Hornsea Project Three
Offshore Wind Farm

# Hornsea Project Three

# Offshore Wind Farm

## Environmental Statement:
## Volume 3, Chapter 4 - Landscape and Visual Resources

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Date: May 2018

Hornsea 3
Offshore Wind Farm

Ørsted

Environmental Impact Assessment

Environmental Statement

Volume 6

Chapter 4: Landscape and Visual Resources

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# Glossary

| Term | Definition |
|---|---|
| Characteristics | Elements, or combinations of elements, which make a contribution to distinctive landscape character. |
| Designated landscape | Areas of landscape identified as being of importance at international, national or local levels, either defined by statute or identified in development plans or other documents. |
| Development | Any proposal that results in a change to the landscape and/or visual environment. |
| Elements | Individual parts which make up the landscape, such as, for example, trees, hedges and buildings. |
| Feature | Particularly prominent or eye-catching elements in the landscape, such as tree clumps, church towers or wooded skylines. |
| Historic Landscape Characterisation | Historic characterisation is the identification and interpretation of the historic dimension of the present-day landscape or townscape within a given area. |
| Indirect effects | Effects that result indirectly from the proposed project as a consequence of the direct effects, often occurring away from the site, or as a result of a sequence of interrelationships or a complex pathway. They may be separated by distance or in time from the source of the effects. |
| Key characteristics | Those combinations of elements which are particularly important to the current character of the landscape and help to give an area its particularly distinctive sense of place. |
| Key routes | Any transport or recreational route that is specifically promoted or can otherwise be expected to receive an increased number of users or draw users from outside the local area. This includes, but is not limited to, main roads (A-roads/motorways), rail lines, navigable waterways, national cycle routes, national trails or other long distance paths identified on Ordnance Survey mapping. |
| Land cover | The surface cover of the land, usually expressed in terms of vegetation cover, or lack of it. Related to, but not the same as land use. |
| Land use | What land is used for, based on broad categories of functional land cover, such as urban and industrial use and the different types of agriculture and forestry. |
| Landform | The shape and form of the land surface which has resulted from combinations of geology, geomorphology, slope, elevation and physical processes. |
| Landscape | An area, as perceived by people, the character of which is a result of the action and interaction of natural and/or human factors. |
| Landscape character | A distinct, recognisable and consistent pattern of elements in the landscape that makes one landscape different from another, rather than better or worse. |
| Landscape Character Areas (LCAs) | These are single unique areas which are the discrete geographical areas of a particular landscape type. |
| Landscape Character Assessment | The process of identifying and describing variation in the character of the landscape, and using this information to assist in managing change in the landscape. It seeks to identify and explain the unique combination of elements and features that make landscape distinctive. The process results in the production of a Landscape Character Assessment. |
| Landscape Character Types /Landscape typology (LCTs) | These are distinct types of landscape that are relatively homogenous in character. They are generic in nature in that they may occur indifferent areas in different parts of the country, but wherever they occur they share broadly similar combinations of geology, topography, drainage patterns, vegetation and historical land use and settlement pattern, and perceptual and aesthetic attributes. |
| Landscape classification | A process of sorting the landscape into different types using selected criteria, but without attaching relative values to different sorts of landscape. |
| Landscape effects | Effects on the landscape as a resource in its own right. |
| Landscape quality (condition) | A measure of physical state of the landscape. It may include the extent to which typical character is represented in individual areas, the intactness of the landscape and the condition of individual elements. |
| Landscape receptors | Defined aspects of the landscape resource that have the potential to be affected by the proposal. |
| Landscape strategy | The overall vision and objectives for what the landscape should be like in the future, and what is thought to be desirable for a particular landscape type or area as a whole, usually expressed in formally adopted plans and programmes or related documents. |
| Landscape value | The relative value that is attached to different landscapes by society. A landscape may be valued by different stakeholders for a whole variety of reasons |
| National Landscape Character Areas (NCA) | Broad character areas of the land as defined by Natural England. |
| National Seascape Character Areas (NSCA) | Broad character areas of the sea, as defined by Natural England and the Marine Management Organisation |
| Onshore elements of Hornsea Three | Hornsea Three landfall area, onshore cable corridor, the onshore HVAC booster station, the onshore HVDC converter/HVAC substation and the interconnection with the Norwich Main National Grid substation. |
| Perception | Combines the sensory (that we receive through our senses) with the cognitive (our knowledge and understanding gained from many sources and experiences). |
| Photomontage | A visualisation which superimposes an image of a proposed development upon a Viewpoint or series of Viewpoints. |
| Receptor area | The geographic area covered by a landscape or visual receptor. |
| Seascape | Landscapes with views of the coast or seas, and coasts and adjacent marine environments with cultural, historical and archaeological links with each other. |
| Statement of Environmental Opportunity | A statement identifying the environmental qualities, including landscape characteristics, which should be maintained and/or enhanced. It can include education about an area. These statements are included in the National Character Area profiles published by Natural England. |
| Susceptibility | The ability of a defined landscape or visual receptor to accommodate the specific proposed development without undue negative consequences. |
| Tranquillity | A state of calm and quietude associated with peace, considered to be a significant asset in the landscape. |
| Visual amenity | The overall pleasantness of the views people enjoy of their surroundings, which provides an attractive visual setting or backdrop for the enjoyment of activities of the people living, working, recreating, visiting or travelling through an area. |
| Visual effects | Effects on specific views and on general visual amenity experienced by people. |
| Visual Receptors | Individuals and/or defined groups of people who have the potential to be affected by a proposal. |
| Visualisation | A computer simulation, photomontage or other technique illustrating the predicted appearance of a development. |
| Zone of Theoretical Visibility (ZTV) | A map, usually digitally produced, showing areas of land within which a development is theoretically visible. |

| Term | Definition |
|---|---|
| Zone of Visual Influence (ZVI) | Area within which a proposed development may have an influence or effect on visual amenity. |

## Acronyms

| Unit | Description |
|---|---|
| AONB | Area of Outstanding Natural Beauty |
| CoCP | Code of Construction Practice |
| CTV | Coastal Towns and Villages |
| DCLG | Department for Communities and Local Government |
| DCM | Drained Coastal Marshes |
| DCO | Development Consent Order |
| DECC | Department of Energy & Climate Change |
| DPD | Development Plan Document |
| ECoW | Ecological Clerk of Works |
| EIA | Environmental Impact Assessment |
| GLVIA3 | Guidelines for Landscape and Visual Impact Assessment |
| GOEE | Government Office for the East of England |
| HDD | Horizontal Directional Drilling |
| HVAC | High Voltage Alternating Current |
| HVDC | High Voltage Direct Current |
| JB | Joint Bay |
| LCA | Local Landscape Character Area |
| LCT | Landscape Character Type |
| LDF | Local development framework |
| LVIA | Landscape and Visual Impact Assessment |
| MHWS | Mean High Water Spring |
| MLWS | Mean Low Water Spring |
| NCA | National Landscape Character Area |
| NE | Natural England |
| NPS | National Policy Statement |
| NSBLPZ | Norwich Southern Bypass Landscape Protection Zone |
| NSCA | National Seascape Character Area |
| NSIP | Nationally Significant Infrastructure Project |
| Outline EMP | Outline Ecological Management Plan |
| Outline LMP | Outline Landscape Management Plan |
| PEIR | Preliminary Environmental Information Report |
| PPG | Planning Policy Guidance |
| PPS | Planning Policy Statements |
| PRoW | Public Right of Way |
| QNB | Qualities of Natural Beauty |
| RHA | Rolling Heath and Arable |
| RPaG | Registered Park and Garden |
| SMP | Shoreline Management Plan |
| SPD | Supplementary Planning Document |
| TJB | Transition Joint Bay |
| ZTV | Zone of Theoretical Visibility |
| ZVI | Zone of Visual Influence |

## Units

| Unit | Description |
|---|---|
| km | Kilometre (distance) |
| m | Metre (distance) |
| $m^2$ | Metres squared (area) |
| MW | Megawatt (power) |

# 4. Landscape and Visual Resources

## 4.1 Introduction

4.1.1.1 This chapter of the Environmental Statement presents an assessment of the potential impacts of Hornsea Project Three offshore wind farm (hereafter referred to as 'Hornsea Three') on landscape and visual resources. Specifically, this chapter considers the potential impact of Hornsea Three landward of Mean Low Water Springs (MLWS) during its construction, operation and maintenance, and decommissioning phases.

4.1.1.2 This chapter summarises information from technical reports and information, which are included in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, annex 4.2: Extracts from National Landscape Character Area Descriptions, annex 4.3: Extracts from Local Landscape Character Descriptions, annex 4.4: Qualities of Natural Beauty of the Norfolk Coast AONB, annex 4.5: Photograph Panels, Wirelines and Photomontages and annex 4.6: Residential Visual Amenity.

4.1.1.3 A separate assessment of landscape and visual impacts of the proposed offshore High Voltage Alternating Current (HVAC) booster station(s) which would be located within the offshore HVAC booster station search area which is located, at its closest point, approximately 35 km from the Norfolk coast is presented in volume 6 annex 4.7: Effects of the Offshore HVAC Booster Station.

4.1.1.4 The effects of the offshore components of Hornsea Three on offshore receptors are considered in volume 2, chapter 10: Seascape and Visual Resources.

4.1.1.5 The impacts of Hornsea Three on historic landscapes are assessed in volume 3, chapter 5: Historic Environment.

## 4.2 Purpose of this chapter

4.2.1.1 The primary purpose of the Environmental Statement is to support the Development Consent Order (DCO) application for Hornsea Three under the Planning Act 2008 (the 2008 Act) and accompanies the application to the Secretary of State for Development Consent.

4.2.1.2 In particular, this Environmental Statement chapter:

- Presents the existing baseline established from desk studies, dedicated surveys and consultation;
- Presents the potential effects on landscape and visual receptors arising from Hornsea Three, based on the information gathered and the analysis and assessments undertaken to date;
- Identifies any assumptions and limitations encountered in compiling the environmental information; and
- Highlights any necessary monitoring and/or mitigation measures which could prevent, minimise, reduce or offset the possible landscape and visual effects identified at the relevant stage in the EIA process.

4.2.1.3 Three elements of Hornsea Three are likely to have an impact on landscape and visual receptors, they are considered in the following order throughout this chapter:

- The onshore cable corridor, including the landfall area (landward of MLWS) and the section of the onshore cable corridor between the onshore HVDC converter/HVAC substation and the existing Norwich Main Substation, as well as the main construction compound ;
- The onshore HVAC booster station; and
- The onshore HVDC converter/HVAC substation.

4.2.1.4 The potential effects of the offshore HVAC booster station on onshore receptors is summarised in Section 4.16 of this chapter.

## 4.3 Study area

4.3.1.1 The Hornsea Three landscape and visual resources study areas are described in detail in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and have been established in order to focus the assessment upon the likely significant effects. These are informed by the extent of Zone of Theoretical Visibility (ZTV) studies and Zones of Visual Influence (ZVIs) (see section 4.7) as well professional judgement. These study areas are summarised below and illustrated on Figure 4.1.

- Onshore cable corridor: the footprint of the onshore cable corridor, accesses, construction compounds and storage areas plus 1 km; and
- Onshore HVAC booster station and onshore HVDC converter/HVAC substation: 5 km from the footprint of the permanent land take (the areas identified as 'Onshore HVAC Booster Station' and 'Onshore HVDC Converter/HVAC Substation' on Figure 4.1, which excludes the landscape areas).

