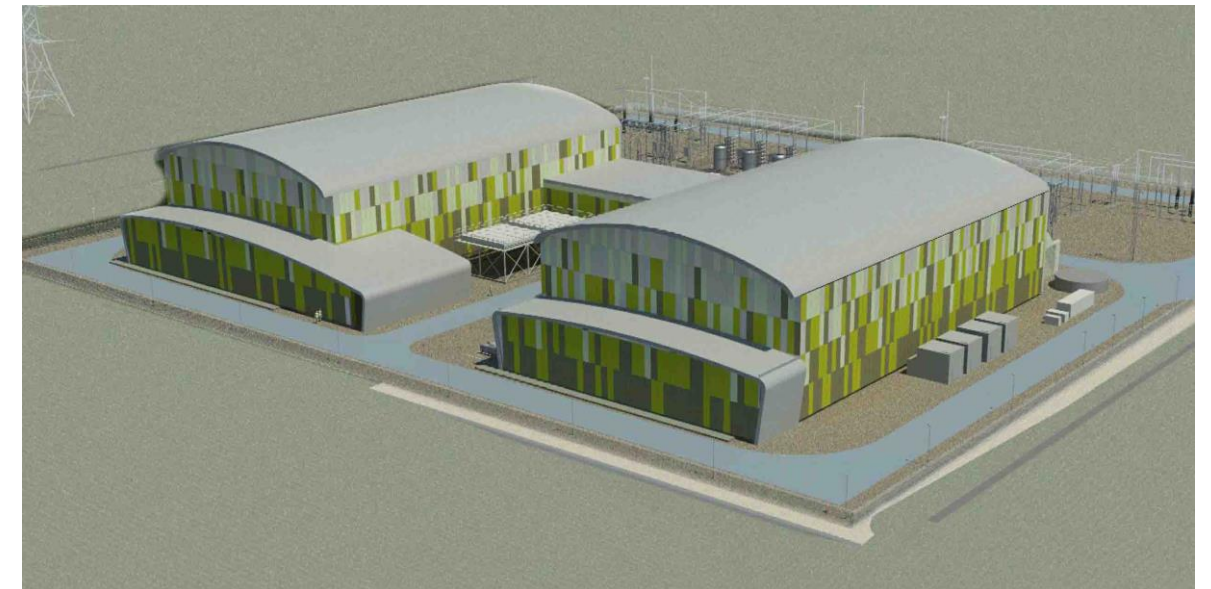
4.3.1.3. An initial Converter Station Area specific meeting was held on the 15th October 2018. This meeting took the form of a Landscape and Visual Amenity Briefing with relevant LPA's (EHDC, WCC) and the SDNPA in attendance.

### 4.3.2. LANDSCAPE AND VISUAL AMENITY BRIEFING MEETING – 15<sup>TH</sup> OCTOBER 2018

4.3.2.1. The purpose of this meeting was to update the attendees on the progress of the Project since the consultation undertaken in January 2018, to seek views on possible content of the Preliminary Environmental Information Report ('PEIR') in terms of Landscape and Visual Impact Assessment ('LVIA') and set out associated timescales for the progression of the Proposed Development.

4.3.2.2. The associated baseline and indicative mitigation impacts upon the zones of theoretical visibility ('ZTV' - computer-generated tool to identify the likely (or theoretical) extent of visibility of a development). The computer model of the development is tested against a 3D terrain model) was discussed along with indicative species palettes, and agreement on local viewpoints to be used in the PEIR and ES. The assessment methodology for the LVIA EIA was also further discussed and agreed.

4.3.2.3. The opportunity was taken to discuss early design concepts and colour palette for the converter buildings. The initial design concepts presented at the meeting used a patchwork of panels in varying shades of green, with hipped and curved roof examples (refer to Plates 4.1 and 4.2 below).



**Plate 4.1- Green panels and curved roofs**



**Plate 4.2- Green panels and hipped roofs**

4.3.2.4. A number of questions and comments were received, notably:

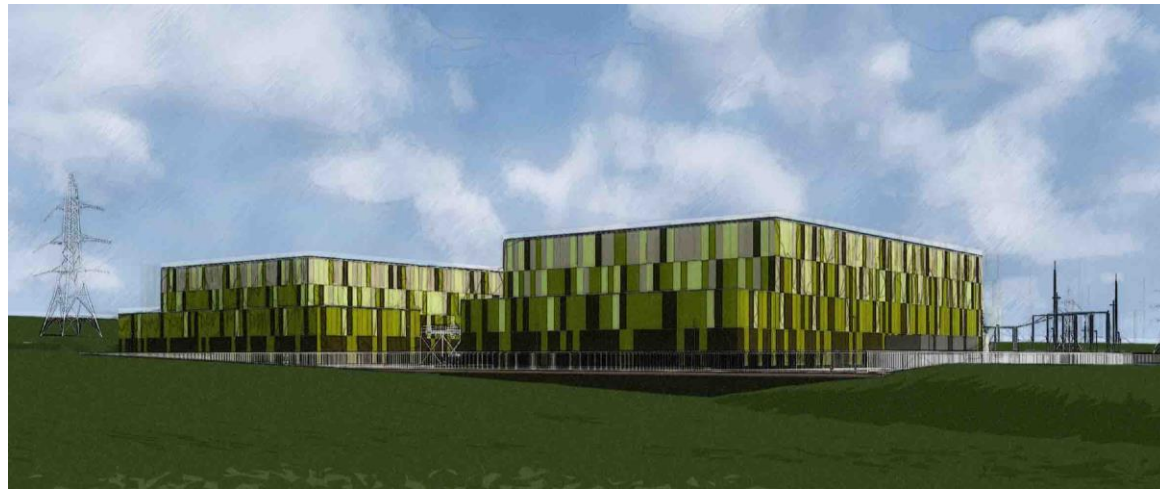
- **Comment:** (WCC) Why are vertical rather than horizontal bands being used?
- **Response:** Vertical bands were selected as Architects had worked on buildings of similar scale. EHDC commented that they had seen the successful application on a number of projects with vertical bands.
- **Comment:** (WCC) Should the size of band widths be wider to reflect an “honesty” in the size of a large scale building?
- **Response:** Band widths could be varied and looked at, in option development.
- **Comment:** (WCC) Could timber be used to replicate some of the barns within the vicinity?
- **Response:** Due to operational requirements wooden materials are not acceptable within a live converter station site.
- **Comment:** Should the building be concealed or celebrated?
- **Response:** This was a concept that was proposed by EHDC, but other attendees expressed a preference for concealment. The alternatives were debated and it was agreed that prominent curved roofs (Plate 4.1) would be discounted.

### 4.3.3. LANDSCAPE AND VISUAL AMENITY BRIEFING MEETING – 15<sup>TH</sup> OCTOBER 2018

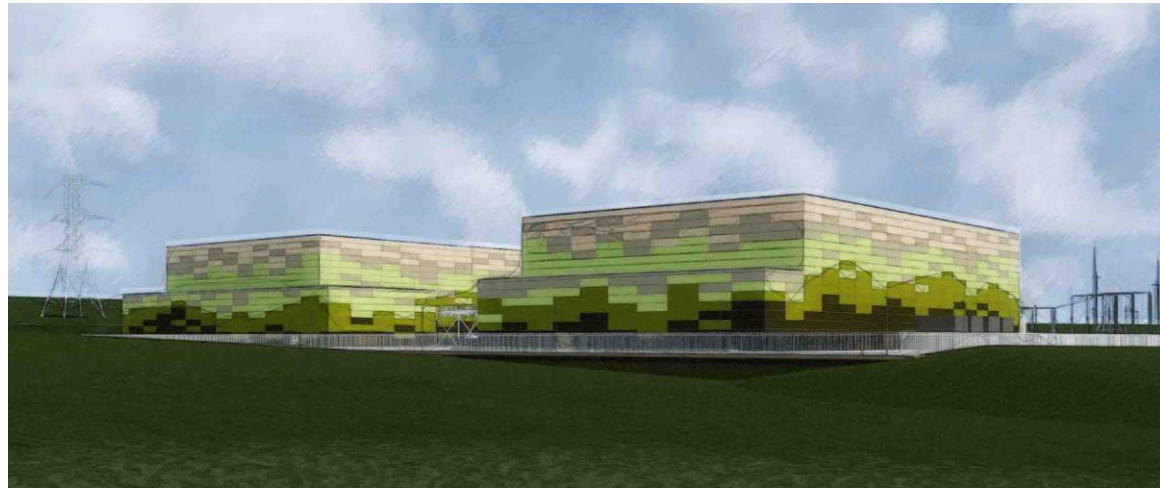
4.3.3.1. Building upon the initial meeting it was agreed with all the relevant stakeholders, as set out in section 3.3, that a specific focus group would be established to progress the discussions around landscape mitigation and indicative design options that would head to the crystallisation of Design Principles to control the final design to be approved pursuant to a DCO requirement post grant of the DCO.

4.3.3.2. The site constraints were highlighted and discussed and three design options were explained in more detail. Options one and two both used rich green cladding arranged vertically and horizontally in order to blend into the landscape, with the third option being a darker option with a stronger architectural character. The first two options therefore sought to soften the building while the third option sought to celebrate the building. (Plates 4.3; 4.4 & 4.5)





**Plate 4.3 – Vertically arranged green cladding**



**Plate 4.4 – Horizontally arranged green cladding**



**Plate 4.5 – Vertically arranged brown cladding**

- **Comment:** (WCC) The concept of “hiding” the building or “celebrating” it was discussed again.
- **Response:** There was no strong preference either way from the attendees. It was agreed that the differing concepts would be considered as the indicative designs progressed.
- **Comment:** (WCC) Request to consider using cut and fill to lower the overall height of the building further
- **Response:** It was noted that the site sits above an aquifer that would restrict the extent of excavations but it was the projects intention to conduct a cut and fill assessment exercise.
- **Comment:** (SDNPA) Type and nature of roofing materials queried.
- **Response:** It was confirmed at the meeting that neutral, matt, mid-range colours for roof cladding would be considered
- **Comment:** (WCC) Preference for darker, less reflective colours
- **Response:** Taken on board in selection of colour palette
- **Comment:** (WCC, EHDC and SDNPA): Concerns raised regarding delivery of final design within the DCO process.
- **Response:** Agreed that a set of Design Principles and Parameters will be developed for inclusion in the DCO. (Refer to section 6) These would be the mechanism that would control the final design.
- **Comment:** (WCC) Access to site queried, particularly to ensure this avoids the ancient woodland to the south.
- **Response:** It was confirmed that:
  - Access to Broadway Lane to the east will avoid the ancient woodland.
  - Access through the existing substation is not feasible for security reasons.
- **Comment:** (EHDC) Question regarding constraints on future development and landscaping from cable routes.
- **Response:** HVDC cables running between the Converter Station and the Landfall would be buried so that small scale planting and agriculture could occur following commissioning, but mature tree planting would not be possible over the route. The AC cables between Lovedean substation and converter station has far greater technical constraints and requires greater land take. The technical constraints relating to the AC Cables was an important factor in determining the location of the Converter Station



#### 4.3.4. 2<sup>ND</sup> CONVERTER STATION DESIGN MEETING – 31<sup>ST</sup> JANUARY 2019

4.3.4.1. Following feedback at the 1st Design Meeting a presentation was given on the operational need, requirement and constraints of a converter station and how that impacts the built form.

4.3.4.2. The proposed approach to the statutory consultation was re-outlined, explaining that photomontages would be contained within the PEIR utilising a single indicative design.

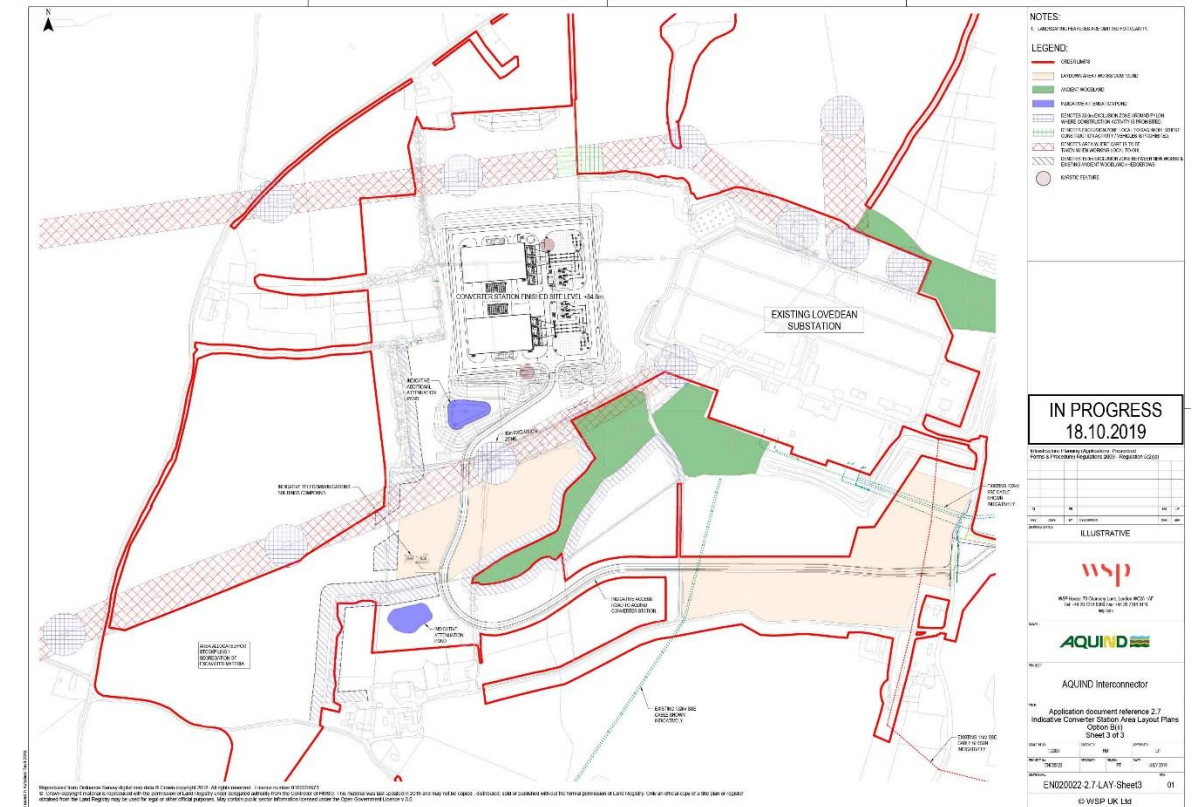
- **Comment:** (WCC) Request to consider rearrangement of the components of the Converter Station to enable greater design flexibility
- **Response:** It was confirmed that the components are arranged in a specific order to convert the electricity from DC to AC as such there is limited scope to rearrange the components.
- **Comment:** (EHDC) Preference raised for a more architecturally expressive approach.
- **Response:** It was confirmed that this would be developed by the selection of small individually coloured cladding elements – possible use of “baguettes” cladding.
- **Comment:** (WCC and EHDC) Request to consider a more direct access route from the west of the site, utilising an existing farm access.
- **Response:** It was confirmed at the meeting that the road to the west was too small to meet access requirements for delivery of transformers and that the existing access point was too narrow, requiring removal of ancient woodland to adapt it, creating an unacceptable impact

4.3.4.3. The opportunity was taken to restate that the statutory consultation that would commence shortly after the meeting would utilise a single illustrative design as the DCO would not seek approval of a specific design, with Design Principles and Parameters being secured to control the final design. WCC questioned the lack of optionality and would have preferred design options consulted upon. It was maintained that to retain flexibility for final design post consent, when contractors are appointed, a Design Principles and Parameter approach would be pursued.

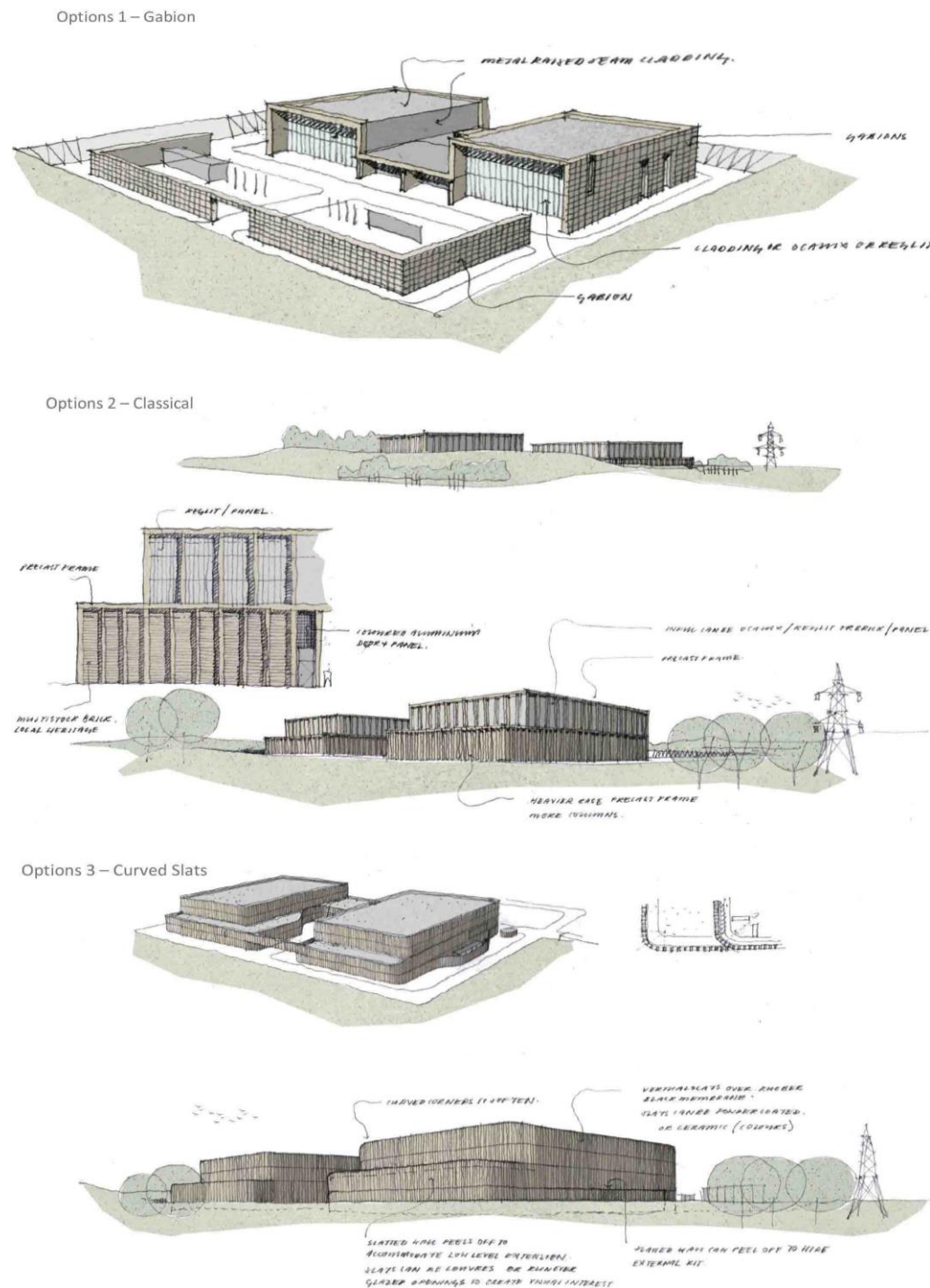
4.3.4.4. It was agreed at this meeting that these focused meeting would be paused during the statutory consultation period to allow consultees time to digest all the consultation material and the project team to respond to comments after the close of the consultation.

#### 4.3.5. 3<sup>RD</sup> CONVERTER STATION DESIGN MEETING – 21<sup>ST</sup> JUNE 2019

4.3.5.1. The first Converter Station Design Meeting post the statutory consultation stage. The known site constraints were tabled (refer to Plate 4.6) to explain the limitations that influence where and what landscape mitigation can occur. Building upon this the built form responses to the consultation were presented and explained (refer to Plate 4.7 below)



**Plate 4.6 – Site Layout Plan – indicating existing ancient woodland (green) and infrastructure exclusion zones (hatched)**



**Plate 4.7 – Design options presented**

- **Comment:** (EHDC) Further development of contextual colour studies presented requested (refer to Plate 4.10 for studies presented). Variation and gradation of colours to different elevations considered.
- **Response:** Defined colour palettes will be developed from the contextual studies. Variation and gradation of colours to different elevations to be considered.
- **Comment:** (WCC) Request to consider fenestration to the southern elevation.
- **Response:** It was confirmed at the meeting that it is an unmanned site, so fenestration is not necessary and more importantly not possible due to operational requirements.
- **Comment:** (WCC) Request to consider use of double faces to add interest to cladding surfaces.
- **Response:** It was confirmed at the meeting that the “baguette” option under consideration will have this effect as the applied vertical sections will stand off the cladding below, creating a shadow effect (refer to Plates 4.8 & 4.9 – showing effects created from varying the colours of the “baguettes”, and the shadows resulting from the different layers of cladding).
- **Comment:** (WCC, EHDC and SDNPA) Agreement that dark, non-reflective colours for roofing would be the best option
- **Response:** To be considered
- **Comment:** (WCC) Request to consider sloping or stepping the Converter Station compound to follow the existing contours.
- **Response:** It was confirmed at the meeting that this would not be feasible due to access and operational requirements.

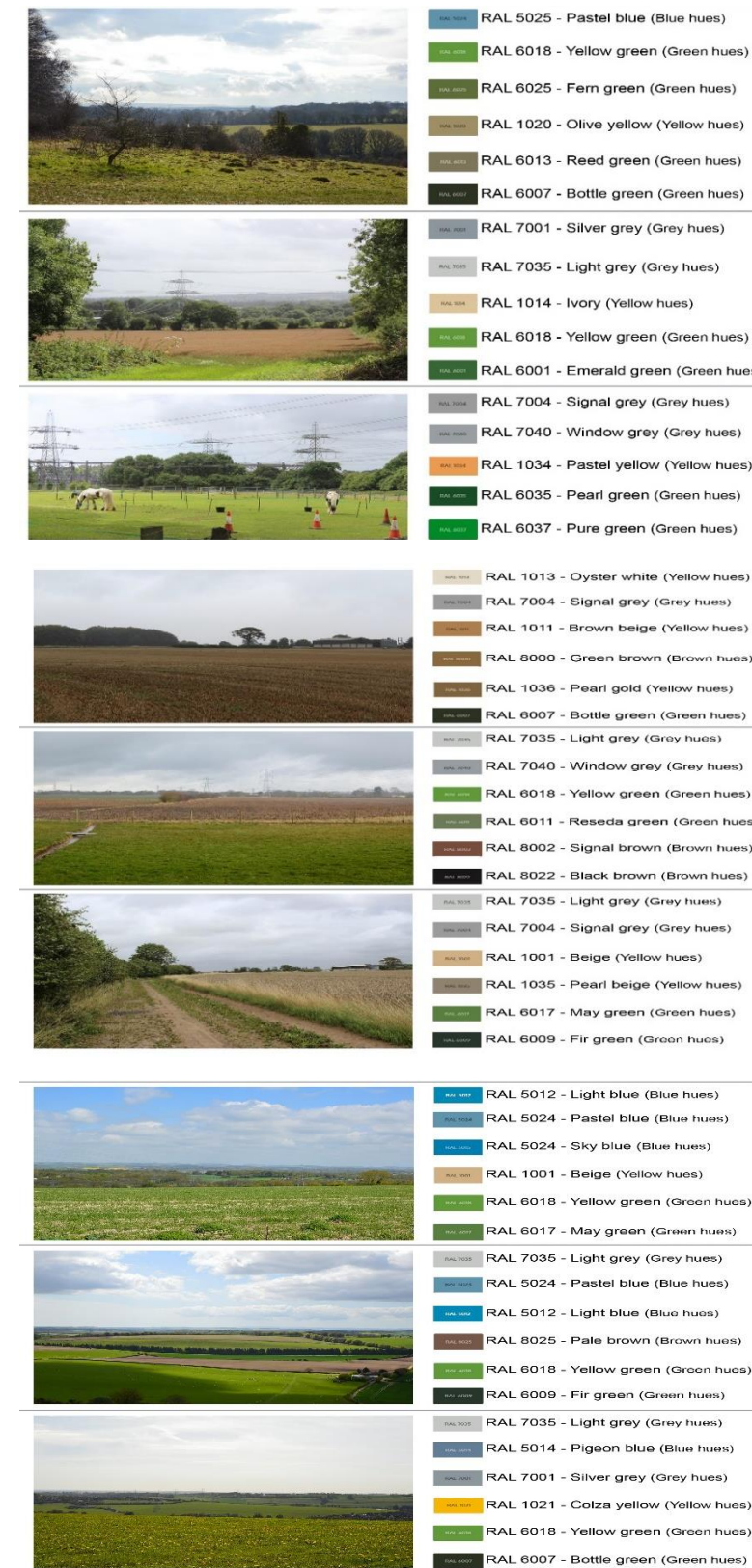




**Plate 4.8– Indicative illustration of “baguettes” showing patterning created by colour variations**



**Plate 4.9 – Indicative illustrations of “baguettes”, showing shadowing effects to provide a layered texture to the facades**



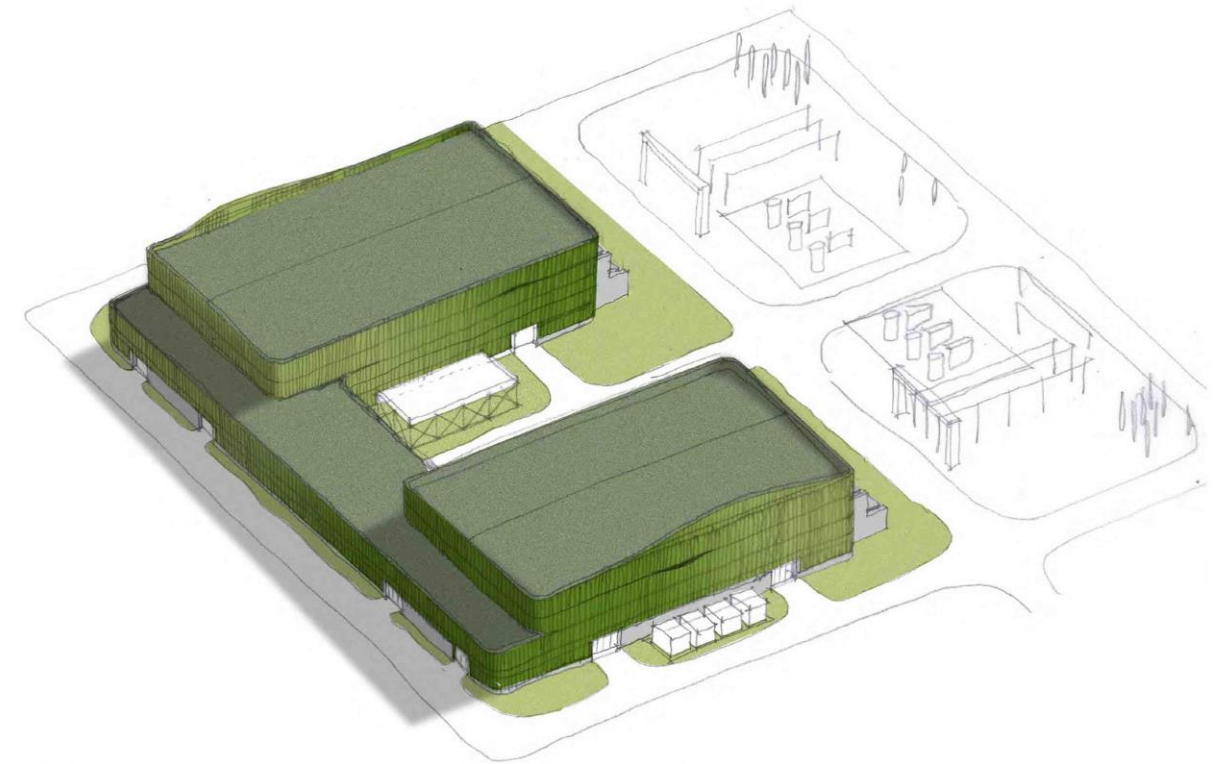
**Plate 4.10 – Contextual colour studies**



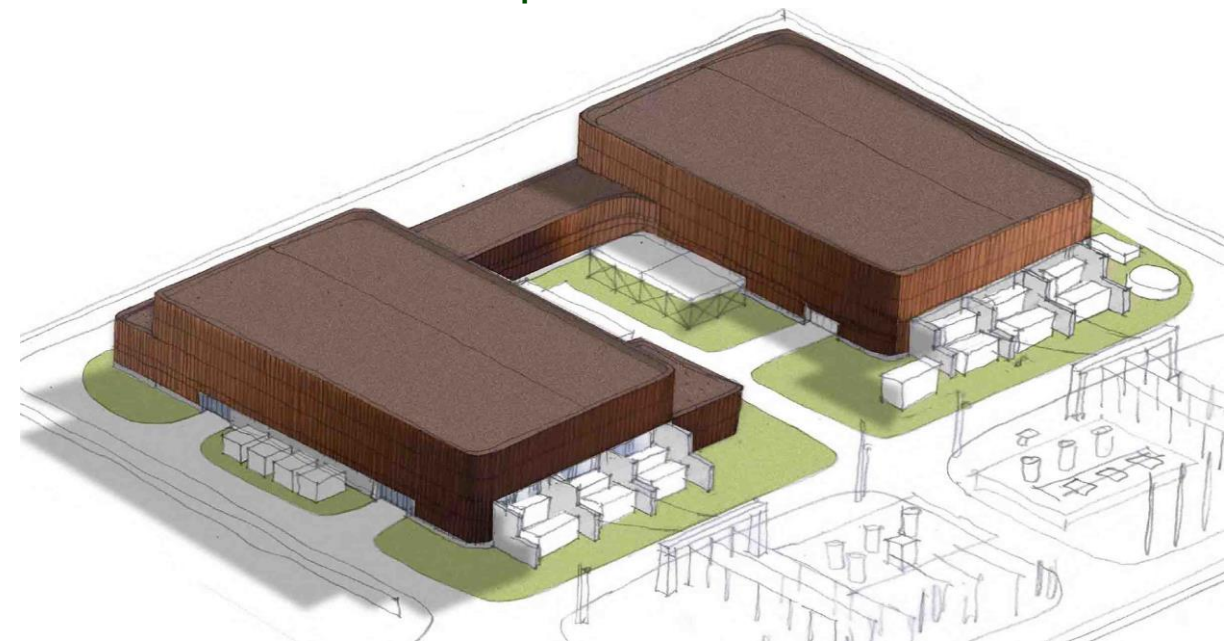
#### 4.3.6. 4<sup>TH</sup> CONVERTER STATION DESIGN MEETING – 10<sup>TH</sup> JULY 2019

4.3.6.1. The meeting followed a similar format to the 3rd meeting with updates and progress on landscape mitigation followed but built form responses. The indicative landscape mitigation proposals were tabled and comments welcomed. The evolution of the illustrative design shown at the 3rd meeting was presented and discussed (Plates 4.11 & 4.12 illustrating alternative colour options and “wave” forms to parapets).