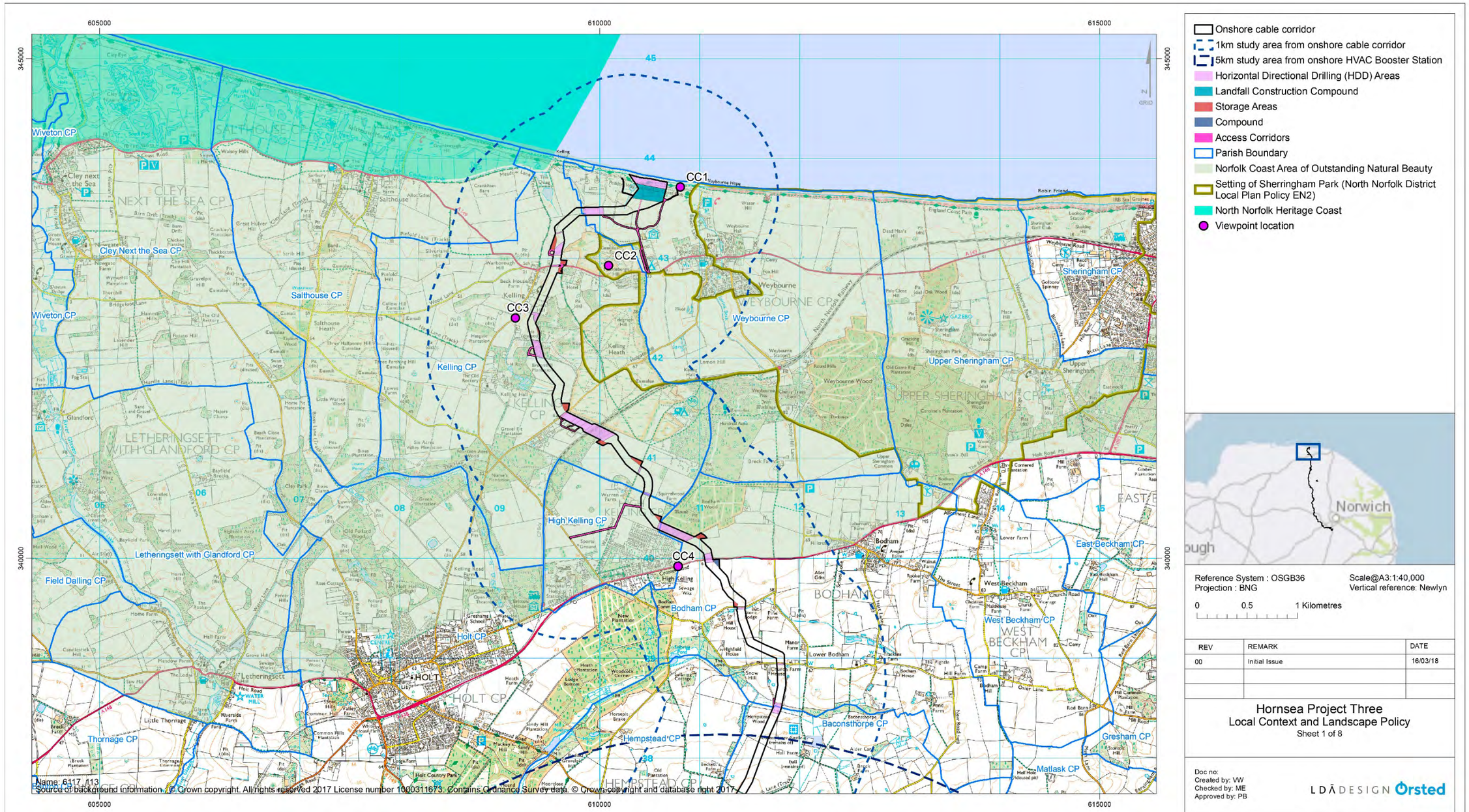


Figure 4.1: Local Context and Landscape Policy Sheet 1 of 8.

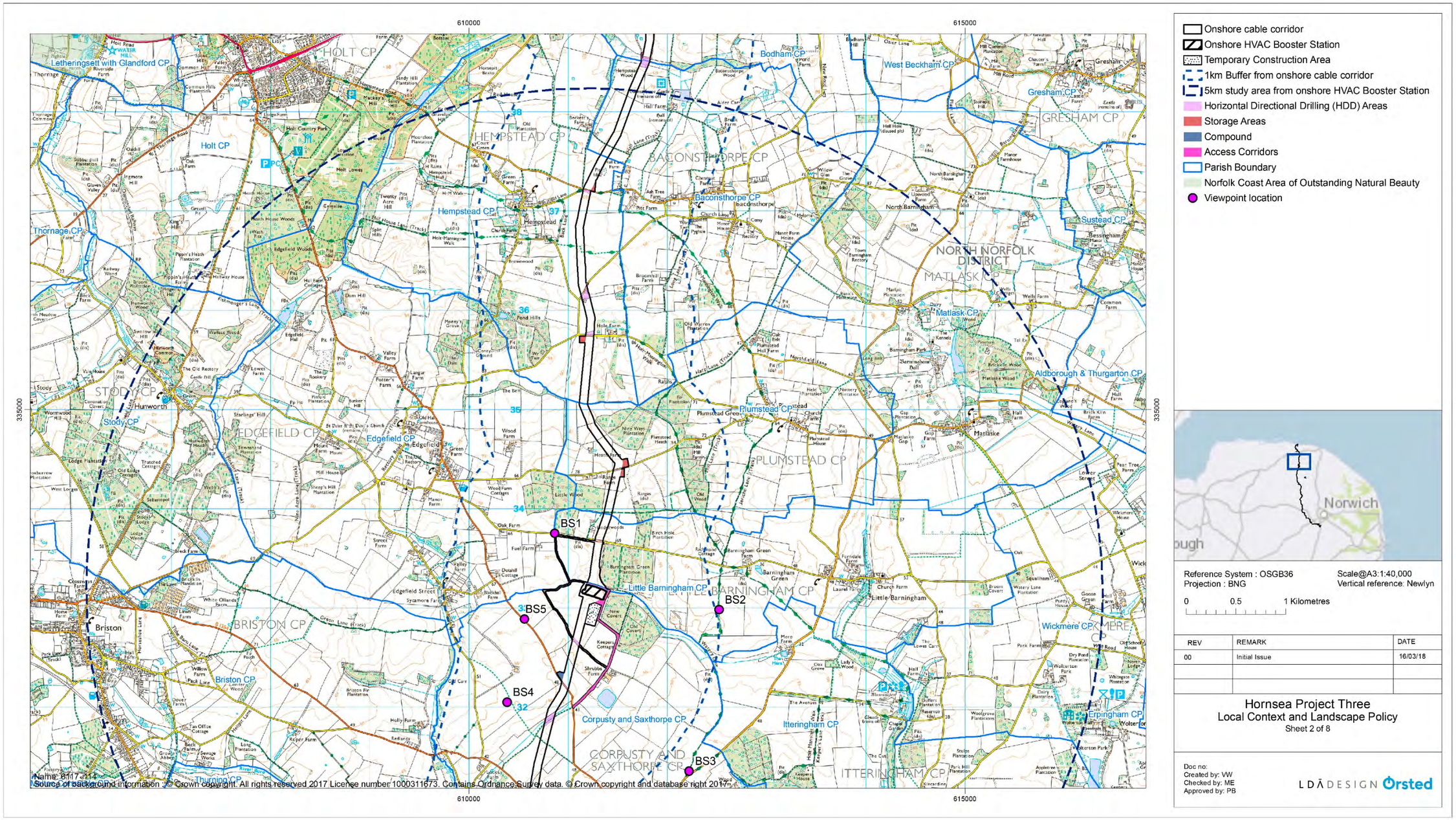


Figure 4.1: Local Context and Landscape Policy Sheet 2 of 8.

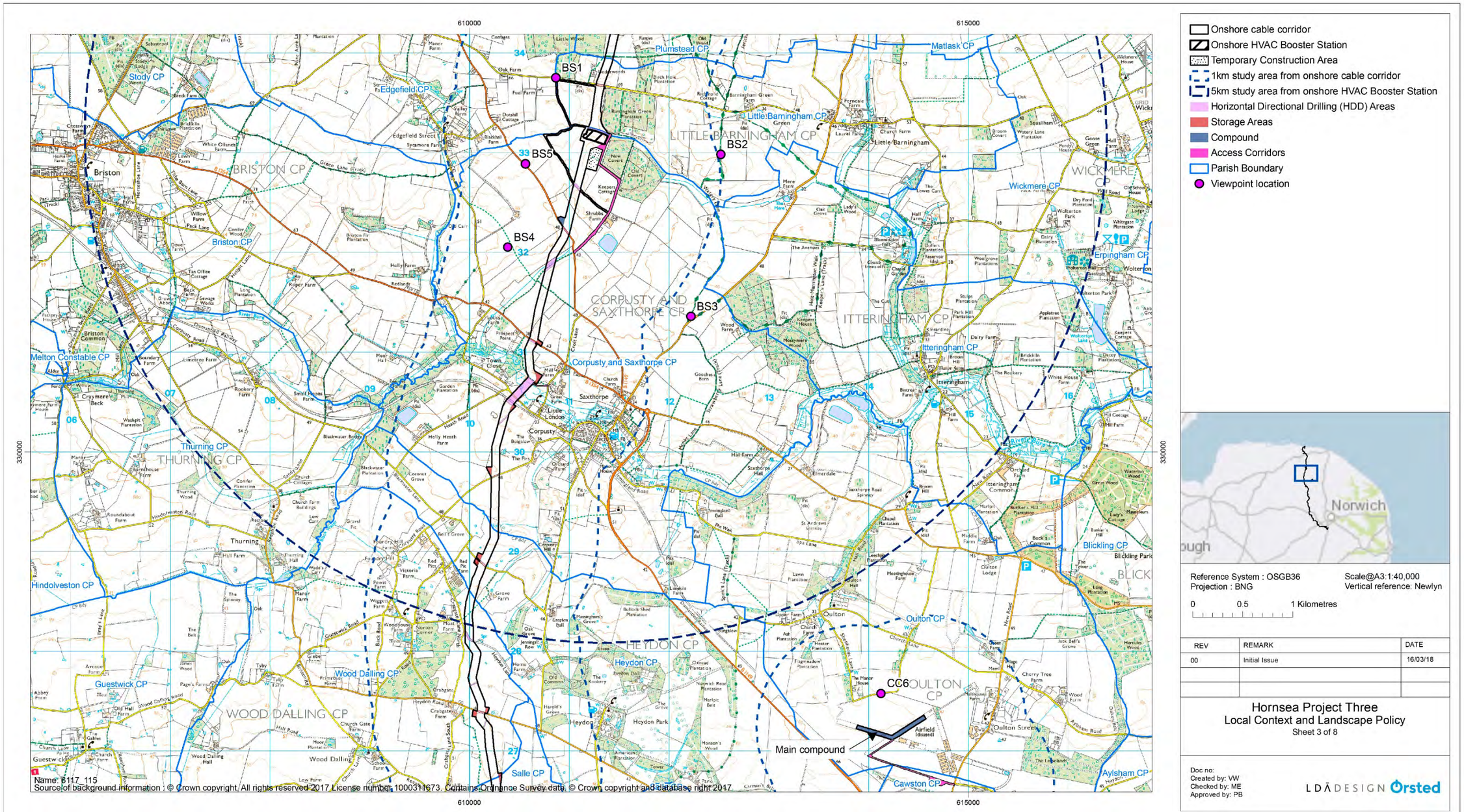


Figure 4.1: Local Context and Landscape Policy Sheet 3 of 8.