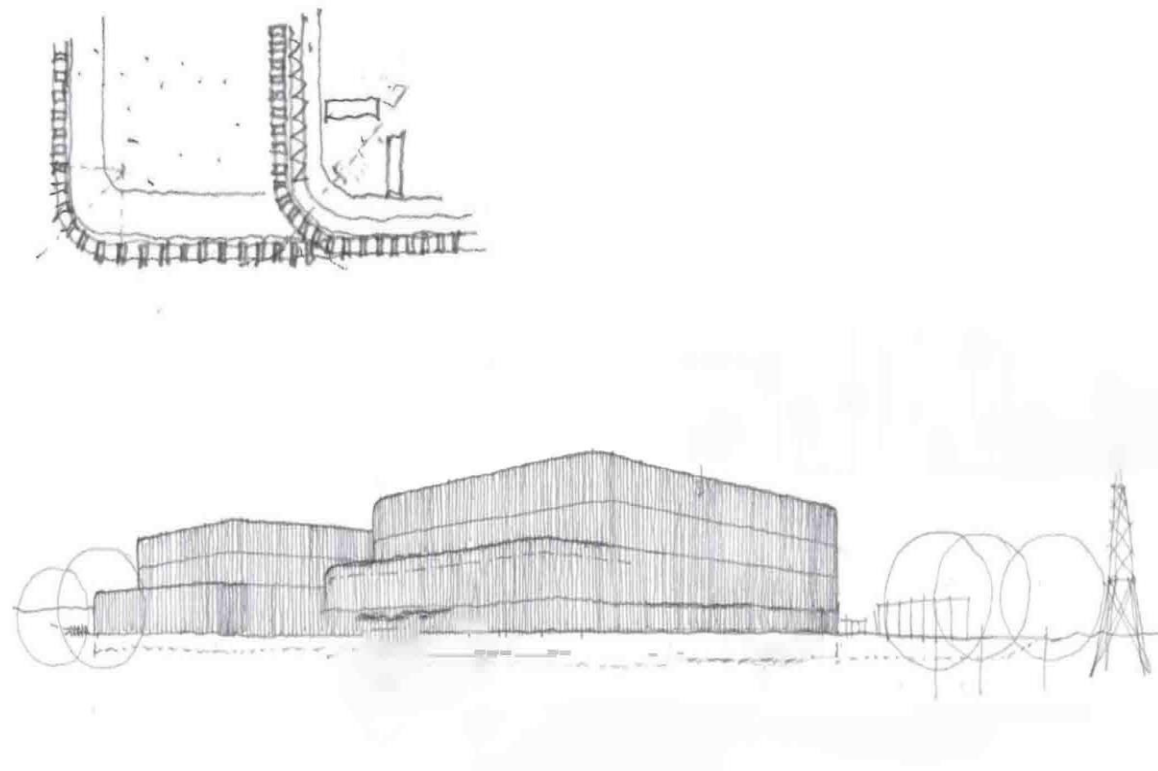
- **Comment:** (WCC) Request to consider splitting site on an east west divide
- **Response:** It was advised that a staggered split may be feasible but will be difficult due to site constraints, and agreed that splitting the site would add little benefit.
- **Comment:** (WCC) Comment on grading that darker cladding to the northern elevation and lighter to the southern would be better.
- **Response:** It was agreed that this would be incorporated.
- **Comment:** (WCC) Confirmation sought that darker roof cladding would not have a detrimental thermal effect.
- **Response:** It was confirmed that thermal performance requirements could still be met with darker roofing colours.
- **Comment:** (WCC) Request to explore a distinctive plinth element
- **Response:** It was agreed to consider in further detailed design development
- **Comment:** (WCC and SDNPA) Agreement to discount the “summer greens” colour palette (refer to Plate 4.11)
- **Response:** Agreed to be discounted from illustrative designs.
- **Comment:** (WCC and SDNPA) Agreement that darker colours rather than lighter would be preferable.
- **Response:** Preference noted.
- **Comment:** (WCC) Request to ensure horizontal banding is included.
- **Response:** Agreed to retain and emphasise.
- **Comment:** (WCC and SDNPA) Concern expressed that “wave” forms to roof (refer to Plate 4.11) would have little impact when viewed from a distance
- **Response:** Agreed to omit.
- **Comment:** (WCC) Request to consider blue/grey/brown colours
- **Response:** Colour palettes to be investigated further for next meeting



**Plate 4.11– “Summer Greens” option.**



**Plate 4.12 – Graded “autumnal” colours option**



**Plate 4.13 – Curved corners sketch**

4.3.6.2.



**Plate 4.15 – “Autumnal” colours – indicative elevations**

**Summary:** It was concluded at the meeting that the design concepts and colour palettes presented (Plates 4.11 to 4.15) should be looked at further with darker colours explored.

<p><b>Blue - grey colour scheme</b></p> <p><b>RAL 7040</b> Window grey RAL 7040</p> <p><b>RAL 7001</b> Silver grey RAL 7001</p> <p><b>RAL 7035</b> Light grey RAL 7035</p> <p><b>RAL 5012</b> Light blue RAL 5012</p> <p><b>RAL 5024</b> Pastel blue RAL 5024</p> <p><b>RAL 5014</b> Pigeon blue RAL 5014</p> <p><b>RAL 6007</b> Bottle green RAL 6007</p>	<p><b>Green - grey colour scheme</b></p> <p><b>RAL 7004</b> Signal grey RAL 7004</p> <p><b>RAL 7035</b> Light grey RAL 7035</p> <p><b>RAL 1020</b> Olive yellow RAL 1020</p> <p><b>RAL 6025</b> Fern green RAL 6025</p> <p><b>RAL 6013</b> Reed green RAL 6013</p> <p><b>RAL 6035</b> Pearl green RAL 6035</p> <p><b>RAL 6007</b> Bottle green RAL 6007</p>	<p><b>Green - yellow/brown colour scheme</b></p> <p><b>RAL 1001</b> Beige RAL 1001</p> <p><b>RAL 1035</b> Pearl beige RAL 1035</p> <p><b>RAL 6013</b> Reed green RAL 6013</p> <p><b>RAL 6018</b> Yellow green RAL 6018</p> <p><b>RAL 6017</b> May green RAL 6017</p> <p><b>RAL 6009</b> Fir green RAL 6009</p> <p><b>RAL 8022</b> Black brown RAL 8022</p>
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**Plate 4.14 – Colour palette – abstracted from contextual colour studies**



#### 4.3.7. 5<sup>TH</sup> CONVERTER STATION DESIGN MEETING – 20<sup>TH</sup> AUGUST 2019

4.3.7.1. Following the general consensus that the indicative design concept discussed at the 4<sup>th</sup> meeting was to be progressed, the focus turned to exploring how the various design aspects could be converted into Design Principles. The comments on landscape mitigation, previously received, were discussed and responses made. Development of colour palettes (Plate 4.16) was also presented and finally a round table discussion, with the use of examples, as to the Design Principles that should be established was held.

- **Comment:** (WCC, EHDC and SDNPA) autumnal colours would be preferable to blue-grey.
- **Response:** Agreed to proceed with autumnal colours.
- **Comment:** (WCC) Request to consider “wrap arounds” to single storey elements to add interest to building form.
- **Response:** Agreed to consider in indicative design.
- **Comment:** (WCC, EHDS and SDNPA) Request to include Design Principles focusing on the following important aspects:
  - Levels
  - Layout - consolidation of built form as much as possible
  - Landscaping – layer principles with basis to be the retention of as much existing vegetation as possible, building upon this to then look at management of the existing and finally new planting where needed.
  - Access road – surface to be as sensitive to location as possible.
  - Roof plan – can the roof be clear of any ancillary paraphernalia?
- **Response:** All requests implemented in the development of the Design Principle



Blue/ grey palette



Grey/brown palette



Grey/green/yellow palette



Autumnal palette

#### Plate 4.16 – Colour palettes presented

##### Summary:

- Blue grey palette was dismissed by general consensus
- Grey/ brown and Grey/ green/ yellow brown palettes had a mixed reception
- Autumnal palette was preferred by general consensus



#### 4.3.8. 6<sup>TH</sup> CONVERTER STATION DESIGN MEETING – 23<sup>RD</sup> OCTOBER 2019

4.3.8.1. Following the 5th meeting where example Design Principles were discussed and the direction in which the Design Principles for the Project should go. The focus of this meeting was to discuss the draft Design Principles that has been shared with the attending LPAs a week before the meeting and seek comments from attendees. Design Principles under the following headings were presented, General Principles, Building Design Principles, Landscape Design Principles, Sustainability Principles, ORS and Telecommunications Buildings Principles.

- **Comment:** (WCC and EHDC) Building Design Principles are too prescriptive and don't retain enough flexibility for material type and colour for detailed design stage.
- **Response:** The Building Design Principles had been developed following the detailed discussed and consensus expressed by the attendees at the previous design meetings.
- **Comment:** (EHDC) With regards the Landscape Design Principles request that additional principle be added to commit to as much advance planting as practicable.
- **Response:** Agreed to draw into existing Principles.
- **Comment:** (WCC) Commented that the Sustainability Principles don't go far enough and would like to see greater aspirational Principles.
- **Response:** The Project agreed to look at what additional elements could be secured as sustainability principles.
- **Comment:** (WCC) Glad to see the Project had listened in previous meetings and responded to issues that have been raised. There are key Principles drafted to cover the areas that the Councils wanted to see covered.
- **Response:** Noted.

## 5. DESIGN DEVELOPMENT

### 5.1. ONSHORE PROJECT DESIGN OVERVIEW

5.1.1.1. The key Onshore Components of the Project comprise:

- Landfall Area
  - Including transition joint bays of no residual design impact and ORS buildings.
  - The design approach for the ORS buildings has been developed through an iterative design process. The design development has resulted in the establishment of Parameter Plans and the Design Principles, stated within section 5 of this DAS, which have been developed alongside the progression of an illustrative design to provide tangible visual context to the design of the ORS equipment
- Onshore Cable Routes:
  - These will be buried and areas reinstated on completion in accordance with the Landscape Mitigation Proposals. There will be no residual design impact. Accordingly, the Onshore Cable route is not considered further in this DAS.
- Converter Station:
  - The Converter Station is located on agricultural land adjacent to the existing Lovedean National Grid substation to the north of Waterlooville.
  - The Converter Station is required to convert the electrical current from high voltage direct current ('HVDC') to high voltage alternating current ('HVAC') – used by the National Grid in the electrical transmission network

5.1.1.2. The design approach to the Converter Station has been developed through an iterative design process in consultation with the relevant LPAs and the SDNPA. The design development has resulted in the establishment of Parameter Plans and the Design Principles, stated within section 5 of this DAS, which have been developed alongside the progression of an illustrative design to provide tangible visual context to the design of the Converter Station and the associated equipment.

5.1.1.3. The final design of the Converter Station will be developed in accordance with the Parameter Plans, the Parameter Table and the Design Principles.

5.1.1.4.

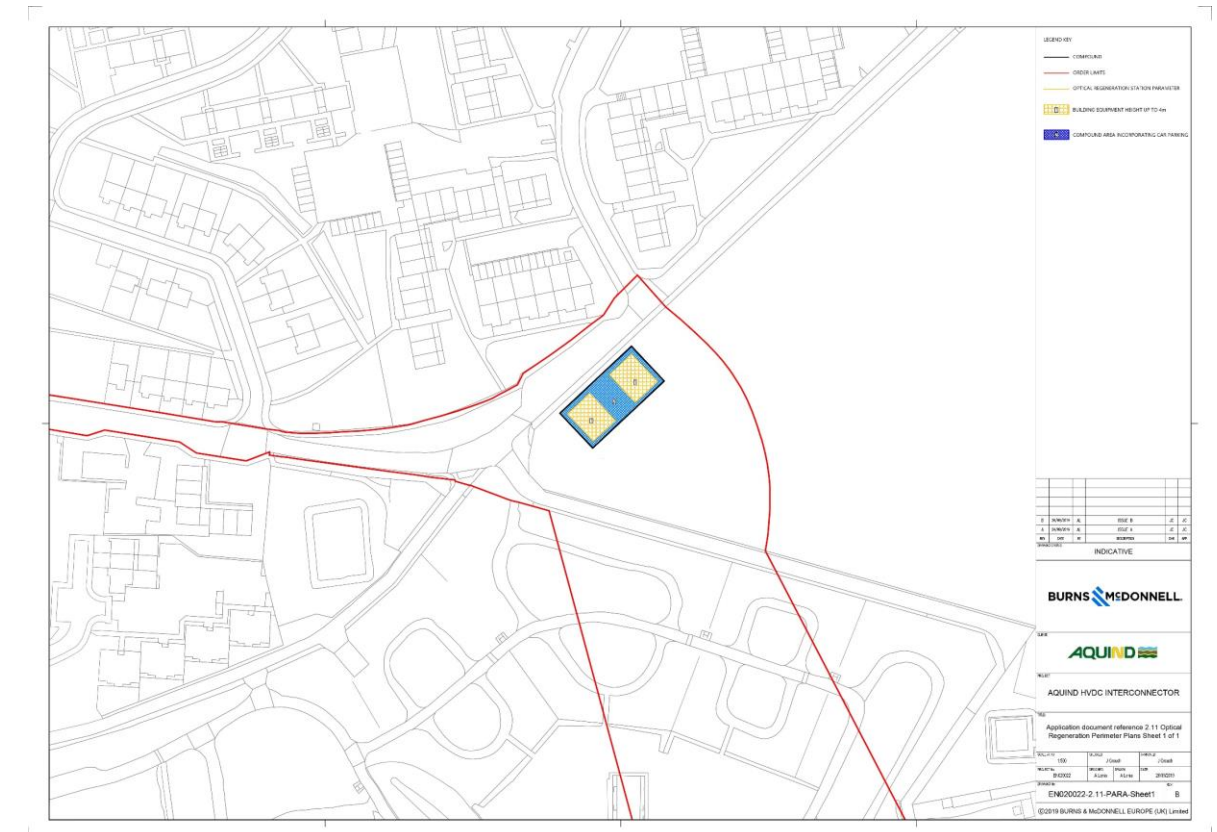
The following sections describe the development of the Parameter Plans, Design Principles and the illustrative designs of the visual components which provide the design envelope, the Parameter Tables in the DCO requirements (document reference: 3.1) which provide the maximum massing for the relevant buildings and electrical equipment within the envelope provided by the Parameter Plans, and the Design Principles which guide the aesthetic form and layout, and will be subject to approval by the LPAs in consultation with the SDNPA.

### 5.2. ORS DESIGN

#### 5.2.1. SITING

5.2.1.1.

Once cable laying and construction activities have been completed at Landfall, the only above ground infrastructure at Landfall will be the ORS buildings. The ORS Parameter Plan (Plate 5.1) show the locational extent of the buildings, within the existing car park area.