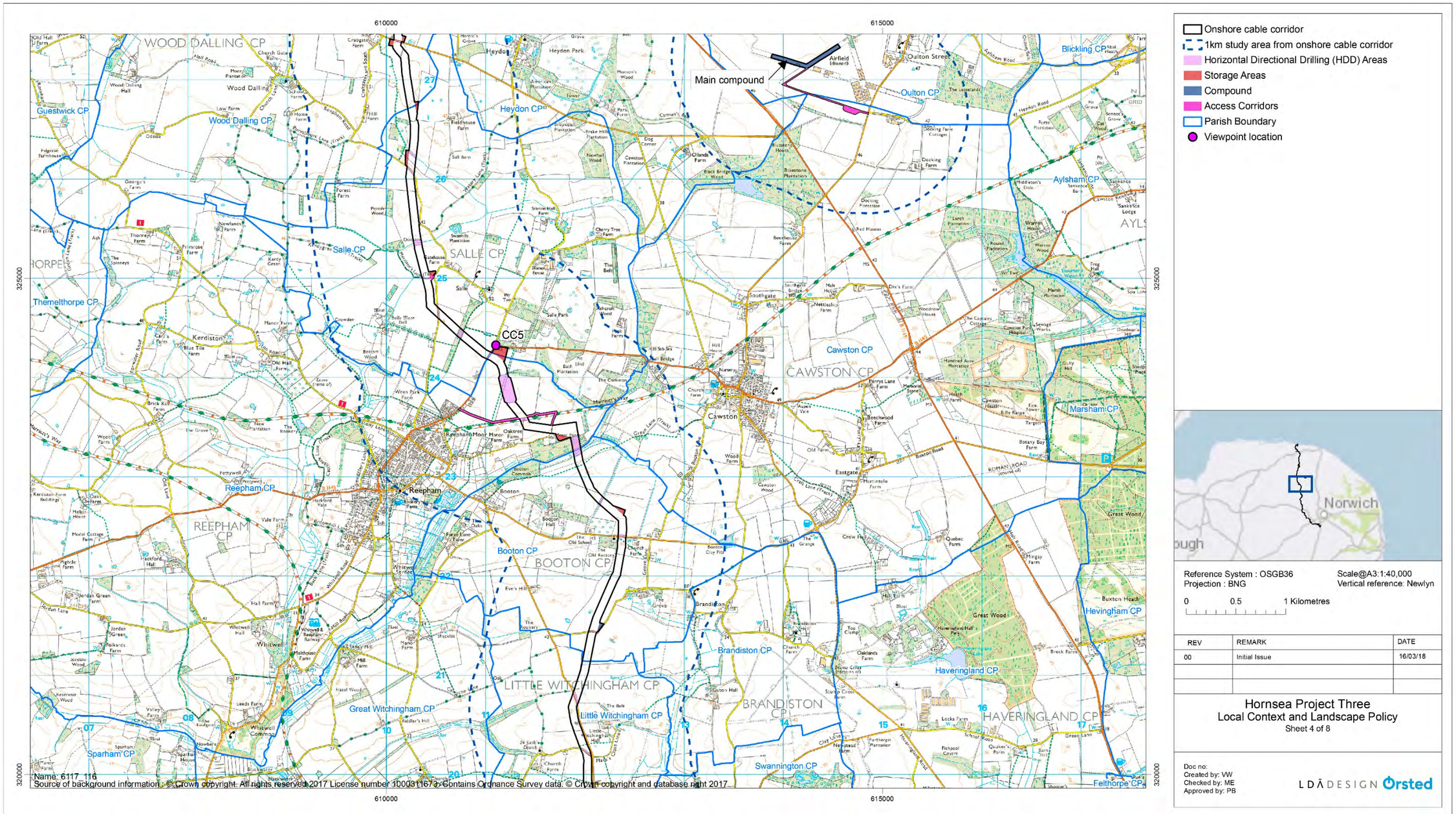


Figure 4.1: Local Context and Landscape Policy Sheet 4 of 8.

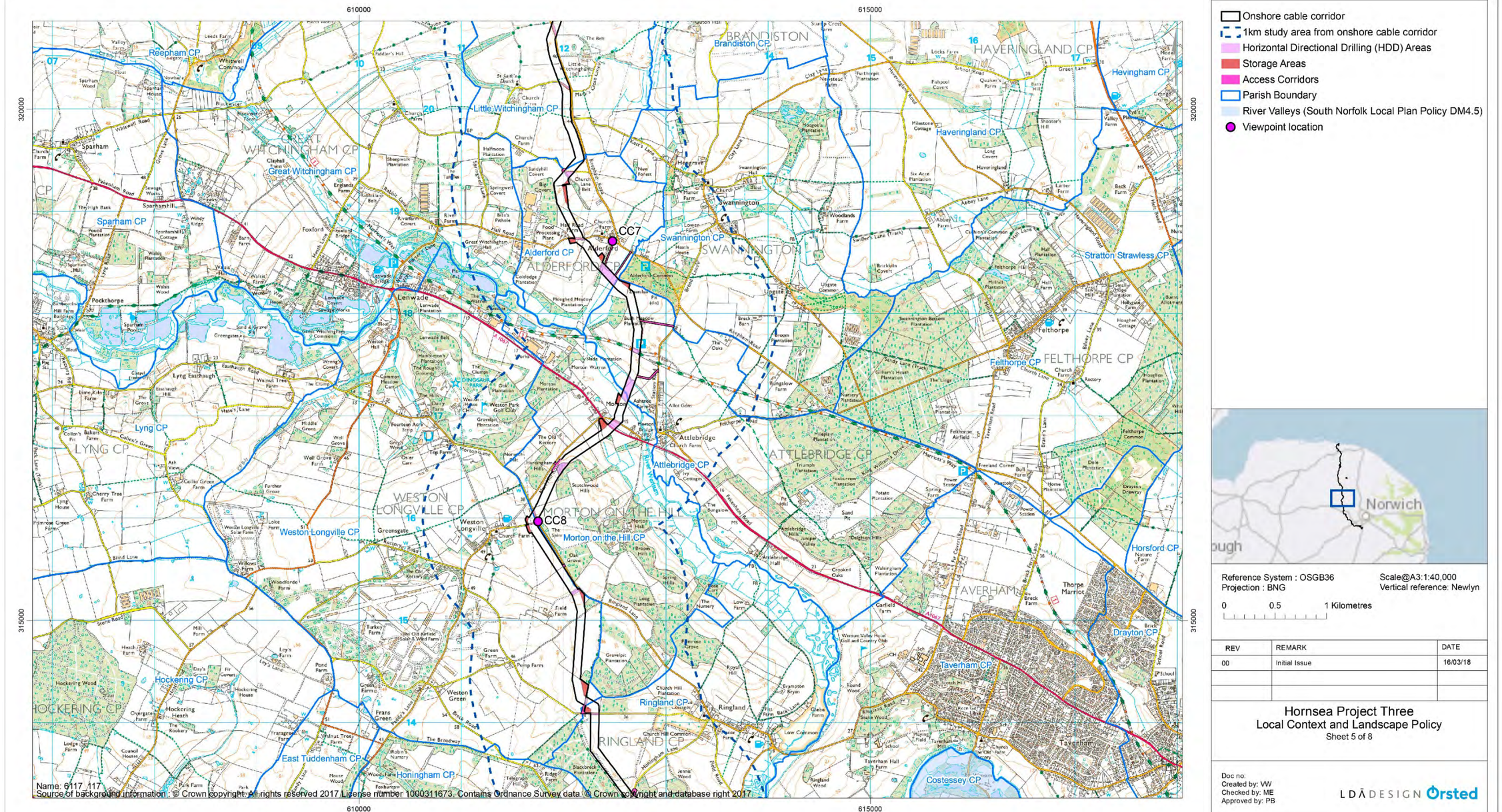


Figure 4.1: Local Context and Landscape Policy Sheet 5 of 8.

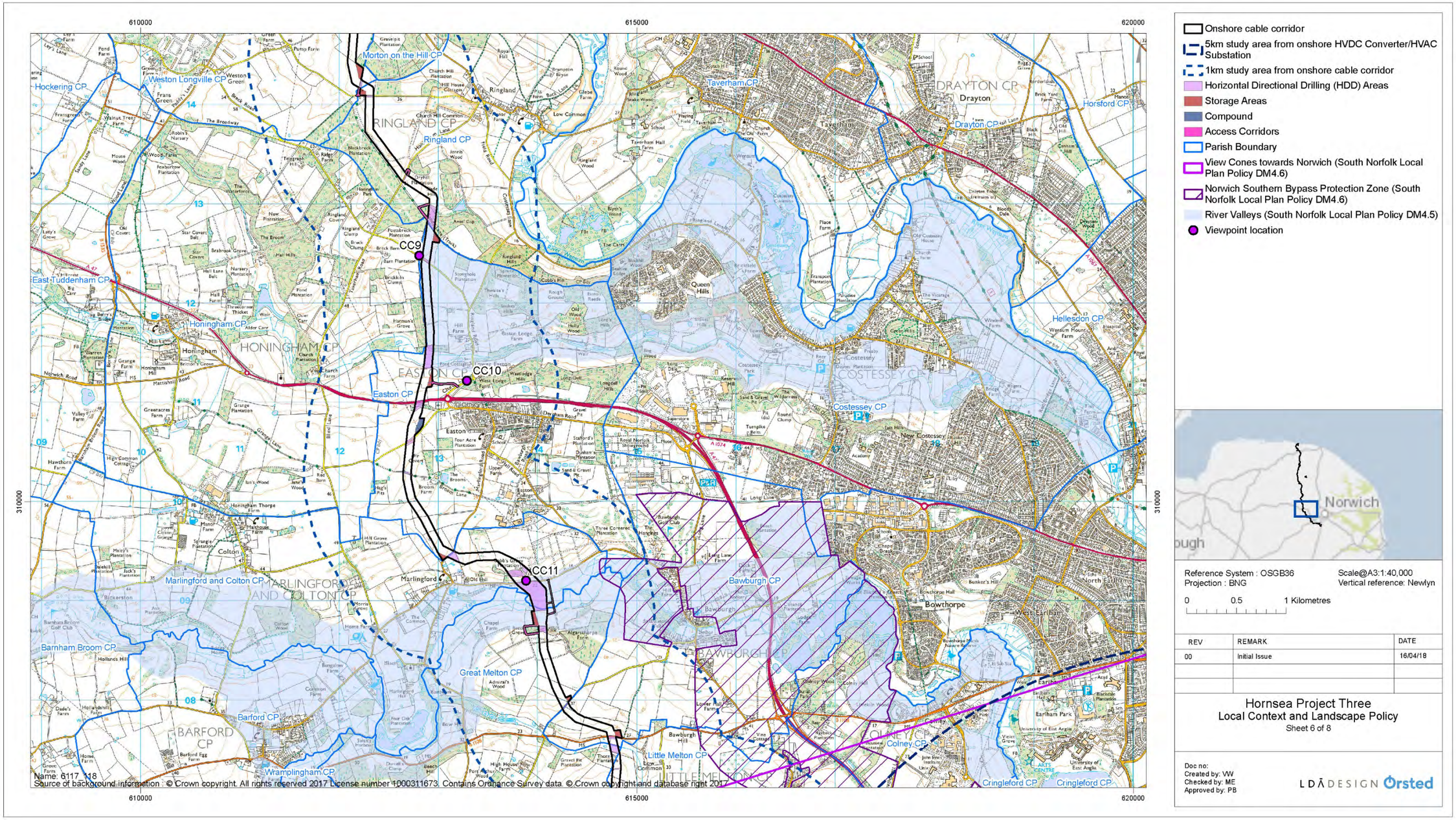


Figure 4.1: Local Context and Landscape Policy Sheet 6 of 8.

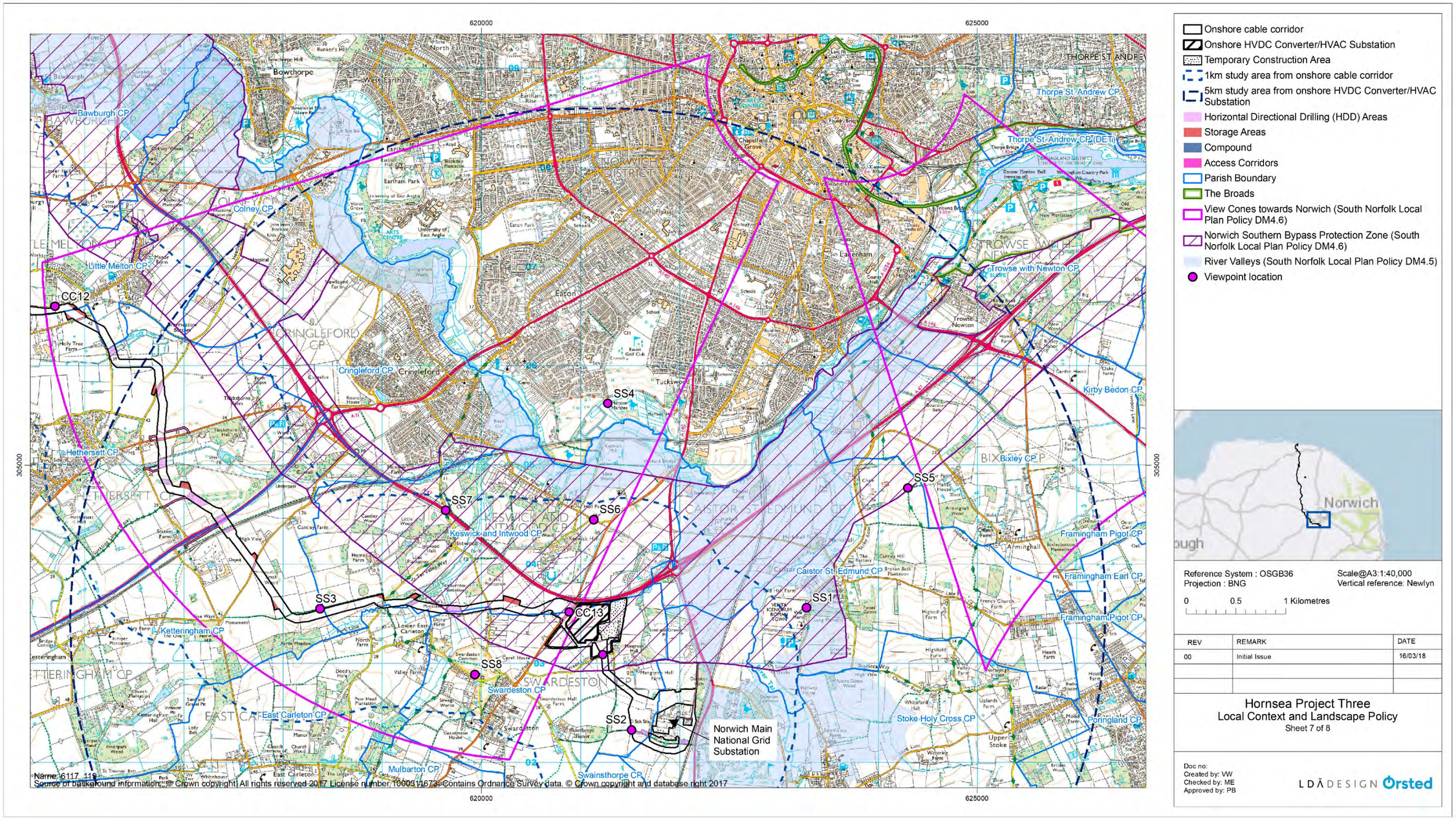


Figure 4.1: Local Context and Landscape Policy Sheet 7 of 8.

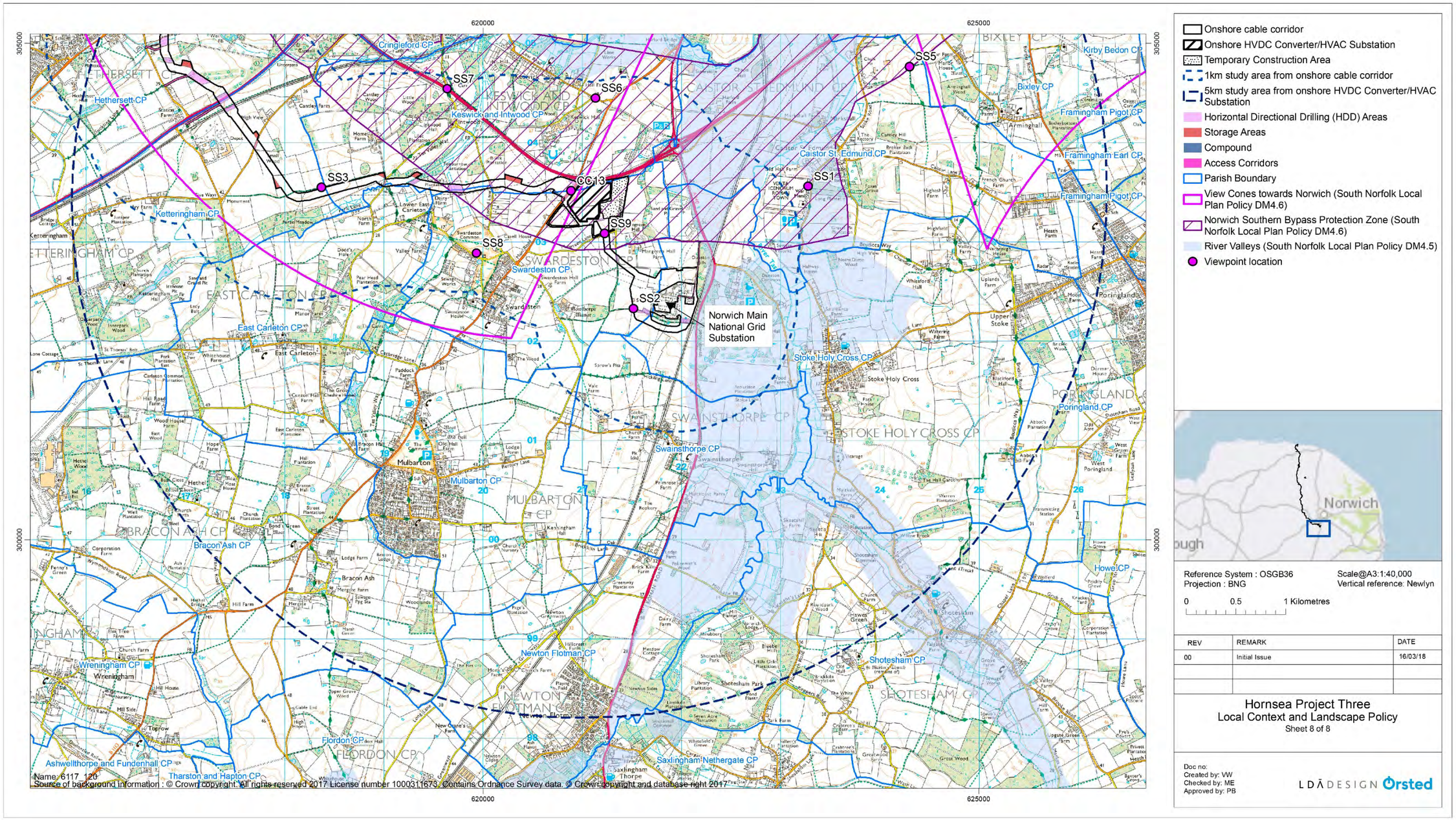


Figure 4.1: Local Context and Landscape Policy Sheet 8 of 8.

## 4.4 Planning policy context

4.4.1.1 This section reviews the various levels of planning policy that is relevant to the landscape and visual resources that are likely to be affected by Hornsea Three.

### 4.4.2 National Policy Statements

4.4.2.1 Planning policy on offshore renewable energy Nationally Significant Infrastructure Projects (NSIPs), specifically in relation to landscape and visual resources, is contained in the Overarching National Policy Statement (NPS) for Energy (EN-1) (Department of Energy and Climate Change (DECC), 2011a), the NPS for Renewable Energy Infrastructure (EN-3) (DECC, 2011b) and the NPS for Electricity Networks Infrastructure (EN-5) (DECC, 2011c).

4.4.2.2 NPS EN-1, NPS EN-3 and NPS EN-5 include guidance on those matters to be considered in the assessment. These are summarised in Table 4.1.

Table 4.1: Summary of NPS EN-1, EN-3 and EN-5 provisions relevant to this chapter.

| Summary of NPS EN-1, NPS EN-3 and NPS EN-5 provision | How and where considered in the Environmental Statement |
|---|---|
| *Summary of NPS EN-1 policy relevant to the assessment of Landscape and Visual Resources* | |
| A number of guides have been produced to assist in addressing landscape issues (paragraph 5.9.5). | Relevant guidance documents informing this assessment are set out in section 4.9. |
| The assessment should make reference to existing landscape character assessments and related studies (paragraph 5.9.5). | The existing published landscape character assessments are referred to in section 4.7. |
| The assessment should make reference to relevant planning policies (paragraph 5.9.5). | Relevant planning policy is referred to in section 4.4 and national policy summarised in this table. |
| The assessment should include the effects on landscape character and individual landscape elements during construction and operation (paragraph 5.9.6). | Assessment of effects on the landscape and landscape elements are assessed in section 4.11. |
| The assessment should include the visibility and conspicuousness of the project and potential impacts on views and visual amenity during construction and operation, including light pollution effects and nature conservation (paragraph 5.9.7). | Assessments of effects on visual resources, including night time effects, are assessed in section 4.11. The details of the lighting during construction, operation and decommissioning are not certain at this stage, but measures will be implemented as described in section 4.10.5. |
| There is a requirement that "*proposals for renewable energy infrastructure should demonstrate good design in respect of landscape and visual amenity*" (paragraph 2.4.2). | Details of the landscape proposals for the onshore cable corridor, onshore HVAC booster station and onshore HVDC converter/HVAC substation are set out in section 4.11, summarised in<br>Table 4.12. Details of the proposals and management of landscape proposals for the onshore HVAC booster station and onshore HVDC converter/HVAC substation are detailed in the Outline Landscape Management Plan (Outline LMP) (document reference A8.7). Details of mitigation and enhancement of habitats and vegetation along the onshore cable route are detailed in the Outline Ecological Management Plan (Outline EMP) (document reference A8.6). |
| The NPS notes that "*In sites with nationally recognised designations, consent for renewable energy projects should only be granted where it can be demonstrated that the objectives of designation of the area would not be compromised by the development, and any significant adverse effects on the qualities for which the area has been designated are clearly outweighed by the environmental, social and economic benefits*" (paragraph 2.5.33) | Assessments of effects on national designations are discussed in sections 4.11 to 4.14. |
| Seascape and visual effects are considered within the NPS. The inter-visibility between land and sea is noted (paragraph 2.6.201 – 2.6.206). | While this reference is for seascape effects, visual effects are considered in sections 4.11 and 4.16. The effects of the offshore infrastructure on seascape and visual resources are considered in volume 2, chapter 10: Seascape and Visual Resources. |
| *Summary of NPS EN-5 policy relevant to the assessment of Landscape and Visual Resources* | |
| An alternative put forward is to put electricity lines underground (paragraph 1.7.3). This alternative to overhead lines was considered to have long term positive effects on landscape and visual resources (paragraph 1.7.5). | Details of the underground onshore cable corridor are set out in volume 1, chapter 3: Project Description. |
| Developers have a duty, under Schedule 9 of the Electricity Act 1989, to *"have regard to the desirability of preserving natural beauty…"* when formulating proposals for new electricity infrastructure works (paragraph 2.2.6). | The cables will be buried underground which will minimise effects on natural beauty.<br>Designed-in mitigation planting is proposed for the onshore HVAC booster station and onshore HVDC converter /HVAC substation and the colour of buildings will be agreed so as to reduce landscape and visual impacts. Details of the landscape proposals of the onshore HVAC booster station and the onshore HVDC converter/HVAC substation are set out in the Outline LMP (document reference A8.7). Details of mitigation and enhancement of habitats and vegetation along the onshore cable route are detailed in the Outline EMP (document reference A8.6). |
| Paragraph 2.6.1 states *that "when considering impacts for electricity networks infrastructure, all of the generic impacts covered in NPS EN-1 are likely to be relevant, even if they only apply during one phase of the development (such as construction)…".* | Refer to section 4.11 for the consideration of the potential effects on landscape and visual resources during construction, operation and decommissioning. |

| Summary of NPS EN-1, NPS EN-3 and NPS EN-5 provision | How and where considered in the Environmental Statement |
|---|---|
| Paragraph 2.8.2 comments that *"new substations, sealing end compounds and other above ground installations that form connection, switching and voltage transformation points on the electricity networks can also give rise to landscape and visual impacts."* | The onshore assessment considers the potential effects on the landscape and visual resources of all onshore components of Hornsea Three, from landfall in the intertidal area to the connection to the Norwich Main Substation. |

4.4.2.3 NPS EN-1 and NPS EN-3 highlight a number of points relating to the determination of an application. These are summarised in Table 4.2.