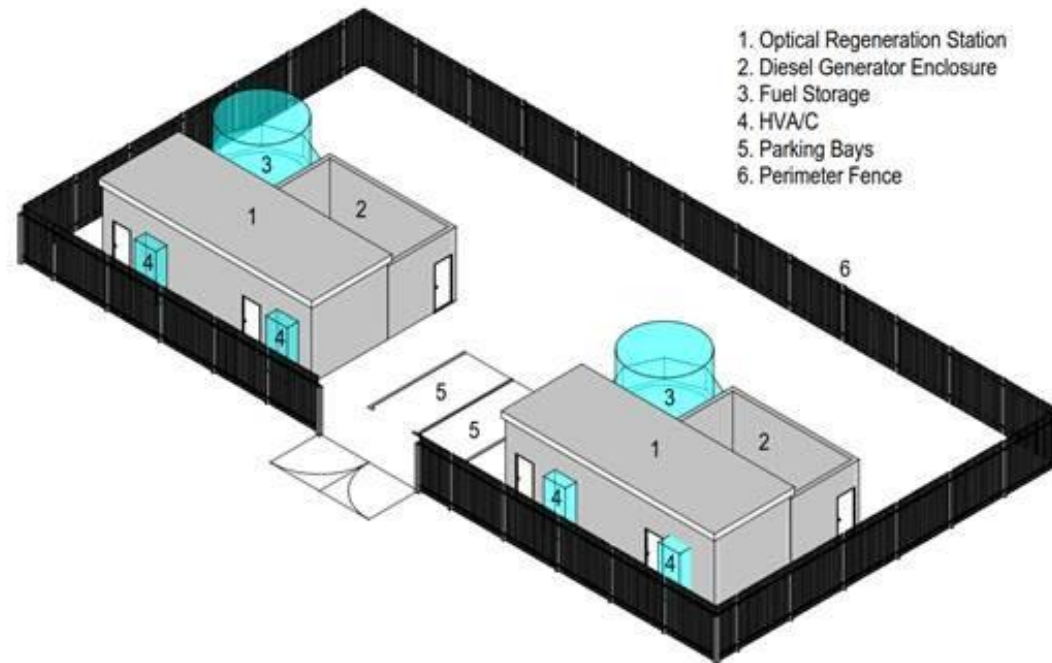
**Plate 5.1 – ORS Parameter Plan (document reference 2.11)**

**5.2.2. LAYOUT, SCALE AND MASSING**

5.2.2.1. The ORS buildings will be small scale single storey structures located within the defined parameters, and will include walled external areas and fuel tanks (Plate 5.2). The compound for an ORS will have a maximum size of 18 m x 35 m.

**5.2.3. APPEARANCE**

5.2.3.1. The ORS buildings would be located within a securely fenced compound at the Landfall Area, which would also contain auxiliary power generation equipment and a fuel tank. The appearance of the buildings would be determined post consent with the submission of a detailed design that would be within the defined parameters plan (Plate 5.1). The ORS design will be confirmed in accordance with the Design Principles, an indicative design can be seen in Plate 5.2 below. An auxiliary power supply would be required to provide back-up power in the event of a disruption in the local mains power supply to an ORS. There will be parking for up to two vehicles for maintenance purposes within the compound.



**Plate 5.2 – Indicative view of Optical Regeneration Station**

**5.2.4. LIGHTING**

5.2.4.1. There is no external lighting proposed for the ORS.

**5.2.5. SURFACING TO COMPOUNDS**

5.2.5.1. The external areas within the ORS compound are intended to be gravel or similar hardstanding surface.

**5.2.6. BOUNDARY TREATMENTS**

5.2.6.1. The ORS compound will be surrounded by metal security fencing with access control gates – as illustrated on the indicative drawing.

**5.2.7. ACCESS**

5.2.7.1. Regular access to the ORS at the Landfall will be required during the Operational Stage. Vehicular access to the ORS will be via the existing car park.

**5.3. THE CONVERTER STATION**

**5.3.1. SITING**

5.3.1.1. The Converter Station is situated to the west of the existing Lovedean substation. The compound and buildings are orientated on a slightly skewed east- west axis to respond to the local context by aligning with established boundaries and hedgerows.

5.3.1.2. As stated above and illustrated on the Parameter Plans (Plates 5.3 & 5.4) options for the siting of the compound are submitted to enable the retention of existing hedgerows, if land ownership negotiations are successful so as to allow for the Converter Station compound to be located in the footprint of Option B (ii).

5.3.1.3. There will also be a requirement for a small compound containing low level telecommunications buildings to the south-west of the main compound, as illustrated on the Parameter Plans





**Plate 5.3 – Converter Station Parameter Plan Option B (i) (document reference 2.6 PARA Sheet 2)**

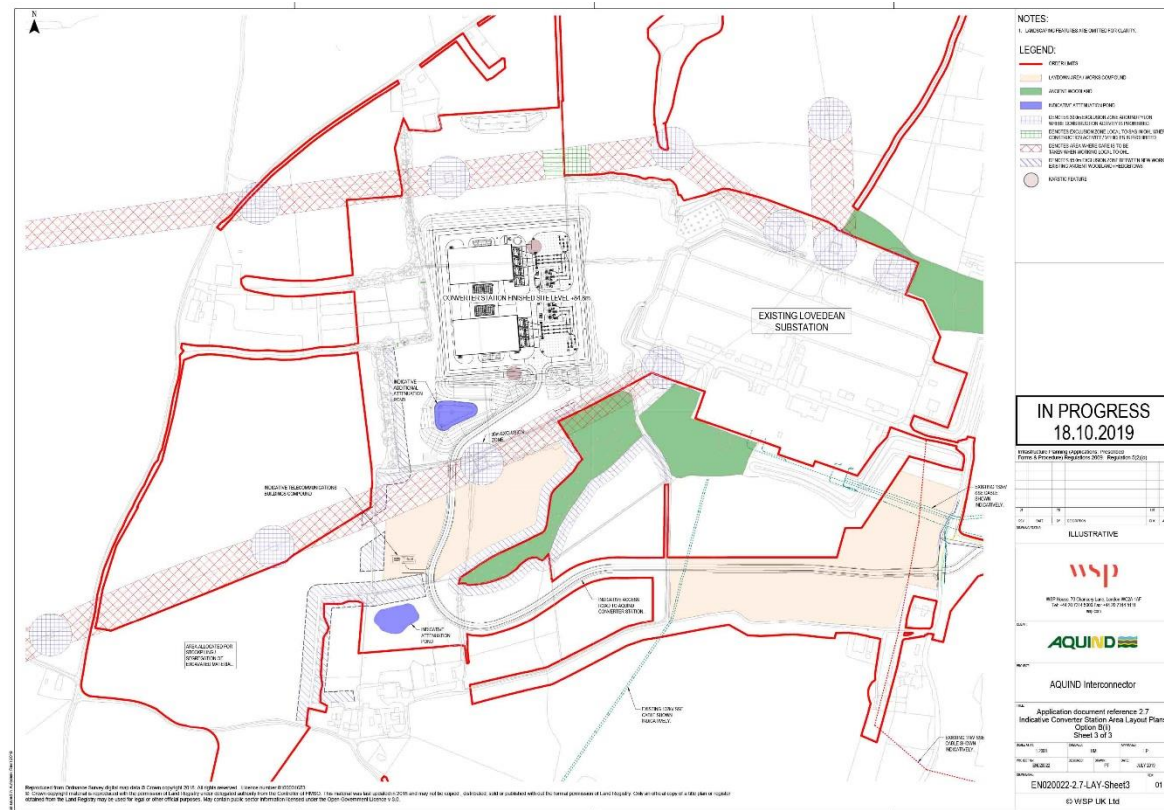
**Plate 5.4 – Converter Station Parameter Plan Option B (ii) (document reference 2.6 PARA Sheet 3)**

### 5.3.2.

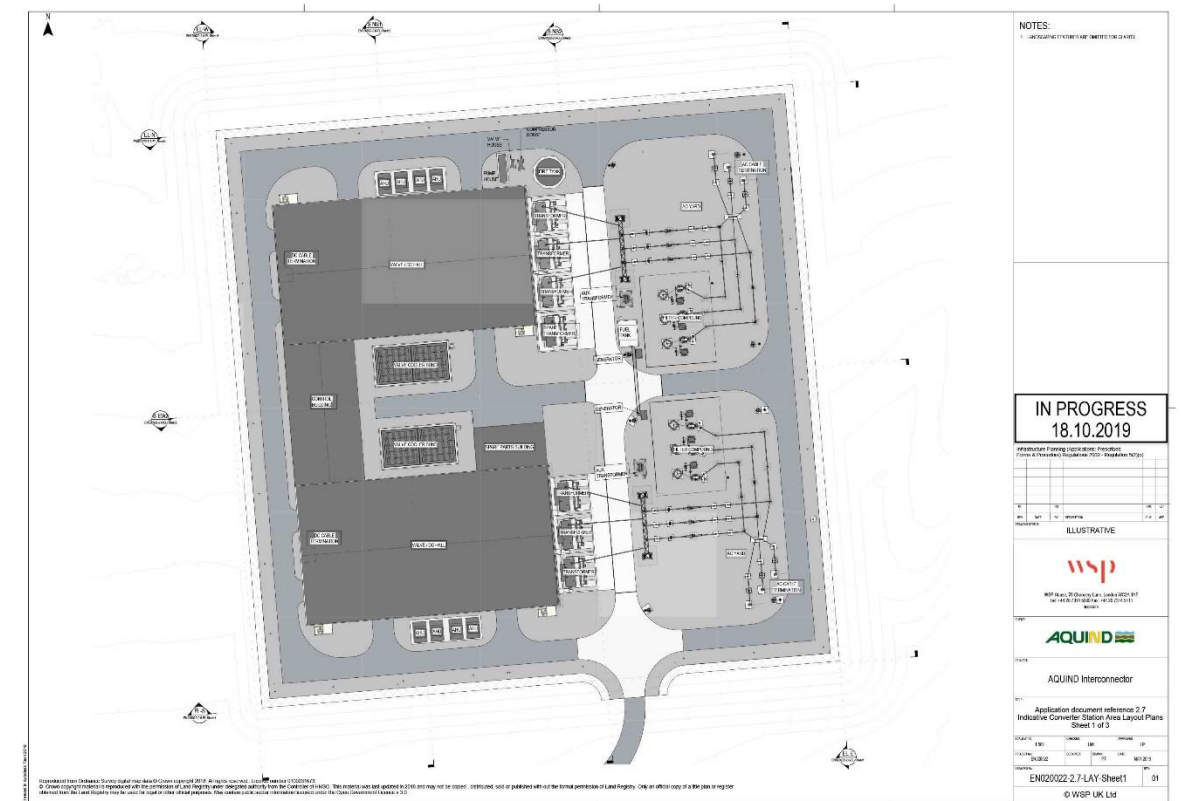
### LAYOUT, SCALE AND MASSING

#### 5.3.2.1.

The compound siting and layout (refer to indicative plans – Plates 5.5 & 5.6) is derived from the operational and functional requirements of the Converter Station to meet relevant guidelines and maintain electrical and magnetic separation. It will occupy an area approx. 200m x 200m.



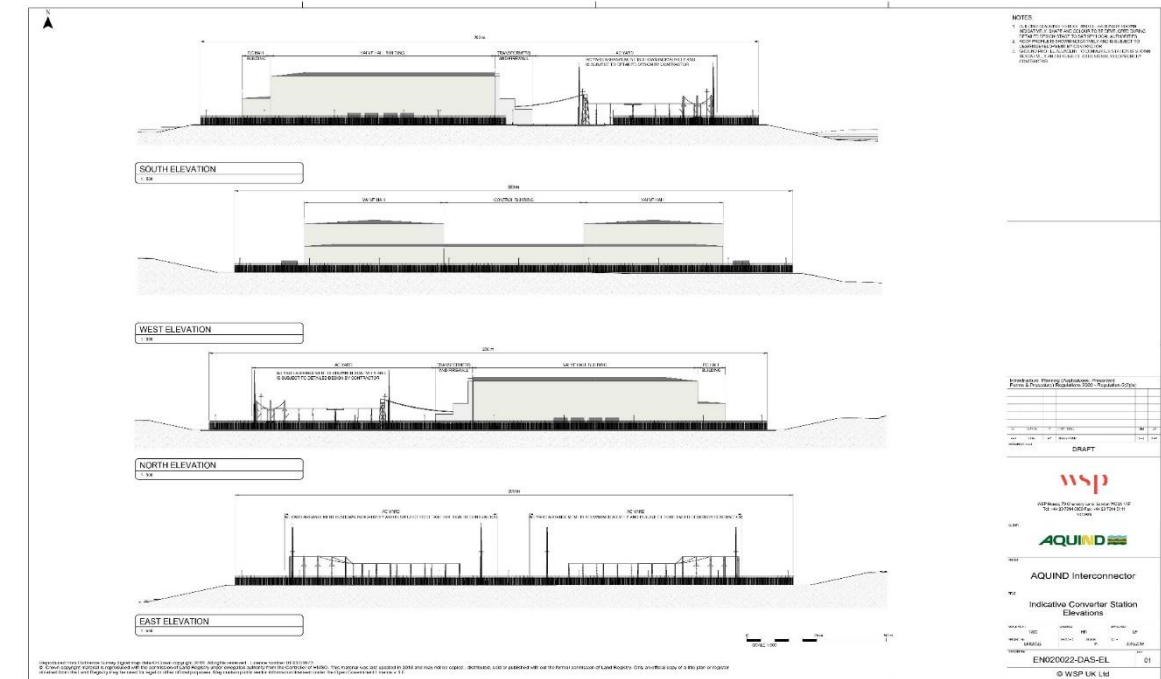
**Plate 5.5 – Indicative site layout (Option B (ii)): illustrating the location of the compound defined by the Parameter Plans and how the access to it could be arranged to preserve the ancient woodland and land ownership constraints.**



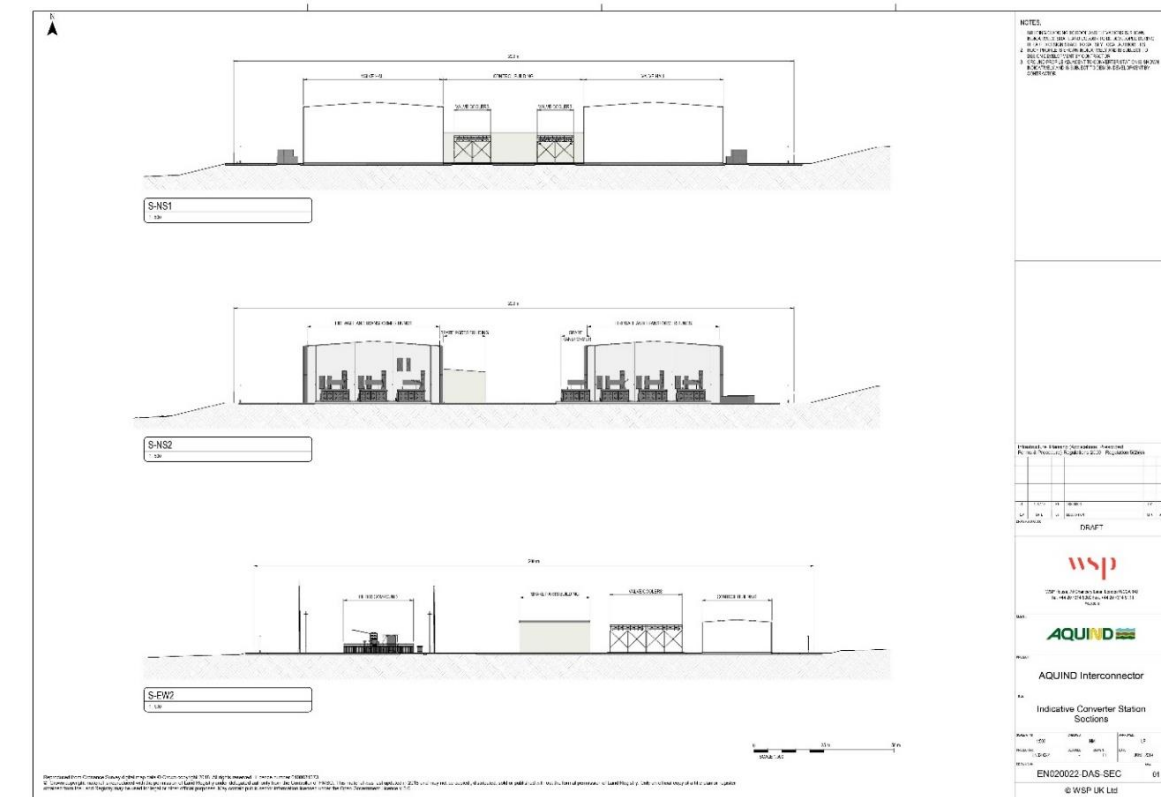
**Plate 5.6 – Indicative Converter Station plan (document reference 2.7 LAY): illustrating how buildings and equipment could be arranged within the compound to comply with the Parameter Plan**



- 5.3.2.2. The location of electrical equipment is determined by the conversion of HVDC current supplied by the HVDC cables approaching from the west to an HVAC supply and therefore HVAC Cables running from the Converter Station to Lovedean Substation to the east. The functional requirement of the station dictates the layout and order of buildings and equipment. This has resulted in the siting of the building enclosing the main valve halls and controls to the west of the compound, with external transformers and other equipment to the east. Thereby the HVDC supply that arrives on the western side of the site follows through the required processes to emerge as a HVAC on the eastern side of the site
- 5.3.2.3. To accommodate the potential functional space requirements of the equipment the main building is currently shown on the indicative elevations at a maximum height of 26m (which is the maximum permissible height in accordance with the requirements of the DCO (document reference: 3.1)). The final height will be subject to confirmation once the design of the electrical installation is complete which may result in a lower building height (refer to indicative elevations and sections – Plates 5.7 & 5.8)
- 5.3.2.4. The external equipment shown indicatively is also subject to further design development but will not exceed the maximum height of 15m, as illustrated on the Parameter Plans, but the very nature of this equipment means that there will not be a single solid height as there would be with the ridge of a building. The majority of the equipment within this area will be considerably below the 15m maximum height with some elements extending close to this maximum height.
- 5.3.2.5. The indicative plans show air handling units at low level. There will be no plant located on the roofs of the Valve Hall buildings.
- 5.3.2.6. There will be a need for lightning protection masts at locations within the compound to be determined by detailed design. These are required to be 4m above buildings and equipment. The masts are shown indicatively at 30m high, but this may reduce if building heights are reduced.
- 5.3.2.7. The Telecommunications Buildings will be limited to 4m maximum height, located within a compound 30m x 10m, as defined on the Parameter Plans.