4.4.2.4 NPS EN-3 refers to the generic impacts which are covered in Section 5.9 of EN-1 (see paragraphs 2.6.33, 2.6.198 and 2.6.207) and does not raise significant additional points relevant to this chapter, except in relation to offshore elements visible from the shore as noted in Table 4.2.

Table 4.2: Summary of NPS EN-1, and NPS EN-3 policy on decision making relevant to this chapter.

| Summary of NPS EN-1 and NPS EN-3 policy on decision making (and mitigation) | How and where considered in the Environmental Statement |
|---|---|
| *Summary of NPS EN-1 policy on decision making relevant to the assessment of Landscape and Visual Resources* | |
| Has the chapter assessed the maximum extent of the proposed development where details are still to be finalised (paragraph 4.2.8). | This chapter assesses the maximum design scenario defined in section 4.8.1, complying with this requirement of NPS EN-1. |
| Has the chapter considered the existing landscape character (paragraph 5.9.8). | Section 4.7 describes the existing landscape character. Effects on landscape character are assessed in sections 4.11 to 4.14. |
| Having regard to siting, operational and other relevant constraints, does the project minimise harm to the landscape and provide reasonable mitigation where possible and appropriate (paragraph 5.9.8). | Details of the landscape proposals for the onshore cable corridor, onshore HVAC booster station and onshore HVDC converter/HVAC substation are set out in the chapter in section 4.10, summarised in Table 4.12 and detailed in the Outline LMP (document reference A8.7). Details of mitigation and enhancement of habitats and vegetation along the onshore cable route are detailed in the Outline EMP (document reference A8.6). |
| Nationally designated areas have the highest status of protection in relation to landscape and scenic beauty. Each of these designated areas has specific statutory purposes which help ensure their continued protection and which the decision maker should have regard to in its decisions (paragraphs 5.9.9 – 5.9.11). | Consideration of nationally designated areas has been included in the assessment in section 4.7.5 and in section 4.11. |
| Does the proposal compromise the purpose of a nationally designated area (paragraph 5.9.12). | Consideration for nationally designated areas has been included in the assessment in section 4.11. |
| The scale of nationally significant infrastructure projects will mean that they would often be visible within many miles of the site of the proposed infrastructure. The decision maker should judge whether any adverse impact on the landscape would be so damaging that it is not offset by the benefits (including need) of the project (paragraph 5.9.15). | The effects of the project on landscape and visual resources are assessed in section 4.11. |
| In reaching a judgement, the decision maker should consider whether any adverse impact is temporary, such as during construction and /or whether any adverse impact on the landscape would be capable of being reversed in a timescale that the decision maker considers reasonable (paragraph 5.9.16). | The potential effects of the temporary and permanent elements of Hornsea Three on the landscape are assessed in section 4.11. |
| The IPC should consider whether the project has been designed carefully, taking account of environmental effects on the landscape and siting, operational and other relevant constraints, to minimise harm to the landscape, including by reasonable mitigation (paragraph 5.9.17). | Details of the landscape proposals are set out in the chapter in section 4.10, summarised in Table 4.12 and detailed in the Outline LMP (document reference A8.7). |
| The decision maker would have to judge whether the visual effects on sensitive receptors, such as local residents, and other receptors, such as visitors to the local areas, outweigh the benefits of the project (paragraph 5.9.18). | The potential effects of the temporary and permanent elements of the project on the visual resources in the surrounding area are assessed in section 4.11. |
| Does the project provide reasonable visual mitigation where possible and appropriate (paragraphs 5.9.21, 5.9.22 and 5.9.23). | Details of the landscape proposals are set out in the chapter in section 4.10, summarised in Table 4.12 and detailed in the Outline LMP (document reference A8.7). |
| *Summary of NPS EN-3 policy on decision making relevant to the assessment of Landscape and Visual Resources* | |
| Where the applicant has identified a precise route for the cable from the wind farm to a precise location for the onshore substation and connection to the transmission network, the EIA should assess the effects of the cable (paragraph 2.7.37). | An 80m corridor within which the cables will be constructed has been identified. Effects of the onshore cable are assessed in sections 4.11 to 4.14. |
| Where the precise details of a proposed development are not known, then the applicant should assess the effects the project could have (as set out in EN-1 paragraph 4.2.8) to ensure that the project as it may be constructed has been properly assessed (the Rochdale Envelope). In this way the maximum adverse case scenario will be assessed and the IPC should allow for this uncertainty in its consideration of the application and consent. | This chapter assesses the maximum design scenario defined in section 4.8.1, complying with this requirement of NPS EN-3. |
| Where a proposed offshore wind farm will be visible from the shore, an SVIA (Seascape and Visual Impact Assessment) should be undertaken which is proportionate to the scale of the potential impacts. Impact on seascape should be addressed in addition to the landscape and visual effects discussed in EN-1 (paragraph 2.6.201 – 2.6.206). | Only the offshore HVAC booster station(s) could potentially be visible from the shore at the north Norfolk coast; other permanent offshore elements of Hornsea Three would not be visible. A proportionate assessment of the offshore HVAC booster station(s) viewed from the Norfolk Coast is presented in in volume 6 annex 4.7: Effects of the Offshore HVAC Booster Station.<br>A SVIA is presented in volume 2, Chapter 10: Seascape and Visual Resources, addressing effects on offshore receptors. |

4.4.2.5 Further advice, specifically in relation to the Hornsea Three, has been sought through consultation with the statutory authorities and from the PINS scoping opinion in December 2016 (see Table 4.4).

## 4.4.3 Other relevant policies

4.4.3.1 A number of other national policies and guidance are relevant to landscape and visual impact including:

- National Planning Policy Framework;
- Planning Practice Guidance for Natural Environment;
- Planning Practice Guidance for Design.

4.4.3.2 A full summary of the relevant Statutory Development Plan documents in all Local Authority areas affected by the proposed onshore infrastructure for Hornsea Three is provided in the Planning Statement which accompanies the application. Relevant non-statutory documents, such as landscape character assessments, are referred to throughout this chapter.

4.4.3.3 Key provisions of relevant national and local policies are set out in Table 4.3 along with details as to how these have been addressed within the assessment.

Table 4.3: Summary of other relevant policies relevant to Landscape and Visual Resources.

| Summary of other relevant policies | How and where considered in the Environmental Statement |
|---|---|
| *National Planning Policy Framework* | |
| Paragraphs 17, 58 and 126 – taking account of, and responding to, local character | Sections 4.7.3 (existing landscape character) and 4.11; (assessment of significance). |
| Paragraph 17 – amenity for occupants of land and buildings | Section 4.15 and volume 6, annex 4.6: Residential Visual Amenity. |
| Paragraphs 58, 61 and 64 – design should provide for function, include appropriate landscaping, integrate development into the environment and use available mitigation and enhancement opportunities. | Section 4.10 sets out design measures and mitigation. |
| Paragraph 113 – protection of designated landscapes should take account of the hierarchy of nationally and locally designated sites. | Section 4.7.3 (baseline). |
| *National Planning Practice Guidance* | |
| *Planning Practice Guidance for Natural Environment (2014) paragraphs 003 and 004*– refer to the consideration of nationally designated landscapes in respect of their statutory purposes, and points to the relevance on management plans for these areas. | Section 4.7.3 (baseline). |
| *Planning Practice Guidance for Design* (2014) – consideration of landscape character, views into a site and landform should inform design. | Section 4.10 sets out design measures and mitigation. |
| *Local Planning Policy* | |
| North Norfolk Core Strategy and Development Management Policies (2008) | |
| EN1 *Norfolk Coast Area of Outstanding Natural Beauty and The Broads* – sets out policy in relation to the protection of the Norfolk Coast AONB. | Section 4.7.3 (baseline. |
| EN2 *Protection and Enhancement of Landscape and Settlement Character* – sets out policy in relation to the protection of: | |
| • landscape character, features and skylines; and the landscape settings of settlements | Sections 4.7.3 (existing landscape character) and 4.11; (assessment of significance). |
| • views into and out of Historic Parks and Gardens and effects on the defined setting of Sheringham Park. | Volume 3, chapter 5: Historic Environment assesses effects on the settings of historic landscapes. Effects on public views from these landscapes and parks are addressed in sections 4.7.6 (visual baseline), and 4.11; (assessment of significance). |
| • effects on nocturnal character. | Night time effects due to lighting are included in assessments in section and 4.11; (assessment of significance). |
| EN3 *Undeveloped Coast* – sets out policy aiming to protect open coastal character. | Sections 4.7.3 (existing landscape character) and 4.11; (assessment of significance). |
| EN4 *Design* – requires design to be appropriate to context, respect landscape character, retain important landscape features. | Section 4.10 sets out design measures and mitigation. |
| EN4 *Design* – seeks to protect residential amenity. | Section 4.15 and volume 6, annex 4.6: Residential Visual Amenity. |
| EN7 *Renewable energy* – provides policy specifically in relation to renewable energy developments and their effects on landscape and residential amenity, as well as cumulative effects with other development.. | Landscape and residential amenity are dealt with as set out above.<br>Section 4.14 considers cumulative effects. |
| Joint Core Strategy for Broadland, Norwich and South Norfolk (2014) | |
| Policy 2 *Promoting Good Design* – sets out policy in relation to local distinctiveness and landscape character | Sections 4.7.3 (existing landscape character) and 4.11; (assessment of significance). |
| Broadland District Council Development Management DPD (2015) | |
| GC4 *Design* – requires development design to have regard to character, in respect of scale, landscaping and appearance and potential effects on the amenity of existing properties. | Section 4.10 sets out design measures and mitigation.<br>Section 4.15 and volume 6, annex 4.6: Residential Visual Amenity. |
| EN2 *Landscape* – sets out policy in relation to the protection of: | |
| • visually sensitive skylines, hillsides and valley sides, and important views | Sections 4.7.3 (existing landscape character) and 4.11; (assessment of significance). |
| • nocturnal character. | Night time effects due to lighting are included in assessments in section 4.11; (assessment of significance). |

| Summary of other relevant policies | How and where considered in the Environmental Statement |
|---|---|
| • Historic Parks and Gardens | Volume 3, chapter 5: Historic Environment assesses effects on the settings of historic landscapes. Effects on public views from these landscapes and parks are addressed in sections 4.7.6 (visual baseline), and 4.11; (assessment of significance). |
| • Landscape features which make an important contribution to character | Sections 4.7.3 (existing landscape character) and 4.11; (assessment of significance). |
| South Norfolk Development Management Policies Document (2015) | |
| Policy DM1.4 *Environmental Quality and Local Distinctiveness* – sets out policy in relation to the approach to and justification for design measures and mitigation strategies in relation to local character. | Section 4.10 sets out design measures and mitigation. |
| Policy DM3.8 *Design Principles* – sets out a requirement for design to reflect local character and retain important natural features. | Section 4.10 sets out design measures and mitigation. |
| Policy DM4.5 *Landscape Character and River Valleys* – requires development to respect landscape character (and the related characteristics, features and strategy) with particular regard to be had to River Valley and Valley Urban Fringe LCTs | Sections 4.7.3 (existing landscape character) and 4.11; (assessment of significance). |
| Policy DM4.6 *Landscape Setting of Norwich* – sets out policy aiming to protect the openness of a zone around the Southern Bypass, avoid undermining the rural character of undeveloped approaches to Norwich and specific Key Views of the city. | Section 4.7.5 (designated landscapes) |
| Policy DM4.9 *Incorporating Landscape into Design* – sets out an expectation of landscape proposals, appropriate to local character, as part of development. | Section 4.10 sets out design measures and mitigation. |

## 4.5 Consultation

4.5.1.1 Table 4.4 below summarises the issues raised relevant to landscape and visual resources, which have been identified during consultation activities to date. Table 4.4 also indicates either how these issues have been addressed within this Environmental Statement or how the Applicant has had regard to them. Further information on the consultation activities undertaken for Hornsea Three can be found in the Consultation Report (document reference number A5.1) that accompanies the DCO application.

Table 4.4: Summary of key consultation issues raised during consultation activities undertaken for Hornsea Three relevant to landscape and visual resources.

| Date | Consultee and type of response | Issues raised | Response to issue raised and/or where considered in this chapter |
|---|---|---|---|
| December 2016 | PINs – Scoping Report | Table 12.1 notes that there are eight national 'landscape designations' identified within the onshore ECR corridor (the Hornsea Three onshore cable corridor) (Table 2.1). The table identifies a further 22 landscape designations within 12 km of the onshore ECR corridor. | All identified landscape designations are included in the baseline assessment (section 4.7.3) and carried through to the assessment stage (section 4.11). |
| | | Table 12.3 of the Scoping Report proposes scoping out any indirect impacts that fall outside the influence of the Zone of Theoretical Visibility (ZTV) for all phases of the development. Visual impacts from the offshore HVAC booster stations are scoped out on the grounds that they are too far offshore to have any significant visual impacts onshore. Impacts of the onshore ECR [cable] corridor are scoped out for the operational stage on the grounds that there will be no significant changes to landscape character or visual amenity as the cable will be buried underground. The Secretary of State agrees that the matters identified in Table 12.3 can be scoped out of the landscape and visual impact assessment (LVIA). | These items have been scoped out and justification for doing so is set out in Table 4.7. |
| December 2016 | PINs – Scoping Report | The Secretary of State recognises that the proposed study area for the landscape and visual resources assessment is broad at this stage and welcomes that the study area, including the locations of the substation and HVAC booster station (if required), will be refined by making use of the Scottish Natural Heritage 2014 guidance and the application of a ZTV. The Environmental Statement should describe the ZTV model used, and provide information on the area covered, the timing of any survey work, and the methodology used. The Secretary of State welcomes that the locations of viewpoints will be agreed with the local authorities. | The study areas presented for the various elements of this assessment are described at section 4.3 and volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology. The study areas have been identified based a review of the ZTVs and field work. The ZTVs are presented at Figure 4.5 and Figure 4.6, and the method used for their preparation is described in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, Appendix A: ZTV and Photomontage Methodology. The number and location of representative viewpoints within the Hornsea Three landscape and visual resources study areas for the onshore HVAC booster station and the onshore HVDC converter/HVAC substation have been consulted on and agreed with North Norfolk District Council (NNDC), South Norfolk District Council (SNDC), Broadland District Council (BDC), Norfolk County Council (NCC) and the Norfolk Coast Partnership (NCP). The LVIA methodology is described at volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology. The field work undertaken is discussed in section 4.6.3. |
| | | The Secretary of State notes that Figure 12.1 of the Scoping Report identifies a number of relevant designations that lie outside but in proximity to the study area (defined as land within the onshore ECR corridor search area above MLWS), such as, for example, The Broads, which is in the vicinity of the potential location of the electrical connection point. However, paragraph 12.1.10 and the accompanying Table 12.1 suggest that features outside the study area, such as Registered Parks and Gardens (also considered in the Historic Environment section), will be considered in the assessment, although The Broads is not listed. The Secretary of State recommends that consideration is given to such features when defining the study area, and that the study area is described clearly and consistently in the Environmental Statement. The Applicant's attention is drawn to the comments of NE in their scoping response in respect of the Norfolk Coast AONB. | The study areas for the onshore cable corridor, the onshore HVAC booster station and the onshore HVDC converter/HVAC substation are illustrated on Figure 4.1, and described at section 4.3 and volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology. The effects upon all landscape designations within the study areas are considered within this chapter. Registered Parks and Gardens are a heritage designation and effects on them are not considered within this chapter, but are assessed in volume 3, chapter 5: Historic Environment. |
| | | The Secretary of State welcomes the proposal to use photomontages, wirelines and annotated Viewpoints to illustrate the outcomes of the field surveys. | Wirelines of the onshore HVAC booster station and the onshore HVDC converter/HVAC substation from the representative viewpoints that show the maximum design scenario, and photomontages that show illustrative schemes from selected viewpoints are include in volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages. |
| | | The Secretary of State notes and welcomes the reference to the application of the guidance on cumulative assessments contained in the 'Guidelines for Landscape and Visual Impact Assessment'. | Cumulative methodology is presented at section 4.12 and the cumulative assessment is presented at section 4.14. |
| December 2016 | PINs – Scoping Report | Cross-reference should be made from this topic chapter of the Environmental Statement to the Historic Environment and Ecology and Nature Conservation Environmental Statement chapters. | Cross references have been made to all relevant chapters within the Environmental Statement. |
| | | The Secretary of State recommends that draft versions of the Code of Construction Practice (CoCP) and Written Scheme of Investigation (WSI) and landscape planting proposals are submitted with the DCO application and agreed with relevant statutory consultees. | An Outline LMP (document reference A8.7) for the onshore cable corridor, onshore HVAC booster station and the onshore HVDC converter/HVAC substation is submitted with the Environmental Statement and will be agreed with relevant statutory consultees, presenting landscape proposals including planting mixes. An Outline CoCP (document reference A8.5) is also submitted presenting strategies, control measures and monitoring procedures for managing the potential environmental impacts of constructing the onshore elements of Hornsea Three. These documents are intended to help limit effects during construction and operation phases. |

| Date | Consultee and type of response | Issues raised | Response to issue raised and/or where considered in this chapter |
|---|---|---|---|
| | | The Secretary of State recommends that the physical scope of the study areas should be identified for each of the environmental topics and should be sufficiently robust in order to undertake the assessment. This should include at least the whole of the application site, and include all offsite works. For certain topics, such as landscape and transport, the study area will need to be wider. The extent of the study areas should be on the basis of recognised professional guidance and best practice, whenever this is available, and determined by establishing the physical extent of the likely impacts. The study areas should also be agreed with the relevant consultees and, where this is not possible, this should be stated clearly in the Environmental Statement and a reasoned justification given. | The Hornsea Three landscape and visual resources study areas for the onshore cable corridor, the onshore HVAC booster station and the onshore HVDC converter/HVAC substation are illustrated on Figure 4.1, and described, including reasoning, at section 4.3 and volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology. |
| | | The assessment should consider:<br>• Environmental impacts during construction works;<br>• Environmental impacts on completion/operation of the proposed development;<br>• Where appropriate, environmental impacts a suitable number of years after completion of the proposed development (for example, in order to allow for traffic growth or maturing of any landscape proposals); and<br>• Environmental impacts during decommissioning. | The assessment of landscape and visual impacts has been undertaken at construction, operation and maintenance, and decommissioning phases. Assessment during the operation and maintenance phases includes potential changes over time as proposed planting matures (sections 4.11 to 4.14). |
| Within Scoping Report dated December 2016 | Historic England – in appendix of Scoping Report | We note that registered parks & gardens are considered as landscape designations within the Landscape and Visual Impact chapter. We will highlight that these are designated heritage assets (as defined and identified within the NPPF) and should therefore also be considered within the historic environment chapter (with regarded and reference to the LVIA) and in-line with the relevant criteria and methodology as set out above. | The setting of Registered Parks and Gardens, as heritage assets are considered within volume 3, chapter 5: Historic Environment. They are not a landscape designation and effects on them are not assessed within this chapter. This has changed from the PEIR stage to ensure compliance with best practice guidance. |
| Within Scoping Report dated December 2016 | Natural England – in appendix of Scoping Report | Natural England is the statutory adviser to Government on nature conservation in England and promotes the conservation of England's wildlife and natural features. With regards to landscape and visual impacts we only advise where highly sensitive visual receptors are located within a designated landscape and are undertaking 'countryside recreations activities' (walking, riding bikes etc.), where the appreciation of the visual amenity provided by the designated landscape is an important aspect of their experience. | Visual receptors within designated landscapes are considered in the assessment within this chapter. |
| Within Scoping Report dated December 2016) | Natural England – in appendix of Scoping Report | As infrastructure associated with the proposed wind farm is evidently near the Norfolk Coast Area of Outstanding Natural Beauty (AONB), consideration should be given to the direct and indirect effects upon this designated landscape. In particular consideration should be given to the effect upon its purpose for designation, as well as the content of its management plan. | The effects of the proposals on the Norfolk Coast AONB are considered in sections 4.11 to 4.14. |
| Within Scoping Report dated December 2016 | Natural England – in appendix of Scoping Report | The EIA should include a full assessment of the potential impacts of the development on local landscape character using landscape assessment methodologies. We encourage the use of Landscape Character assessment (LCA), based on the good practice guidelines produced jointly by the Landscape Institute and Institute of Environmental Assessment in 2013. LCA provides a sound basis for guiding, informing and understanding the ability of any location to accommodate change and to make positive proposals for conserving, enhancing or regenerating character, as detailed proposals are developed.<br>Natural England supports the publication Guidelines for Landscape and Visual Impact Assessment, produced by the Landscape Institute and the Institute of Environmental Assessment and Management in 2013 (3rd edition). The methodology set out is almost universally used for LVIA. | The baseline landscape character, including reference to landscape character assessments, is presented in section 4.7. Effects on landscape character are set out in sections 4.11 to 4.14.<br>A full LVIA has been undertaken following the Guidelines for Landscape and Visual Assessment: Third Edition and is presented in this chapter. |
| Within Scoping Report dated December 2016 | Norfolk County Council – in appendix of Scoping Report | The County Council welcomes reference on pages 309 (Ecology) and 322 (landscape) to the need to take into account the onshore cumulative impacts arising from this and other proposals/developments. The EIA should consider the opportunities for any potential synergy with other planned/proposed wind farms (i.e. the Vanguard and Boreas Wind Farm Proposals) particularly in relation to the possibility of sharing onshore infrastructure such as cable corridors; relay stations and substation connection points. | An assessment of potential cumulative impacts is included at section 4.14, including assessments with relevant wind farms. |

| Date | Consultee and type of response | Issues raised | Response to issue raised and/or where considered in this chapter |
|---|---|---|---|
| Within Scoping Report dated December 2016 | Norfolk County Council – in appendix of Scoping Report | For both offshore and any associated onshore development/infrastructure (e.g. work compound, sub-station; relay stations etc.) the EIA/PEIR will need to provide:<br>• An assessment of the impact of the development on the landscape and seascape character (where visible from onshore), including landscape in neighbouring counties where they fall within the zone of visual influence;<br>• An assessment of the visual intrusion caused by the development which should include the preparation of a Zone of Visual Intrusion plan/map;<br>• Photomontages illustrating the impact of the development (See also Grid Connection Issues below);<br>• An assessment of the cumulative impact of this development taken together with the other (a) operational wind farms, (b) permitted wind farms in the area and (c) development proposals likely to come forward; and<br>• An assessment of the impact of the development on the heritage landscape. | This chapter presents effects of the development on landscape character. Effects on seascape character are presented in volume 2, chapter 10: Seascape and Visual Resources.<br>ZTVs have been generated for both the onshore HVAC booster station and the onshore HVDC converter/HVAC substation and are presented at Figure 4.5 and Figure 4.6 of this chapter.<br>Wirelines of the onshore HVAC booster station and the onshore HVDC converter/HVAC substation from the representative viewpoints that show the maximum design scenario, and photomontages that show illustrative schemes from selected viewpoints are included in volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages.<br>The cumulative effects assessment is set out in sections 4.14 of this chapter.<br>The effects of the historic landscape are presented in volume 3, chapter 5: Historic Environment. |
| | | The EIA/PEIR will need to evaluate the impact on the landscape of upgrading existing roads and creating new access routes in the construction and operational phase of the project (including enhanced signage) as all of this can sub-urbanise a rural landscape. It will also need to consider how these should be mitigated, perhaps through removal and reinstatement at the end of the project. Please also refer to Highway - Traffic and Access section. | Effects on the landscape of upgrading existing roads and creating new access routes in the construction, and operation and maintenance phase of the project are considered within this chapter. Reinstatement is described in volume 1, chapter 3: Project Description. |
| | | The EIA/PEIR will need to address the impact of the wind farm on tourism, including tourism occurring in neighbouring counties, which may be affected if the natural landscape is altered sufficiently. | Effects on tourism are assessed in volume 3, chapter 10: Socio-economics. |
| Within Scoping Report dated December 2016 | Norfolk County Council – in appendix of Scoping Report | The EIA/PEIR will need to address whether the existing overhead lines and substation are sufficient to be able to cope with the Wind Farm, or whether there will need to be any upgrading of any existing overhead power lines. The EIA/PEIR should also address the cumulative impact on the Grid Network arising from any existing or proposed Wind Farm in the area.<br>In the event that new power lines are needed (or existing power lines up-graded) or any other infrastructure needs up-grading (e.g. sub-station) there will need to be a description of the route(s) including plans at an appropriate scale incorporating, for example:<br>• an assessment of their impact (e.g. photomontages etc.)<br>• details of temporary construction compounds<br>• identification of any sensitive features along the route<br>The EIA/PEIR should consider the possibility of putting over-head power lines underground in order to minimise their impact. | No new overhead lines are proposed as part of Hornsea Three.<br>The cumulative effects assessment is set out in sections 4.14. |
| May 2017 to March 2018 | Norfolk County Council, meetings and email exchange | LVIA methodology, viewpoint locations. | Draft summary method and viewpoint locations sent to NCC 18 January 2017.<br>Report on type, number and format of visualisations sent to NCC, SNDC, NNDC and NCP on 21 December 2017. Response received from NCC 12 January 2018 agreeing approach.<br>Report on method for assessing effects of offshore booster station on land based receptors, and viewpoints within the AONB sent to NCC, SNDC, NNDC and BDC on 21 December 2017. Response received from NCC 12 January 2018 agreeing approach.<br>The final updated LVIA method is described in section 4.9 and volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology. The final updated method has not been consulted on, although it is robust and in compliance with GLVIA3. |