**Plate 5.7 – Converter Station – indicative elevations**



**Plate 5.8 – Converter Station – indicative sections**



### 5.3.3. APPEARANCE

- 5.3.3.1. The illustrative design of the building accompanying the DCO submission (Plate 5.9 below) is derived from a colour coated metal “baguette”, or vertical fin cladding system incorporating insulated internal panels which enables the colour variations established by design development and meets the functional requirements of durability, acoustic insulation and fire separation.



**Plate 5.9 – Converter Station – indicative illustration**

- 5.3.3.2. The cladding elements are individually coloured using differing hues from the palette to break up the mass of the building and provide visual interest. Further visual interest is added by horizontal banding which includes staggering of colour patterns.
- 5.3.3.3. The building illustrated has curved corners to soften the massing.
- 5.3.3.4. The telecommunications buildings will have external walls of durable low-maintenance, in accordance with the Design Principles.

### 5.3.4. LIGHTING

- 5.3.4.1. It is proposed that the outdoor areas within the compound will be illuminated by lighting columns between 6m and 15m high. The lighting will be required for emergency situations and unplanned maintenance only – there will be no requirement for external lighting during normal operation.

### 5.3.5. SURFACING TO COMPOUNDS

- 5.3.5.1. The external areas within the Converter Station compound and the telecommunications compound illustrated are intended to be gravel with concrete vehicular access routes and hard standing for equipment.

### 5.3.6. BOUNDARY TREATMENTS

- 5.3.6.1. The compounds will be surrounded by metal security fencing with access control gates – as illustrated on the indicative elevations.

### 5.3.7. ACCESS

- 5.3.7.1. Access to the Converter Station from Lovedean substation has been considered but discounted due to security constraints.
- 5.3.7.2. Alternative access routes from Old Mill Lane to the north-west and Broadway Lane to the south-east were been considered. Old Mill Lane has been discounted as it is unsuitable for the size of vehicles required for construction and (occasional) replacement of equipment. Broadway Lane connects with the A3 trunk road, which is approximately 2 km from the junction to the proposed site access road.
- 5.3.7.3. The indicative layout plans show a potential access road approximately 1.2km long x 7.3m wide from Broadway Lane to the south side of the proposed Converter Station compound. The route is shown curved to relate to the site context and avoid the established Ancient Woodland. The final details of the junction to Broadway Lane and the route of the access road may be subject to further design development, but will be contained within the zone indicated on the Parameter Plans.
- 5.3.7.4. The access road will be used for the construction of the Converter Station and compound and delivery of electrical components. Traffic during operation will be minimal and consist of light vehicles, larger vehicles may be required on rare occasions for delivery of replacement plant or components.
- 5.3.7.5. Construction traffic is estimated to reach potential levels of 45 two-way HGV’s per day plus occasional Abnormal Indivisible Loads to deliver equipment (transformers, for example) and up to 10 telescopic cranes. Construction traffic will be subject to agreement of a Construction Traffic Management Plan with the relevant local authority(s).
- 5.3.7.6. A contractor’s construction compound, including vehicular parking and lay down areas (estimated at approximately 4-5 Ha) will be situated within the access zone, and also subject to agreement with the relevant local authority(s). Full re-instatement of landscaping will be implemented on completion of the works.
- 5.3.7.7. The Converter Station will be unmanned, with typically 3-4 staff on 24 hour emergency call out. Maintenance will generally be required on 3 – 4 days per year. These operations will only require access by light vehicles, with parking provided within the compound. There may be occasional requirements for access by larger vehicles, including Abnormal Indivisible Loads should the need arise to replace equipment.

5.3.7.8. Further design development will give consideration to the selection of surfacing materials to respond to the site context, which may include distinction between normal access requirements and temporary access for larger vehicles.

5.3.7.9. The compound for the Telecommunications Building will be situated within the access zone illustrated on the Parameter Plans and will be accessed from the Converter Station access road. This is also unmanned, requiring occasional access by light vehicles for emergencies and maintenance.

5.3.7.10. Parking for two cars/ light vans will be provided within the compound

### 5.3.8. LANDSCAPING

5.3.8.1. Indicative Landscape Mitigation Proposals include:

- Minimising the loss of existing trees and hedgerows, especially long established.
- Considering the context of adjacent woodland (including areas of ancient woodland); native hedgerows and trees; grassland and shrub; established National Grid mitigation planting; arable farmland; pasture; and recreation areas.
- Replacement of trees and hedgerows lost by the development.
- Consideration of the siting of the compound with relation to existing topography and cutting into the hillside as much as possible within constraints.
- Grading of contours around the Converter Station compound, making use of arisings from excavations.
- Proposed sympathetic native hedgerows and trees; mixed woodland; scrub; calcareous and marshy grassland, taking account of offset constraints from perimeter fencing and buildings.
- Attenuation basin to manage surface water drainage, including marginal planting and vegetated conveyance and infiltration swale
- Management of and repairs to existing hedgerows.

5.3.8.2. The Outline Landscape and Biodiversity Strategy ('OLBS') (document reference 6.10) sets out the draft mitigation measures for the effects of the Proposed Development upon landscape and biodiversity features. A detailed/final OLBS is required within the DCO (document reference 3.1)

## 6. THE DESIGN PRINCIPLES

### 6.1. INTRODUCTION

- 6.1.1.1. The Design Principles are derived from the Consultation and Design Development processes described in the preceding Sections 4 and 5.
- 6.1.1.2. The Parameter Plans and Parameter Tables (which set the maximum dimensions for buildings and equipment) provide the 'envelope' for the built form of the Converter Station, Telecommunications Buildings, associated infrastructure, and ORS at the Landfall. The subsequent designs of these elements of the project will be developed within these parameters.
- 6.1.1.3. Requirements of the DCO require the submission of drawings showing how the Converter Station, associated infrastructure and the ORS will be constructed within the confines of the maximum parameter envelopes. These will be approved by the relevant discharging authority as provided for within the DCO.

### 6.2. THE CONVERTER STATION

- 6.2.1.1. The detailed design of the Converter Station, to be approved pursuant to a DCO Requirement, must in addition to being in accordance with the Parameter Plans and Parameter Table be in accordance with the following Design Principles and Landscaping Design Principles. Adherence to these principles will ensure that the detailed design for the Converter Station will satisfy the principles of 'good design' as required by NPS EN-1 and meet its functional and operational requirements whilst responding to its setting.

#### 6.2.1. GENERAL PRINCIPLES

1. The site layout and design will meet the operational requirements of the Converter Station facility.
2. The design will seek to integrate the proposed Converter Station and associated infrastructure into the surrounding topography, as far as practicable within operational requirements and environmental constraints.
3. Where practicable and subject to environmental constraints the Converter Station construction platform would be cut into the hill slope to reduce the ridge level of the building.
4. The Converter Station buildings and associated above ground equipment will be contained within a secure compound, as depicted upon the Parameter Plans.
5. The Telecommunications Building(s) will be contained within a separate compound.

6. All HVDC cables and the associated fibre optic cables from the Marine Cable Corridor to the the Onshore Cable Corridor and Converter Station, as well as the HVAC cables, will be buried and the land above re-instated on completion to minimise impact. There is a requirement for Link Boxes or Link Pillars approximately every 6 km for the Onshore Cable Route. Only the Link Pillars would be above ground and would measure approximately 1.0m x 1.0m x 0.6m
7. The access road will be designed and configured to allow maintenance access and include the movement of abnormal indivisible loads, whilst minimising environmental impact. Permanent surfacing and landscaping will take account of the local context and be detailed in accordance with the 'Landscape Design Principles'
8. The design of the Converter Station will comply with building control requirements and generally follow the National Grid Technical Guidelines, including the design life of materials and components to meet its functional and operational needs relating to: structural stability; thermal and acoustic performance; fire safety; electrical safety; future maintenance; security and access for operation and maintenance. The operational needs for the Converter Station will include:
  - o Appropriate operational space, including electrical and magnetic clearances, and space for maintenance and anticipated repair operations within the Converter Station.
  - o Allowances for replacement of equipment in a timely manner to ensure minimal disruption or interruption to operation.
  - o Dual perimeter security fencing with sterile zone to allow appropriate entry and exit provisions for workers and deter access by others.

#### 6.2.2. BUILDING DESIGN PRINCIPLES

1. External cladding and roofing to the buildings will be pre-coated metal, or equivalent durable low-maintenance material.
2. The wall cladding be comprised of narrow vertical elements of varied colours to break up the mass of the building.
3. Colours will be selected from a palette of autumnal colours within the ranges below chosen to complement the surrounding landscape.



- RAL 1013 -1015; 8001- 8015; 8023 – 8028<sup>1</sup>
  - Colour grading across the building from dark to light will be considered to relate to adjoining land usage and visual impacts, including the Monarch's Way long distance footpath to the north of the site. The roofing will be in a dark recessive non-reflective colour to minimise visual impact.
4. Building massing will be designed to rationalise the different functions required and avoid visual clutter which could result from different sized buildings scattered across the site.
  5. The Converter Station will be orientated on an east-west axis with the HVDC cables entering the Valve Hall to the western side of the site, the Valve Hall and buildings of up to 26m in height being located to the western side of the site and the outdoor infrastructure, up to 15m in height, to the eastern side. The HVAC cables exit the Converter Station site on the eastern boundary travelling towards Lovedean Substation further to the east.
  6. Curved corners will be included, where practicable, to soften the visual impact and attention will be applied to relationships between the component parts of the main structures to add interest and further reduce the perceived mass of the building.
  7. Lightning masts of up to 30m in height, will be needed and could be attached to the Converter buildings and/or located within the compound defined on the Parameter Plans.
  8. Heating and ventilation air conditioning will be located within the buildings or at ground level within the defined building site plan. There will be no plant on the roofs of the highest buildings.
  9. Operational noise from the Converter Station will meet the criteria detailed in Chapter 24 Noise and Vibration (Section 24.4.5 and Appendix 24.6).
  10. The Converter Station will not be illuminated other than in circumstances such as upon activation of an intruder alarm or maintenance or repair operations.

### 6.2.3. LANDSCAPE DESIGN PRINCIPLES

1. The proposals for landscaping will be developed and approved in accordance with the indicative landscape mitigation plans. A DCO Requirement will ensure that detailed designs, post consent, will be in accordance with those plans and the further design principles detailed below.

2. The design will seek to minimise the loss of existing vegetation of ecological, landscape character and / or screening value as far as practicable and will include management repair measures where appropriate with reference to the indicative landscape mitigation plan.
3. New planting will be introduced which is sympathetic to the surrounding landscape character and reflective of native species.
4. The biodiversity of the semi-improved calcareous grassland at the Converter Station will be improved by the application of green hay sourced from Denmead Meadows to ensure native plants of local provenance are used to colonise and increase the value of the grassland.
5. Species rich woodland glades would be created within areas of new planting, taking into consideration soil types, seeding mixes and management regimes.
6. New woodland, scrub and hedgerow planting, within locations broadly indicated upon the indicative landscape mitigation plans, will be introduced within the Order Limits to provide appropriate screening from sensitive receptors, enhance landscape character and improve biodiversity.
7. Detailed landscaping proposals will include appropriate measures to maintain wildlife habitats and corridors wherever feasible.
8. Excess fill will be utilised in a sympathetic manner to create new naturalistic landforms and provide screening from sensitive receptors.
9. New planting will take place early in the construction programme where practicable, and where planting will not be affected by construction works.

### 6.2.4. SUSTAINABILITY PRINCIPLES

1. In response to climate change concerns the development approach will aspire to reduce the carbon footprint of the Project wherever feasible.
2. The Converter Station design will adopt sustainable approach to design which will involve the following measures:
  - Reducing where possible material use in construction and minimising the use of high carbon materials.
  - Buildings should be energy and resource efficient.

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<sup>1</sup> (RAL is a universal colour system used for metal cladding and other building materials)

3. External building materials and finishes will have a design life of 20 years to first major maintenance.
4. The design of the Converter Station will seek to balance cut and fill of excavated earthworks in order to minimise the quality of imported earthwork material and maximise the reuse of arisings.
5. The Converter Station will not be illuminated at night other than in circumstances such as upon activation of an intruder alarm or for maintenance or repair operations.
6. Drainage to only be installed where necessary to reduce the modification of surface water drainage patterns. Sustainable drainage design will be implemented wherever feasible.

### **6.3. THE TELECOMMUNICATION BUILDING(S) AND OPTICAL REGENERATION STATION PRINCIPLES**

#### **6.3.1. DESIGN PRINCIPLES**

1. The site layout and design will meet the operational requirements of the ORS and the telecommunications facilities.
2. The ORS and the Telecommunications Building(s) will be contained within secure compounds, as depicted upon the Parameter Plans.
3. The design and land take for the ORS and the Telecommunications Building(s) will be minimised as much as possible
4. The proposals for landscaping will be developed and approved in accordance with the illustrative landscape mitigation plans.
5. The ORS and Telecommunications Building(s) will not be illuminated other than in circumstances such as upon activation of an intruder alarm or maintenance or repair operations.
6. The ORS and Telecommunications Building(s) compounds are intended to be gravel or similar hardstanding surface.
7. Operational noise from the ORS infrastructure at Landfall will meet the criteria detailed in Chapter 24 Noise and Vibration (Section 24.4.5 and Appendix 24.6).

- 6.3.1.1. Specific design measures have been embedded into the design of the ORS at Landfall to provide resistance and resilience to the risk of tidal flooding affecting the building, users and associated equipment (see Chapter 20 (Surface Water Resources and Flood Risk) of the ES Volume 1 (document reference 6.1.20)).



## 7. ILLUSTRATIVE DESIGNS TO COMPLY WITH THE DESIGN PRINCIPLES

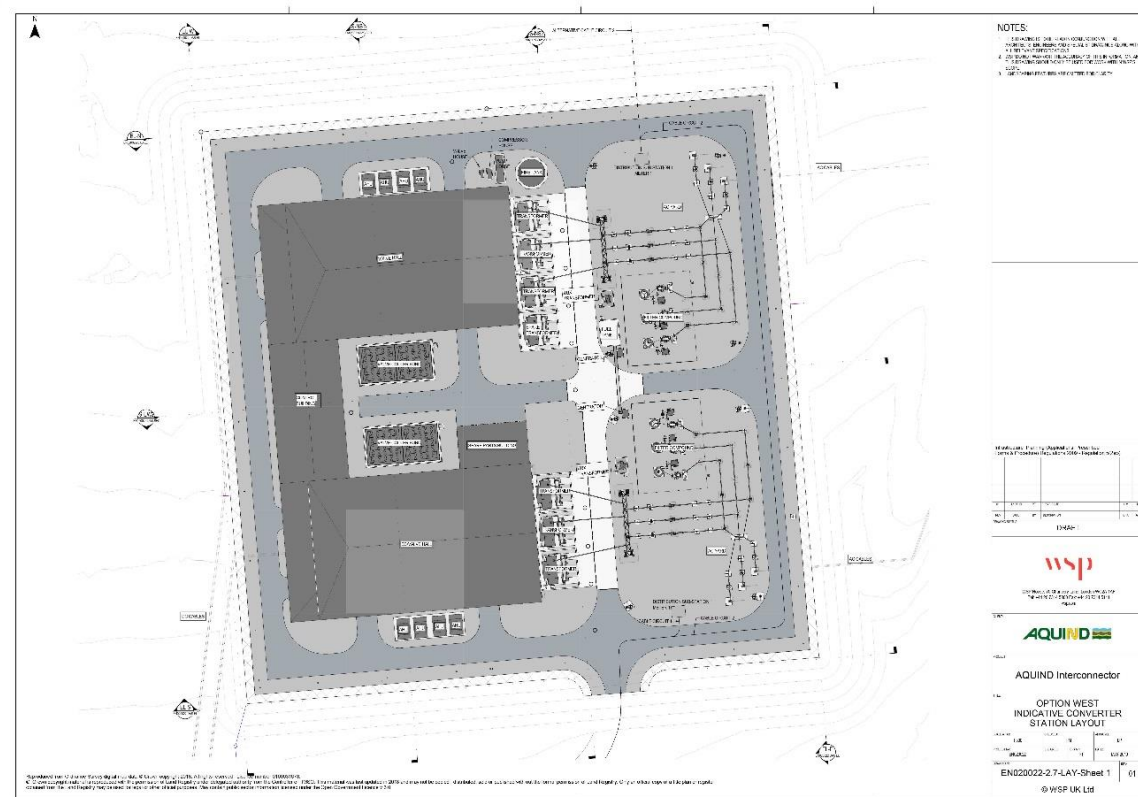
7.1.1.1. The indicative illustrations of examples of design approaches in this section are presented to show how the Design Principles in Section 6

7.1.1.2. Detail design development will be subject to a formal application and approval process with the relevant Local Authorities

### 7.2. THE CONVERTER STATION GENERAL PRINCIPLES

1. “The site layout and design will meet the operational requirements of the Converter Station facility”.

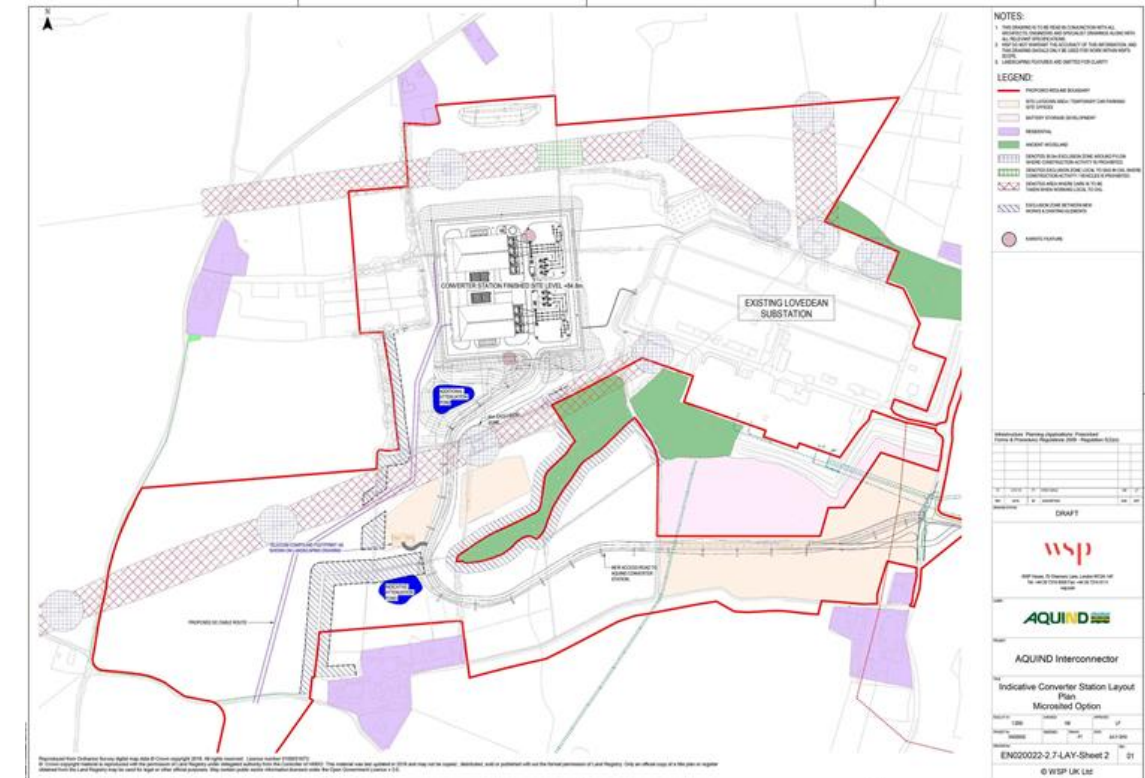
- The indicative plan (Plate 7.1) shows an example of the distribution of buildings and above ground apparatus to meet operational requirements, within the site compound identified on Parameter Plans



**Plate 7.1 Option West Indicative Converter Station Layout**

2. “The design will seek to integrate the proposed Converter Station and associated infrastructure into the surrounding topography, as far as practicable within operational requirements and environmental constraints.”

- The illustrative layout (Plate 7.2) below shows the indicative proposed relationship between the Converter Station compound and access road and existing features, the compound is sited to avoid impact on the area of ancient woodland to the south, and the access road is routed around it.



**Plate 7.2 Indicative Converter Station Layout Plan**

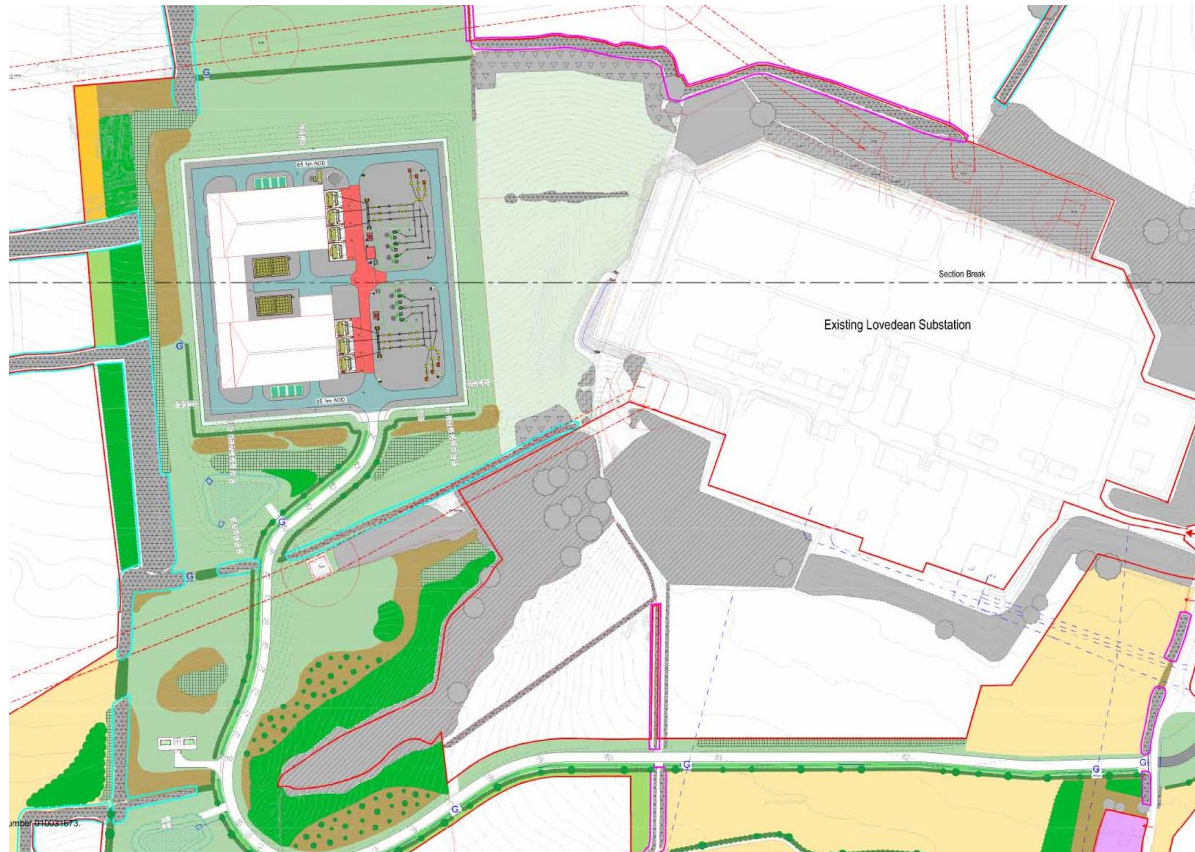
3. “The converter buildings and associated above ground equipment will be contained within a secure compound, as depicted upon the Parameter Plans.”

- The illustrative plan on the left shows the compound around the Converter Station buildings and equipment, the dual perimeter fence is represented by the light grey border around the compound.

7. “The access road will be designed and configured to allow maintenance access and include the movement of abnormal indivisible loads, whilst minimising environmental impact. Permanent surfacing and landscaping will take account of the local context and be detailed in accordance with the ‘Landscape Design Principles’



- The indicative landscape plan (document reference 6.2.15.48 and 6.2.15.49 and Plate 7.3) shows how the access road can be routed to avoid the existing ancient woodland ('B' on the plan) and additional landscaping mitigation measures (in shades of green and brown). These proposals are explained in more details in the separate Landscape Mitigation document.



**Plate 7.3 Indicative landscape plan**

### 7.3. THE CONVERTER STATION BUILDING DESIGN PRINCIPLES

1. "External cladding and roofing to the buildings will be pre-coated metal, or equivalent durable low-maintenance material".
2. "The wall cladding be comprised of narrow vertical elements of varied colours to break up the mass of the building".
3. "Colours will be selected from a palette of autumnal colours within the ranges below chosen to complement the surrounding landscape.

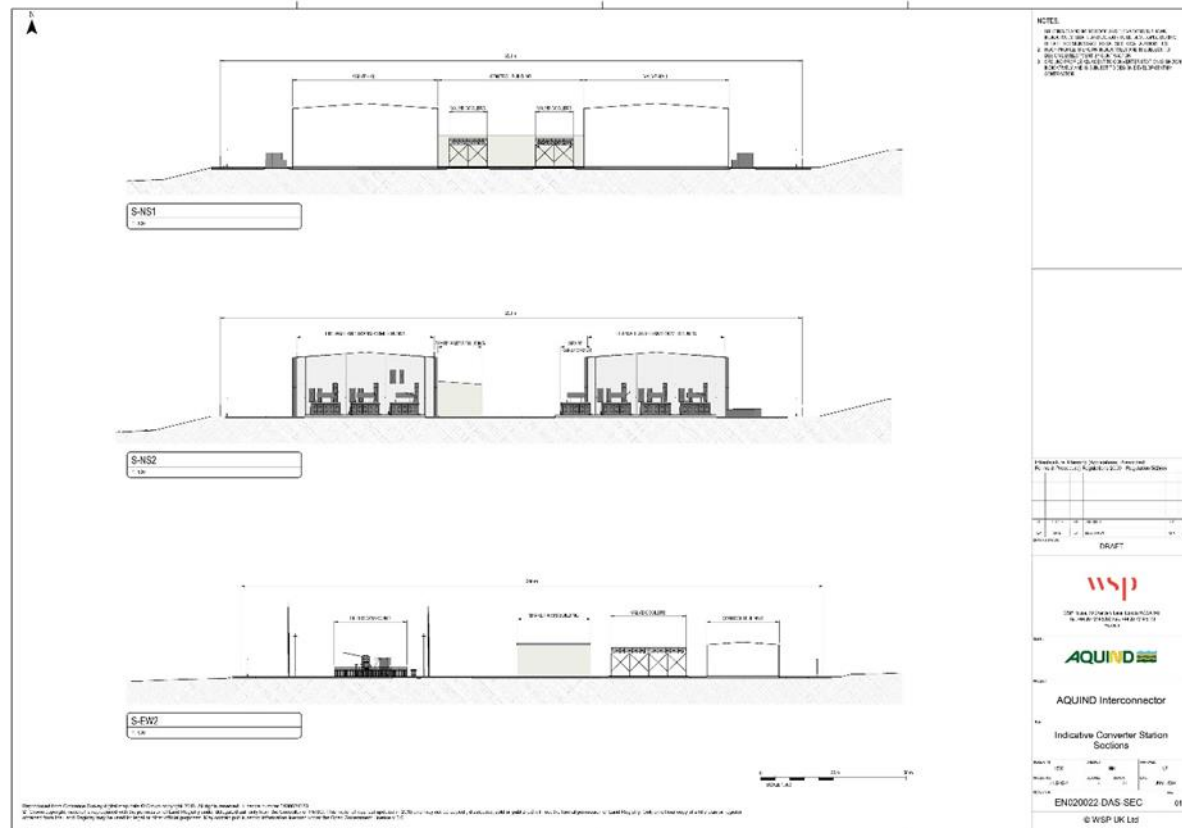
- RAL 1013 -1015; 8001- 8015; 8023 – 8028
- Colour grading across the building from dark to light will be considered to relate to adjoining land usage and visual impacts, including the Monarch's Way long distance footpath to the north of the site. The roofing will be in a dark recessive non-reflective colour to minimise visual impact".
- Plate 7.4 shows narrow vertical pre-coated metal elements of varied colours using an example of a palette of colours derived from the site context:
  - RAL 8007 "Fawn Brown"
  - RAL 8023 "Orange Brown"
  - RAL 8001 "Ochre Brown"
  - RAL 1011 "Brown Beige"
  - RAL 1014 "Ivory"