| Date | Consultee and type of response | Issues raised | Response to issue raised and/or where considered in this chapter |
|---|---|---|---|
| December 2016 to March 2018 | North Norfolk District Council, meetings and email exchange | LVIA methodology, viewpoint locations, presentation of visualisations – agreement on the type, number and format. | Discussions on draft summary method and viewpoint locations at meetings on 07 February 2017 and 14 June 2017.<br>Report on type, number and format of visualisations sent to NCC, SNDC, NNDC and NCP on 21 December 2017. No response received from NNDC.<br>Report on method for assessing effects of offshore booster station on land based receptors, and viewpoints within the AONB sent to NCC, SNDC, NNDC and BDC on 21 December 2017. No response received from NNDC.<br>The final updated LVIA method is described in section 4.9 and volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology. The final updated LVIA method has not been consulted on although it is robust and in compliance with GLVIA3. |
| December 2016 to March 2018 | South Norfolk District Council | LVIA methodology, viewpoint locations presentation of visualisations – agreement on the type, number and format, substation design, planting specifications. | Discussions on draft summary method, viewpoint locations and design matters discussed at meetings on 18 January 2017 and 14 June 2017.<br>Report on type, number and format of visualisations sent to NCC, SNDC, NNDC and NCP on 21 December 2017. SNDC responded 17 January 2018 agreeing approach. Stated that they would like visualisations based on photography from the A47. There are no locations to stop on the A47 as it passes the site to take photography so photos were taken from a moving car and are presented in volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages.<br>The final updated LVIA method is described in section 4.9 and volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology. The final updated LVIA method has not been consulted on although it is robust and in compliance with GLVIA3.<br>Planting proposals and landscape design approach for the onshore HVAC booster station and the onshore HVDC converter/HVAC substation are presented in the Outline LMP (document reference A8.7). |
| December 2017 | Broadland District Council | Presentation of visualisations – agreement on the type, number and format, | Report on type, number and format of visualisations sent to NCC, SNDC, NNDC and NCP on 21 December 2017. No response received from BDC. |
| December 2017 and January 2018 | Norfolk Coast Partnership | Viewpoints within the AONB, method for assessing effects of offshore HVAC booster station on land based receptors within the AONB. | Report on method for assessing effects of offshore booster station on land based receptors, and viewpoints within the AONB sent to NCC, SNDC, NNDC and BDC on 21 December 17. First response received from BDC on 22 December 2017 and second response on 23 January 2018 agreeing approach. |
| March and April 2017 | Natural England | LVIA methodology, viewpoint locations. | Email received from NE 10 March 2017 stating that they agree with the draft summary methodology and that the local planning authorities are better placed to comment on viewpoint locations. |

## 4.6 Methodology to inform the baseline

4.6.1.1 This methodology relates to the baseline conditions which were identified by a desktop review of:

- Published seascape and landscape character assessments;
- Ordnance Survey 1:25,000 mapping; and
- Aerial photography.

4.6.1.2 A number of site visits were also conducted in order to establish the existing landscape character and to identify the likely views available for the various landscape and visual receptors that are located within landscape and visual resources study areas defined in section 4.3.

### 4.6.2 Desktop study

4.6.2.1 Information on the landscape and visual resources within the landscape and visual resources study areas (as defined in section 4.3) was collected through a detailed desktop review of existing studies and datasets. These are summarised at Table 4.5.

Table 4.5: Summary of key desktop reports.

| Title | Source | Year | Author |
|---|---|---|---|
| Seascape Characterisation around the English Coast (Marine Plan Areas 3 and 4 and Part of Area 6 Pilot Study) Report no. NECR106 | Natural England website | 2012 | URS Scott Wilson for Natural England |
| National Character Area Profiles | UK Government website | 2014 | Natural England |
| North Norfolk Landscape Character Assessment | North Norfolk District Council website | 2009 | North Norfolk District Council Planning Policy Team |
| Broadland District Landscape Character Assessment | Broadland District Council website | 2008 (updated 2013) | Chris Blandford Associates |
| South Norfolk District Landscape Character Assessment | South Norfolk District Council website | 2001 (updated 2006 and 2008) | Land Use Consultants |
| South Norfolk District Landscape Designations Review | South Norfolk District Council website | 2012 | Chris Blandford Associates |
| Norfolk Coast Area of Outstanding Natural Beauty Integrated Landscape Guidance | Norfolk Coast AONB website | 2014 | Norfolk Coast Partnership |
| Norfolk Coast Area of Outstanding Natural Beauty Management Plan Strategy 2014-19 | Norfolk Coast AONB website | 2014 | Norfolk Coast Partnership |

*Identification of designated sites*

4.6.2.2 All designated sites within the landscape and visual resources study areas that could be affected by the construction, operation and maintenance, and decommissioning of the onshore elements of Hornsea Three (as well as compounds, storage areas and accesses) were identified using the three step process described below:

- Step 1: All landscape designations of international, national and local importance within the Hornsea Three landscape and visual resources study areas were identified using a number of sources. The designated sites include The Broads, the North Coast AONB and a number of other areas protected by local policy.
- Step 2: Information was compiled on the relevant features for each of these landscape designations.
- Step 3: Using the above information and expert judgement, landscape designations were included for further consideration if:
  - A landscape designation directly overlaps with Hornsea Three; or
  - Landscape designations and associated features were located within the Hornsea Three landscape and visual resources study areas.

4.6.2.3 Designated landscapes considered in this assessment are illustrated on Figure 4.1 and discussed in further detail at section 4.7.

### 4.6.3 Site specific surveys

4.6.3.1 A series of site visits were undertaken to survey the Hornsea Three onshore cable corridor, the onshore HVAC booster station, the onshore HVDC converter/HVAC substation and the surrounding areas to verify the documented landscape and visual baseline; select and photograph viewpoints; and assess the effects of the Hornsea Three on landscape and visual resources.

4.6.3.2 Viewpoint locations were selected as a result of field work and desktop surveys that included the generation of ZTVs, as well as through consultation with NCC, NNDC, BDC, SNDC and NCP. The viewpoints are designed to provide a representation of views available in a variety of directions and from a variety of distances. The viewpoints are located on publicly accessible locations such as Public Rights of Way (PRoW) and coincide with the ZTV. Site visits were undertaken on 16, 17 and 23 November 2017 to confirm the Hornsea Three landscape and visual resources study areas and undertake photography, and 17, 18 and 19 January 2018 to undertake photography and impact assessment. Site visits were undertaken during winter and in good visibility. The assessment allows for seasonal variation in vegetation patterns.

## 4.7 Baseline environment

4.7.1.1 This section reviews the landscape and visual resources that are within the landscape and visual resources study areas, utilising the ZTVs, ZVIs and site assessment work to scope out receptors where significant effects are unlikely to occur.

4.7.1.2 Due to the differences in the extents of the landscape and visual resources study areas for the onshore cable corridor (including compounds, storage areas and accesses) and the onshore HVAC booster station and onshore HVDC converter/HVAC substation, this chapter considers the baseline environment of these different elements separately.

## 4.7.2 Zone of Theoretical Visibility (ZTV) and Zone of Visual Influence (ZVI) studies

4.7.2.1 The ZTV and ZVI studies of the onshore HVAC booster station and onshore HVDC converter/HVAC substation are presented on Figure 4.5 and Figure 4.7. These have been used in combination with further desk study and fieldwork to identify landscape and visual receptors unlikely to be influenced by the proposed onshore HVAC booster station and onshore HVDC converter/HVAC substation.

*ZTVs*

4.7.2.2 The ZTV studies were generated, based on the maximum design scenarios for the onshore HVAC booster station and onshore HVDC converter/HVAC substation. The analysis was carried out using a topographic model and including settlements and woodlands (with heights derived from NEXTMAP 25 surface mapping data) as visual barriers.

4.7.2.3 The ZTV studies were used to aid the identification of those receptors that are likely to be most affected by the proposed development and those where potential visibility is so limited that significant effects would not occur and further consideration is unnecessary. However, areas shown as having potential visibility may have visibility of the development screened by local features such as trees, hedgerows, embankments or buildings that are not included in the model.

*ZVIs*

4.7.2.4 As noted above, areas shown as having theoretical visibility may have visibility of Hornsea Three screened by local features such as trees, hedgerows, embankments or buildings. The anticipated main area of visibility, based on site observations, is annotated on Figure 4.5 and Figure 4.7 as the ZVI. These are described in the following paragraphs.

ZVI of the onshore HVAC booster station

4.7.2.5 Site observations confirm that extensive vegetation within the wider landscape would notably reduce the extent of visibility of the onshore HVAC booster station from that illustrated by the ZTV. Across the onshore HVAC booster station study area vegetation cover is much more extensive than indicated by the ZTV; field boundaries are typically formed from mature hedgerows with some hedgerow trees and areas of trees and scrub, and there is extensive tree and vegetation cover within and on the edge of settlements. The ZVI would be confined to the area shown on Figure 4.5 comprising an area of arable farmland west of woodlands which lie immediately east of the proposed onshore HVAC booster station, only extending east of the onshore HVAC booster station for a short distance between at Barringham Green Plantation and New Covert. The ZVI would extend up to approximately 1 km from the HVAC booster station east of Edgefield Street, and up to approximately 1.5 km to the south west in the vicinity of Viewpoint BS4 (see Figure 4.5 and volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages).

4.7.2.6 Beyond these areas, there are isolated locations from where the onshore HVAC booster station would be visible that are not included in the ZVI because they are small areas and the onshore HVAC booster station would have limited influence on views – for example in the vicinity of Viewpoint BS2 to the east (see Figure 4.5 and volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages).