**Plate 7.4 Example colour palette**

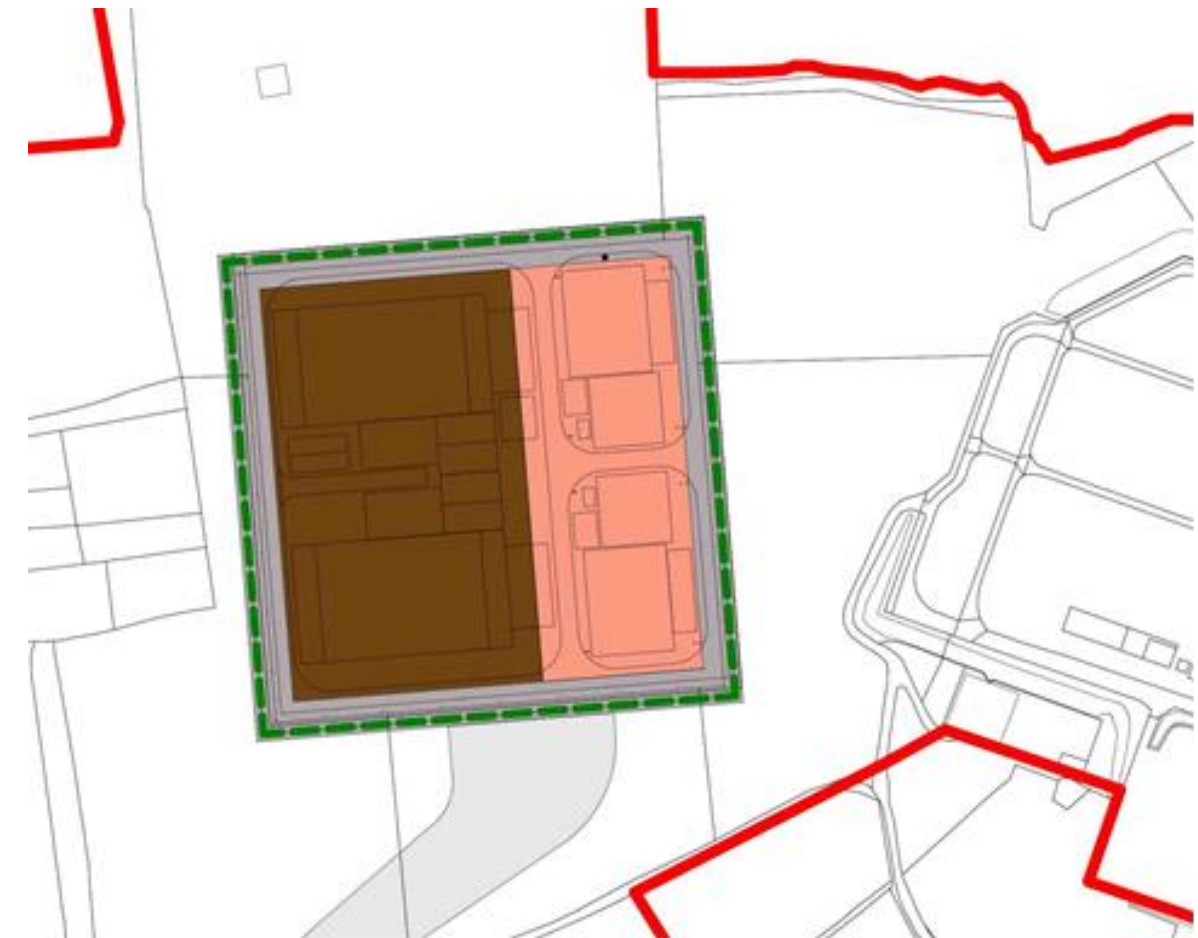
4. "Building massing will be designed to rationalise the different functions required and avoid visual clutter which could result from different sized buildings scattered across the site".

- The indicative sections (Plate 7.5) show how the different functions of the Converter Station can be housed in a set of interconnected buildings



**Plate 7.5 Indicative Converter Station Sections**

- “The Converter Station will be orientated on an east-west axis with the HVDC cables entering the Valve Hall to the western side of the site, the Valve Hall and buildings of up to 26m in height being located to the western side of the site and the outdoor infrastructure, up to 15m in height, to the eastern side. The HVAC cables exit the Converter Station site on the eastern boundary travelling towards Lovedean Substation further to the east.”
  - Plate 7.6 shows the Converter Station compound (defined by the green dashed line) aligned on an east-west axis. The HDC cables will enter from the West, HVAC cables will exit from the East to connect to the Lovedean substation to the West. The higher buildings (up to 26m high) are located in the West part of the compound (shown by dark brown shading), external apparatus (up to 15m high) is located in the East part of the compound (shown by lighter brown shading)



**Plate 7.6 Converter Station compound aligned on east-west axis**

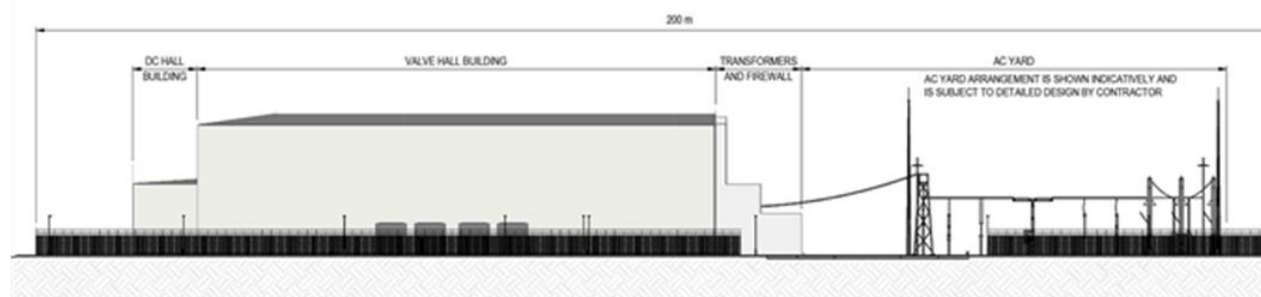


6. “Curved corners will be included, where practicable, to soften the visual impact and attention will be applied to relationships between the component parts of the main structures to add interest and further reduce the perceived mass of the building”
  - The indicative image (Plate 7.7) shows how curved corners can soften the visual impact



**Plate 7.7 Indicative image of curved corners**

7. “Lightning masts of up to 30m in height, will be needed and could be attached to the Converter Hall Buildings and/or located within the compound defined on the Parameter Plans.”
  - The indicative elevation (Plate 7.8) shows potential lightning masts (the two high structures on the left of the image) in relation to the heights of the Converter Station buildings



**Plate 7.8 Indicative elevation**

## 7.4. LANDSCAPE DESIGN PRINCIPLES

2. “The design will seek to minimise the loss of existing vegetation of ecological, landscape character and / or screening value as far as practicable and will include management repair measures where appropriate with reference to the indicative landscape mitigation plan”.
5. “Species rich woodland glades would be created within areas of new planting, taking into consideration soil types, seeding mixes and management regimes”.
6. “New woodland, scrub and hedgerow planting, within locations broadly indicated upon the indicative landscape mitigation plans, will be introduced within the Order Limits to provide appropriate screening from sensitive receptors, enhance landscape character and improve biodiversity”.
  - The illustrative landscape mitigation plans (Plate 7.9 & 7.10) show how the designs have sought to maximise the retention of existing vegetation with Option B(ii) proposed to aid the retention of a greater amount of existing vegetation. Where vegetation is retained the indication landscape mitigation plans look to add to and enhance this vegetation, such as the ancient woodland buffer to the south east of the converter station. The plans also show the creation of species rich woodland glades and new woodland, scrub and hedgerow planting.



**Plate 7.9 Illustrative Landscape Mitigation Option B (ii) –North section**

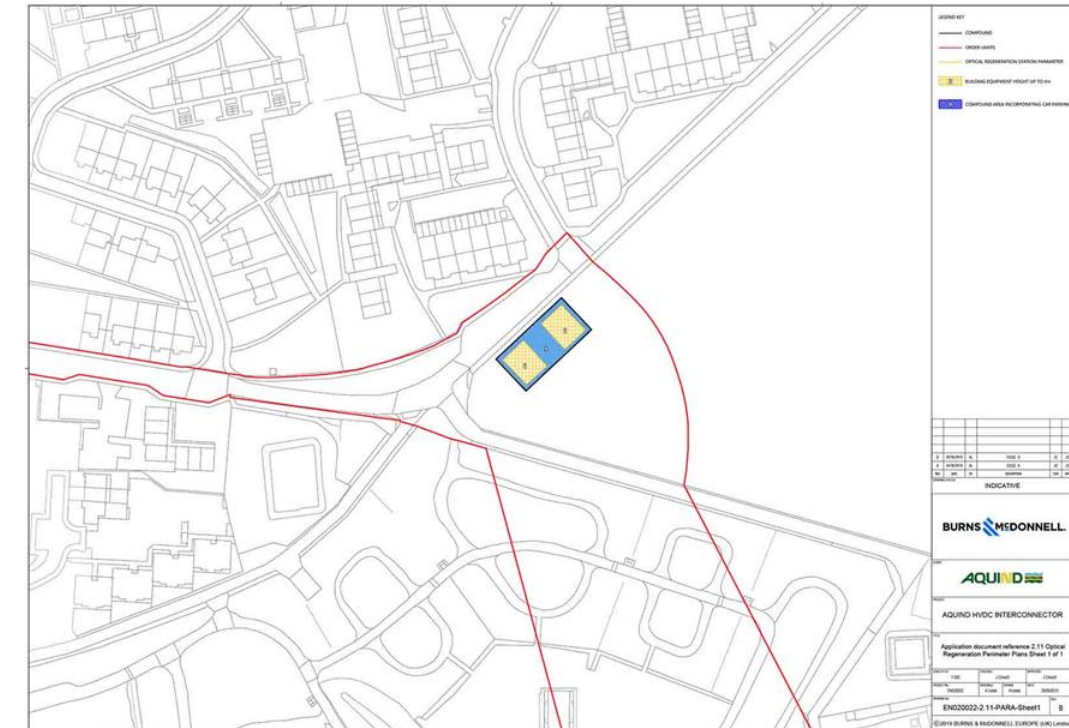


**Plate 7.10 Illustrative Landscape Mitigation Option B (ii) –South section**



## 7.5. OPTICAL REGENERATION STATION DESIGN PRINCIPLES

1. “The site layout and design will meet the operational requirements of the ORS and the telecommunications facilities”.
2. “The ORS and the telecommunications buildings will be contained within secure compounds, as depicted upon the Parameter Plans”.
3. “The design and land take for the ORS and the Telecommunications Buildings will be minimised as much as possible”.
  - The indicative location plan (Plate 7.11) shows the scale and layout of the Optical Regeneration Station in relation to the surrounding landscape
4. “The proposals for landscaping will be developed and approved in accordance with the illustrative landscape mitigation plans”.
  - Plate 7.12 illustrates indicative landscape mitigation proposals



**Plate 7.11 ORS Location Plan**



**Plate 7.12 ORS Landscape Mitigation**



## 8. COMPLIANCE OF THE DESIGN APPROACH WITH DESIGN PRINCIPLES AND LEGISLATIVE POLICY AND GUIDANCE

The following table summarises compliance of the illustrative design approach with the Design Principles and Legislative Policy and Guidance.

**Table 8.1 – Compliance of Design Approach with the Design Principles and Legislative Policy and Guidance.**

<b>CONVERTER STATION – GENERAL PRINCIPLES</b>		
<b>Design Principle</b>	<b>How it may be met in the illustrative design</b>	<b>NPS policy adhered to and relevant local policy</b>
1. The site layout and design will meet the operational requirements of the Converter Station facility	Buildings and above ground apparatus will be designed to meet operational requirements, and located within the site compound identified on Parameter Plans	Takes into account functionality including fitness for purpose (NPS EN-1, Para 4.5.1).
2. The design will seek to integrate the proposed Converter Station and associated infrastructure sympathetically into the surrounding topography, as far as practicable within operational requirements and environmental restraints.	The illustrative layout plans show the indicative proposed relationship between the Converter Station compound and access road and existing features. The compound is sited to avoid impact on the area of ancient woodland to the south, and the access road is routed around it.	Demonstrates good design in terms of siting relative to existing landscape character, landform and vegetation (NPS EN-1, Para 4.5.3). Connects new development seamlessly to surrounding development in terms of layout, scale, form, enclosure, space and materials (WCC LPP1, Para 9.15) Minimises the impact of the apparatus and any associated development by appropriate routing, siting, materials and colour (WCC LPP2, Policy DM22 (ii))
3. Where practicable and subject to environmental constraints the Converter Station construction platform will be cut into the hill slope to reduce the ridge level of the building.	It is proposed that the compound platform will be cut into that existing slope as much as possible, within geological and site constraints	Demonstrates good design in terms of siting relative to existing landscape character, landform and vegetation (NPS EN-1, Para 4.5.3). The built and natural environment should be naturally integrated (WCC LPP1, Para 9.15)
4. The converter buildings and associated above ground equipment will be contained within a secure compound, as depicted upon the Parameter Plans	The illustrative plans include a compound around the Converter Station buildings and equipment, with a dual security fence to the perimeter.	Reflects the need for functionality and fitness for purpose (NPS EN-1, Para 4.5.3).
5. The Telecommunications building(s) will be contained within a separate compound.	The telecommunications compound will be located within the order limits, accessed from the access road serving the Converter Station (refer to Parameter Plans)	Reflects the need for functionality and fitness for purpose (NPS EN-1, Para 4.5.3). Good design in terms of use siting and appropriate technologies can help mitigate adverse impacts (NPS EN-1, Para 4.5.2)

CONVERTER STATION – GENERAL PRINCIPLES		
Design Principle	How it may be met in the illustrative design	NPS policy adhered to and relevant local policy
<p>6. All HVDC cables and the associated fibre optic cables from the Marine Cable Corridor to the Converter Station, as well as the HVAC cables, will be buried with the land above re-instated on completion to minimise impact. There is a need for Link Boxes or Link Pillars every 6 km for the Onshore Cable Route. Only the Link Pillars would be above ground and would measure approximately 1.0m x 1.0m x 0.6m</p>	<p>Cables will be buried as stated</p>	<p>Reflects the need for functionality and fitness for purpose (NPS EN-1, Para 4.5.3).</p> <p>Good design in terms of use siting and appropriate technologies can help mitigate adverse impacts (NPS EN-1, Para 4.5.2)</p>
<p>7. The access road will be designed and configured to allow maintenance access and include the movement of abnormal indivisible loads, whilst minimising environmental impact. Permanent surfacing and landscaping will take account of the local context and be detailed in accordance with the 'Landscape Design Principles'</p>	<p>The indicative landscape mitigation plans (Application Document Reference 6.2.15.48 and 6.2.15.49) show how the Access Road can be routed to avoid the existing ancient woodland ('B' on the plan) and additional landscaping mitigation measures (in shades of green and brown)</p> <p>(These proposals are explained in more details in the separate Landscape Mitigation Strategy)</p>	<p>Good design in terms of siting relative to existing landscape character (NPS EN-1, Para 4.5.3)</p> <p>Demonstrates that an analysis of the constraints and opportunities of the site and its surroundings have informed the principles of design (WCC LPP1, Policy CP13)</p>
<p>8. The design of the Converter Station will comply with building control requirements and generally follow the National Grid Technical Guidelines, including the design life of materials and components to meet its functional and operational needs relating to: structural stability; thermal and acoustic performance; fire safety; electrical safety; future maintenance; security and access for operation and maintenance.</p> <p>The operational needs for the Converter Station will include:</p> <ul style="list-style-type: none"> <li>- Appropriate operational space, including electrical and magnetic clearances, and space for maintenance and anticipated repair operations within the convertor station.</li> <li>- Allowances for replacement of equipment in a timely manner to ensure minimal disruption or interruption to operation.</li> <li>- Dual perimeter security fencing with sterile zone to allow appropriate entry and exit provisions for workers and deter access by others.</li> </ul>	<p>The detailed design will be developed to comply with the Design Principle.</p>	<p>Reflects the limited choice in the physical appearance of some energy infrastructure (NPS EN1, Para 4.5.3).</p> <p>Responds to the functionality of the object as equally as important as aesthetic considerations (NPS EN-1, Para 4.5.1)</p>

CONVERTER STATION – GENERAL PRINCIPLES		
Design Principle	How it may be met in the illustrative design	NPS policy adhered to and relevant local policy
<b>BUILDING DESIGN PRINCIPLES</b>		
<p>1. External cladding and roofing to the buildings will be pre-coated metal, or equivalent durable low-maintenance material.</p> <p>2. The wall cladding be comprised of narrow vertical elements of varied colours to break up the mass of the building.</p> <p>3. Colours will be selected from a palette of autumnal colours within the ranges below chosen to complement the surrounding landscape.</p> <p>RAL 1013 -1015; 8001- 8015; 8023 – 8028 (RAL is a universal colour system used for metal cladding and other building materials)</p> <p>Colour grading across the building from dark to light will be considered to relate to adjoining land usage and visual impacts, including the Monarch’s Way long distance footpath to the north of the site. The roofing will be in a dark recessive non-reflective colour to minimise visual impact”.</p>	<p>The illustrative designs developed show narrow vertical pre-coated metal elements of varied colours using a palette of colours derived from the ranges defined in the Design Principle:</p> <p>RAL 8007 “Fawn Brown” RAL 8023 “Orange Brown” RAL 8001 “Ochre Brown” RAL 1011 “Brown Beige” RAL 1014 “Ivory”</p>	<p>Applies good design sensitive to place (NPS EN-1, Para 4.5.1).</p> <p>Demonstrates regard to both functionality and aesthetics (NPS EN-1, Para 4.5.3)</p> <p>Demonstrates that energy infrastructure developments are as attractive, durable and adaptable as they can be (NPS EN-1, Para 4.5.3)</p> <p>An individual design response will be determined by the local context (WCC LPP1, Para 9.15)</p> <p>Minimises the impact of the apparatus and any associated development by appropriate routing, siting, materials and colour (WCC LPP2, Policy DM22 (ii))</p>
<p>4. Building massing will be designed to rationalise the different functions required and avoid visual clutter which could result from different sized buildings scattered across the site.</p>	<p>The different functions of the Converter Station can be housed in a set of interconnected buildings.</p>	<p>Demonstrates regard to both functionality and aesthetics (NPS EN-1, Para 4.5.3)</p> <p>Building massing reflects the limited choice in the physical appearance of some energy infrastructure (NPS EN-1, Para 4.5.3)</p>
<p>5. The Converter Station will be orientated on an east-west axis with the HVDC cables entering the Valve Hall to the western side of the site, the Valve Hall and buildings of up to 26m in height being located to the western side of the site and the outdoor infrastructure, up to 15m in height, to the eastern side. The HVAC cables exit the Converter Station site on the eastern boundary travelling towards Lovedean Substation further to the east.</p>	<p>The Parameter Plans establish that the Converter Station compound will be aligned on an east-west axis. The HDVC cables will enter from the West, HVAC cables will exit from the East to connect to the Lovedean substation to the West. The higher buildings (up to 26m high) are located in the West part of the compound, external apparatus (up to 15m high) is located in the East part of the compound.</p>	<p>Building massing reflects the limited choice in the physical appearance of some energy infrastructure (NPS EN-1, Para 4.5.3)</p> <p>Good design in terms of use siting and appropriate technologies can help mitigate adverse impacts (NPS EN-1, Para 4.5.2)</p>



<b>CONVERTER STATION – GENERAL PRINCIPLES</b>		
<b>Design Principle</b>	<b>How it may be met in the illustrative design</b>	<b>NPS policy adhered to and relevant local policy</b>
6. Curved corners will be included, where practicable, to soften the visual impact and attention will be applied to relationships between the component parts of the main structures to add interest and further reduce the perceived mass of the building.	Initial exploration of technical design and space requirements has established that curved corners can be incorporated	Demonstrates consideration of good aesthetic as far as possible (NPS EN-1, Para 4.5.1)
7. Lightning masts of up to 30m in height, will be needed and could be attached to the Converter Hall Buildings and/or located within the compound defined on the Parameter Plans.	The final location of lightning masts will be established by detailed design and application of the relevant code.	Reflects a functional requirement of the type of infrastructure (NPS EN-1, Para 4.5.1)
8. Heating and ventilation air conditioning will be located within the buildings or at ground level within the defined building site plan. There will be no plant on the roofs of the highest buildings.	HVAC plant will be located at low level or within the buildings	Demonstrates good design in terms of siting relative to existing landscape character, landform and vegetation (NPS EN-1, Para 4.5.3) Demonstrates consideration of good aesthetic as far as possible (NPS EN-1, Para 4.5.1) Minimises the impact of the apparatus and any associated development by appropriate routing, siting, materials and colour (WCC LPP2, Policy DM22 (ii))
9. Operational noise from the Converter Station will meet the criteria detailed in Chapter 24 Noise and Vibration (Section 24.4.5 and Appendix 24.6).	The building walls and roofs will be designed to ensure that the required sound proofing is provided, and additional measures will be incorporated as required for any external equipment to ensure that agreed sound levels are not exceeded.	Good design in terms of use of siting and appropriate technologies can help mitigate adverse impacts such as noise (NPS EN-1, Para 4.5.2) Developments should not have an unacceptable effect on the rural tranquillity of the area, including the introduction of lighting or noise (WCC LPP2, Policy DM23)
10. The Converter Station will not be illuminated other than in circumstances such as upon activation of an intruder alarm or maintenance or repair operations.	There will be no external lighting, other than upon activation of an intruder alarm or maintenance or repair operations	Developments should not have an unacceptable effect on the rural tranquillity of the area, including the introduction of lighting or noise (WCC LPP2, Policy DM23)

<b>CONVERTER STATION – GENERAL PRINCIPLES</b>		
<b>Design Principle</b>	<b>How it may be met in the illustrative design</b>	<b>NPS policy adhered to and relevant local policy</b>
<b>LANDSCAPE DESIGN PRINCIPLES</b>		
1. The proposals for landscaping will be developed and approved in accordance with the indicative landscape mitigation plans. A DCO Requirement will ensure that detailed designs, post consent, will be in accordance with those plans and the further design principles detailed below.	Requirements 6 and 7 or the DCO (Application Document Reference 3.1) set out the need for detailed landscape strategy to be approved before the commencement of Work Number 2,5 and 6.	Demonstrates good design in terms of siting relative to existing landscape character, landform and vegetation (NPS EN-1, Para 4.5.3) Good design should produce sustainable infrastructure sensitive to place (NPS EN-1, Para 4.5.1) Where appropriate, a satisfactory landscaping/restoration scheme is included (WCC LPP2, Policy DM22 (v))
2. The design will seek to minimise the loss of existing vegetation of ecological, landscape character and / or screening value as far as practicable and will include management repair measures where appropriate with reference to the indicative landscape mitigation plan.	The indicative landscape mitigation plans illustrate the designs that have sought to maximise the retention of existing vegetation with option B (ii) proposed to aid the retention of a greater amount of existing vegetation. Where vegetation is retained the indication landscape mitigation plans look to add to and enhance this vegetation, such as the ancient woodland buffer to the south east of the converter station. With regards to the ORS facility there is no existing vegetation to be retained but the indicative landscape mitigation plan makes provision for native hedgerow, hedgerow trees and grassland.	Demonstrates good design in terms of siting relative to existing landscape character, landform and vegetation (NPS EN-1, Para 4.5.3) Emphasis should be given to conserving recognised built form and designed or natural landscape (WCC LPP1, Policy CP20) Developments should respect the qualities, features and characteristics that contribute to the distinctiveness of the local area (WCC LPP2, Policy DM15)
3. New planting will be introduced which is sympathetic to the surrounding landscape character and reflective of native species.	The OLBS sets out the proposed planning schedules, including native species, for the Converter Station Area and the Landfall.	Demonstrates good design in terms of siting relative to existing landscape character, landform and vegetation (NPS EN-1, Para 4.5.3) Developments should respect the qualities, features and characteristics that contribute to the distinctiveness of the local area (WCC LPP2, Policy DM15)
4. The biodiversity of the semi-improved calcareous grassland at the Converter Station will be improved by the application of green hay sourced from Denmead Meadows to ensure native plants of local provenance are used to colonise and increase the value of the grassland.	It is proposed that when conducting the construction works at the Denmead Meadows green hay will be source and applied to the proposed grassland areas at the Converter Station. Landowner agreements are proposed to ensure this occurs.	Demonstrates good design in terms of siting relative to existing landscape character, landform and vegetation (NPS EN-1, Para 4.5.3)
5. Species rich woodland glades would be created within areas of new planting, taking into consideration soil types, seeding mixes and management regimes.	This is reflected within the indicative landscape mitigation plans for the Converter Station.	Demonstrates good design in terms of siting relative to existing landscape character, landform and vegetation (NPS EN-1, Para 4.5.3)

<b>CONVERTER STATION – GENERAL PRINCIPLES</b>		
<b>Design Principle</b>	<b>How it may be met in the illustrative design</b>	<b>NPS policy adhered to and relevant local policy</b>
6. New woodland, scrub and hedgerow planting, within locations broadly indicated upon the indicative landscape mitigation plans, will be introduced within the Order Limits to provide appropriate screening from sensitive receptors, enhance landscape character and improve biodiversity.	This is reflected within the indicative landscape mitigation plans for the Converter Station.	Demonstrates good design in terms of siting relative to existing landscape character, landform and vegetation (NPS EN-1, Para 4.5.3)
7. Detailed landscaping proposals will include appropriate measures to maintain wildlife habitats and corridors wherever feasible.	The OLBS demonstrated how landscape features and biodiversity have been considered in designing the indicative landscape mitigation plans. Requirements in the DCO will ensure this is carried through to the detailed design stage.	Demonstrates good design in terms of siting relative to existing landscape character, landform and vegetation (NPS EN-1, Para 4.5.3)
8. Excess fill will be utilised in a sympathetic manner to create new naturalistic landforms and provide screening from sensitive receptors.	The Indicative landscape mitigation plans indicate the type and form of landforms that are proposed, to the north and south of the Converter Station.	Demonstrates good design in terms of siting relative to existing landscape character, landform and vegetation (NPS EN-1, Para 4.5.3)
9. New planting will take place early in the construction programme where practicable, and where planting will not be affected by construction works.	It is the aspiration of the Project to establish as much planting as practicable, as early as practicable in the construction programme.	Demonstrates good design in terms of siting relative to existing landscape character, landform and vegetation (NPS EN-1, Para 4.5.3)
<b>OPTICAL REGENERATION STATION</b>		
1. The site layout and design will meet the operational requirements of the ORS and the telecommunications facilities. 2. The ORS and the Telecommunications Buildings will be contained within secure compounds, as depicted upon the Parameter Plans. 3. The design and land take for the ORS and the telecommunications facility will be minimised as much as possible	The indicative location plan for the ORS shows the scale and layout of the Optical Regeneration Station in relation to the surrounding landscape.	Reflects the limited choice in the physical appearance of some energy infrastructure (NPS EN1, Para 4.5.3). Responds to the functionality of the object as equally as important as aesthetic considerations (NPS EN-1, Para 4.5.1) Reflects the need for functionality and fitness for purpose (NPS EN-1, Para 4.5.3). Good design in terms of use siting and appropriate technologies can help mitigate adverse impacts (NPS EN-1, Para 4.5.2)



<b>CONVERTER STATION – GENERAL PRINCIPLES</b>		
<b>Design Principle</b>	<b>How it may be met in the illustrative design</b>	<b>NPS policy adhered to and relevant local policy</b>
4. The proposals for landscaping will be developed and approved in accordance with the illustrative landscape mitigation plan.	The indicative landscape mitigation plan illustrates landscape proposals for the ORS	Reflects the limited choice in the physical appearance of some energy infrastructure (NPS EN1, Para 4.5.3). Responds to the functionality of the object as equally as important as aesthetic considerations (NPS EN-1, Para 4.5.1) Reflects the need for functionality and fitness for purpose (NPS EN-1, Para 4.5.3). Good design in terms of use siting and appropriate technologies can help mitigate adverse impacts (NPS EN-1, Para 4.5.2)
5. The ORS and Telecommunications Building(s) will not be illuminated other than in circumstances such as upon activation of an intruder alarm or maintenance or repair operations.	There will be no external lighting, other than upon activation of an intruder alarm or maintenance or repair operations	Developments should not have an unacceptable effect on the rural tranquillity of the area, including the introduction of lighting or noise (WCC LPP2, Policy DM23)
6. The ORS and Telecommunications Building(s) compounds are intended to be gravel or similar hardstanding surface.	The compounds will be surfaced.	Reflects the need for functionality and fitness for purpose (NPS EN-1, Para 4.5.3).
7. Operational noise from the ORS infrastructure at Landfall will meet the criteria detailed in Chapter 24 Noise and Vibration (Section 24.4.5 and Appendix 24.6).	The building walls and roofs will be designed to ensure that the required sound proofing is provided, and additional measures will be incorporated as required for any external equipment to ensure that agreed sound levels are not exceeded.	Good design in terms of use of siting and appropriate technologies can help mitigate adverse impacts such as noise (NPS EN-1, Para 4.5.2) Developments should not have an unacceptable effect on the rural tranquillity of the area, including the introduction of lighting or noise (WCC LPP2, Policy DM23)

## 9. SUMMARY

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- 9.1.1.1. This DAS forms part of a suite of documents submitted as part of the Development Consent Order Application for the Interconnector Project, and importantly sets out the Design Principles which control the final design of the Converter Station, Optical Regeneration Station and Telecommunications Buildings, which form the permanent visual components of the Interconnector Project.
- 9.1.1.2. The document describes how the Parameter Plans and Design Principles have been established from analysis of the context and requirements for the Interconnector Project, developed by the consultation process with key stakeholders
- 9.1.1.3. Section 2 of this document sets out the Legislation, Policy and Guidance Context for the proposals, and describes the site context analysis exercises undertaken, providing the framework for the subsequent design development and consultations.
- 9.1.1.4. Section 3 sets out the site context for the built components and demonstrates how options have been explored to establish optimum locations and siting, taking into account operational requirements and response to the surrounding landscape and environment.
- 9.1.1.5. Permanent and temporary (construction) access to the Converter Station has been considered and indicative proposals illustrated which take account of the functional requirements and site context.
- 9.1.1.6. There is no requirement for public access to any of the facilities. Appropriate security will be maintained during construction and installation, and subsequent operation of the facility to ensure unauthorised access is prevented.
- 9.1.1.7. Section 4 describes how the design development process has been built upon and informed by consultation with key stakeholders, focused in relation to the Converter Station and the other buildings upon how the design will correspond to the landscape, whilst taking into account the technical and geophysical constraints of the proposed infrastructure. Environmental constraints, including ecological, visual amenity and noise control have also been taken into account. These consultations have influenced site selection, design evolution, the Parameters Plans and the Design Principles, set out in Section 6.
- 9.1.1.8. The Indicative Landscape Mitigation Plans have also been developed in consultation with key stakeholders and set out how the site can be successfully incorporated within the existing landscape with detailed landscape design including the planting of a selection of appropriate species to also increase site biodiversity. The landscape design and consultation process has resulted in the Landscape Design Principles, set out in Section 6.
- 9.1.1.9. Section 5 describes the process of design development informed by the consultation process, resulting in the Parameter Plans and Design Principles, and illustrates indicative design solutions
- 9.1.1.10. Section 6 sets out the Building Design Principles and Landscape Design Principles which will ensure that the detailed design of the Converter Station, ORS and Telecommunications buildings and landscaping will satisfy the principles of “good design” as required by NPS EN-1 and meet its functional and operational requirements whilst responding to its setting. The detailed designs will be subject to approval pursuant to the DCO Requirement.
- 9.1.1.11. Section 7 provides illustrative examples of how the Design Principles and Parameter Plans could be complied with in the shape of site layouts and built forms. These indicative drawings and images have also taken account of feedback from the consultations with stakeholders. The final designs will be subject to further technical development and formal approvals within the legal framework established by the Parameter Plans and Design Principles.
- 9.1.1.12. Section 8 describes how the Design Principles and illustrative designs comply with Legislation, Policy and Guidance.