ZVI of the onshore HVDC converter/HVAC substation

4.7.2.7 Site observations confirm that extensive vegetation within the wider landscape would notably reduce the extent of visibility of the HVDC converter/HVAC substation from that illustrated by the ZTV. Across the onshore HVDC converter/HVAC substation study area vegetation cover is much more extensive than indicated by the ZTV; field boundaries are typically formed from mature hedgerows with some hedgerow trees and areas of trees and scrub, and there is extensive tree and vegetation cover within and on the edge of settlements and along roads. The ZVI would be confined to the area shown on Figure 4.7 comprising:

- An area of predominantly arable farmland south of the site up to Gowthorpe Manor and local roads west and east of Gowthorpe Manor. As far south east as Norwich Main substation. Up to approximately 1 km from the onshore HVDC converter/HVAC substation;
- An area of predominantly arable farmland west of the site up to Intwood Lane. Up to approximately 0.9 km from the onshore HVDC converter/HVAC substation;
- An area of farmland and parkland around Keswick Hall, and a park and ride site north of the A47. Up to approximately 1.2 km from the onshore HVDC converter/HVAC substation; and
- Arable fields up to trees and woodland that lies west of an existing quarry and vegetation around Mangreen Hall. Up to approximately 0.4 km from the onshore HVDC converter/HVAC substation.

4.7.2.8 Beyond these areas there are isolated locations from where the proposed onshore HVDC converter/HVAC substation would be visible that are not included in the ZVI because they are small areas and the onshore HVDC converter/HVAC substation would have limited influence on views – for example in the vicinity of Viewpoints SS1 and SS5 to the east, SS4 and SS7 to the north and north west, and SS3 to the west (see Figure 4.7 and volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages).

## 4.7.3 Landscape Baseline

4.7.3.1 Landscape and seascape character assessments have been published by Natural England, the District Councils and the AONB Partnership.

National Seascape Character Areas (NSCAs)

4.7.3.2 In October 2012, Natural England published the final version of Report NECR106 'Seascape Characterisation around the English Coast (Marine Plan Areas 3 and 4 and Part of Area 6 Pilot Study)'. The document identifies NSCAs which present the seascape character baseline at a national level. The only NSCA that fall within the Hornsea Three landscape and visual resources study areas are Norfolk Coastal Waters and East Midlands Coastal Waters, which fall within the onshore cable corridor study area, as illustrated on Figure 4.2. There are no NSCAs within the onshore HVAC booster station or onshore HVDC converter/HVAC substation study areas. Given the short term and limited extent of the construction activities associated with the onshore cable corridor, there would be no significant effects on seascape character and so effects on these NSCAs are not considered further.

National Character Areas

4.7.3.3 Natural England has produced a series of national countryside character reports, which identify the baseline landscape character of England at a national level. The NCAs that are coincident with at least one of the landscape and visual resources study areas are:

- NCA77: North Norfolk Coast;
- NCA78: Central North Norfolk;
- NCA83: South Norfolk and High Suffolk Claylands; and
- NCA84: Mid Norfolk.

4.7.3.4 Key characteristics for these NCAs are outlined in volume 6, annex 4.2: Extracts from National Landscape Character Area Descriptions, and the location of onshore elements of Hornsea Three in relation to them is illustrated on Figure 4.2.

4.7.3.5 Paragraphs 5.13-5.15 of GLVIA3 indicates that landscape character studies at the national or regional level are best used to "*set the scene*" and understand the landscape context. It indicates that Local Authority Assessments provide more detail and that these should be used to form the basis of the assessment of effects on landscape character, as such effects on NCAs are not considered further.

Local Landscape Character

4.7.3.6 North Norfolk, Broadland and South Norfolk Districts each have local landscape character assessments, which are referred to below. Extracts of each of these are included volume 6, annex 4.3: Extracts from Local Landscape Character Descriptions.

*Onshore Cable Corridor*

Local Landscape Character

4.7.3.7 Local landscape character baseline within the Hornsea Three onshore cable corridor study area is defined by the following assessments:

- Norfolk Coast AONB Integrated Landscape Guidance;
- North Norfolk Landscape Character Assessment;
- Broadland District Landscape Character Assessment; and
- South Norfolk District Landscape Character Assessment.

4.7.3.8 The Norfolk Coast AONB guidance notes at section 2.1 that it *"does not seek to override the detailed information contained in each of the district-based landscape character assessment reports; instead it summarises and presents information from the detailed reports in a consistent, user-friendly format which relates to the landscapes of the AONB."* As this guidance defers to the North Norfolk Landscape Character Assessment, which also covers a greater extent of the onshore cable corridor study area, the North Norfolk assessment will be considered as the baseline and the AONB guidance will not be considered further.

4.7.3.9 Given the limited spatial extent of the onshore cable corridor in relation to individual LCAs and the nature of potential effects (i.e. short-term construction activity followed by landscape reinstatement) the only LCAs likely to experience notable effects as a result of the construction of the Hornsea Three onshore cable corridor are those that are coincident with it. LCAs that fall within the onshore cable corridor study area for the onshore cable corridor but outside of the corridor itself would experience no direct effects and are therefore excluded from detailed consideration. LCAs within the onshore cable corridor study area for the onshore cable corridor are illustrated on Figure 4.3. The following LCAs are coincident with the Hornsea Three onshore cable corridor and are considered in further detail at sections 4.11 to 4.14:

- North Norfolk Landscape Character Assessment:
  - CTV1 Weybourne to Sheringham;
  - DCM2 Blakeney, Wiveton, Cley and Salthouse;
  - RHA2 Salthouse and Kelling Area;
  - SV8 Gresham, Aldborough and Erpingham;
  - TF2 Snoring, Stibbard and Hindolveston;
  - TF3 Hempstead, Bodham, Aylmerton and Wickmere Area;
  - WP2 Holt to Cromer; and
  - WP5 Plumstead and Barningham.
- Broadland District Landscape Character Assessment:
  - A1 Wensum River Valley;
  - C1 Foulsham and Reepham Plateau Farmland;
  - D1 Cawston Tributary Farmland;
  - D2 Weston Green Tributary Farmland; and
  - E1 Blickling and Oulton Wooded Estatelands.
- South Norfolk District Landscape Character Assessment:
  - A2 Yare/Tiffey Rural River Valley;
  - A3 Tud Rural River Valley;

- B1 Tas Tributary Farmland;
- C1 Yare Tributary Farmland with Parkland;
- D1 Wymondham Settled Plateau Farmland; and
- G1 Easton Fringe Farmland.

*Onshore HVAC Booster Station*

4.7.3.10 The ZTV and ZVI studies for the onshore HVAC booster station are presented at Figure 4.5, and have been used in combination with further desk study and fieldwork to identify landscape receptors which are unlikely to have any visibility of the onshore HVAC booster station that are, as a result, not considered in further detail. Landscape receptors within the HVAC booster station study area are set out below.

Local Landscape Character

4.7.3.11 Local landscape character baseline within the Hornsea Three onshore HVAC booster station study area is defined by the following assessments:

- North Norfolk Landscape Character Assessment; and
- Broadland District Landscape Character Assessment.

4.7.3.12 The LCAs that fall within the HVAC booster station study area are illustrated on Figure 4.3, these are:

- North Norfolk Landscape Character Assessment:
  - LV5 Saxthorpe to Itteringham;
  - SV3 Thornage to Brinton;
  - SV8 Gresham, Aldborough and Erpingham;
  - TF2 Snoring, Stibbard and Hindolveston;
  - TF3 Hempstead, Bodham, Aylmerton and Wickmere Area;
  - WP2 Holt to Cromer;
  - WP4 Wolterton and Mannington Halls;
  - WP5 Plumstead and Barningham; and
  - WP7 Thursford, Swanton Novers and Melton Constable.
- Broadland District Landscape Character Assessment:
  - C1 Foulsham and Reepham Plateau Farmland; and
  - E1 Blickling and Oulton Wooded Estatelands.

4.7.3.13 Of the LCAs listed above LV5, SV3, WP2, WP7, C1 and E1 lie largely outside the onshore HVAC booster station study area. As a result, effects on these would be unlikely to be greater than negligible and they are not considered further in assessing effects of the onshore HVAC booster station.

4.7.3.14 LCAs TF2 and WP4 both show a greater degree of potential visibility although views of the onshore HVAC booster station are unlikely to have a notable effect on the character of these LCAs. In the case of WP4 views would be very constrained with only a small part of the booster station seen through or just above woodland; similar but more distant those illustrated at viewpoint BS2. Views would potentially be more open although the layering effect of intervening vegetation is likely to mean views would be heavily filtered. These two LCAs are also not considered further in assessing effects of the onshore HVAC booster station.

4.7.3.15 The remaining LCAs are considered in further detail at section 4.11.

*Onshore HVDC Converter/HVAC Substation*

4.7.3.16 The ZTV and ZVI studies for the onshore HVDC converter/HVAC substation are presented at Figure 4.7, and have been used in combination with further desk study and fieldwork to identify landscape receptors unlikely to have any visibility of the onshore HVDC converter/HVAC substation that are, as a result, not considered in further detail. Landscape receptors within the onshore HVAC booster station study area are set out below.

Local Landscape Character

4.7.3.17 Local landscape character baseline within the onshore HVDC converter/HVAC substation onshore HVAC booster station study area is defined by the following assessments:

- South Norfolk District Landscape Character Assessment; and
- Broads Landscape Character Assessment.

4.7.3.18 Only one LCA included in the Broads Landscape Character Assessment falls within the onshore HVDC converter/HVAC substation study area, 10 Yare - Whitlingham Lane and Country Park. However, the majority of this LCA is located outside the onshore HVAC booster station study area and is located approximately 4.9 km from the onshore HVDC converter/HVAC substation at its closest point. Given the distance it is unlikely to experience significant effects and is not considered in further detail.

4.7.3.19 LCAs identified in the South Norfolk assessment that fall within the onshore HVDC converter/HVAC substation study area are illustrated on Figure 4.3, these are:

- South Norfolk District Landscape Character Assessment:
  - A1 Tas Rural River Valley;
  - B1 Tas Tributary Farmland;
  - B3 Rockland Tributary Farmland;
  - B5 Chet Tributary Farmland;
  - C1 Yare Tributary Farmland with Parkland;
  - D1 Wymondham Settled Plateau Farmland;
  - D2 Poringland Settled Plateau Farmland; and
  - F1 Yare Valley Urban Fringe.

4.7.3.20 Of the LCAs listed above B3 and B5 lie largely outside the onshore HVDC converter/HVAC substation study area with their closest points at 4.8 km and 5 km away, respectively. As a result, effects on these would be unlikely to be greater than negligible and they are not considered further in assessing effects of the onshore HVDC converter/HVAC substation.

4.7.3.21 A1 lies in relatively close proximity and potential visibility is shown on the ZTV; however woodland surrounding Mangreen Quarry is likely to limit views in reality and the presence of the quarry itself mean the onshore HVDC converter/HVAC substation is unlikely to have any effect on the character of this LCA. It is therefore not considered further in assessing effects of the onshore HVDC converter/HVAC substation.

4.7.3.22 D1 and D2 fall within the Settled Plateau Farmland character type which is characterised by a greater degree of settlement than other types within the area. Although the ZTV indicates potential visibility, these LCA's are relatively distant at 1.2 km and 2.7 km respectively and the onshore HVDC converter/HVAC substation would generally be seen in the context of settlement and other infrastructure. It is unlikely that the onshore HVDC converter/HVAC substation would have a notable effect on the character of these LCAs and they are therefore not considered further in assessing effects of the onshore HVDC converter/HVAC substation.

4.7.3.23 F1 is within an urban fringe character type which in this case is heavily influenced by the A47 corridor, multiple transmission lines on large pylons and its proximity to urban areas. The onshore HVDC converter/HVAC substation would not influence the character of this area and it is therefore not considered further in assessing effects of the onshore HVDC converter/HVAC substation.

4.7.3.24 The remaining LCAs, B1 and C1, are considered in further detail at section 4.11.

### 4.7.4 Historic Landscape Characterisation

4.7.4.1 The historic landscape character that the onshore elements of Hornsea Three (including compounds, storage areas and access roads) are located within are included in volume 3, chapter 5: Historic Environment.

### 4.7.5 Designated Landscapes or Landscape Protected by Policy

*Onshore Cable Corridor*

4.7.5.1 The following designated landscapes or areas of landscape protected by policy lie within the onshore cable corridor study area, as illustrated on Figure 4.1:

- Norfolk Coast AONB;
- North Norfolk Heritage Coast;
- Setting of Sheringham Park (North Norfolk District Local Plan Policy EN2);
- River Valleys (South Norfolk Local Plan Policy DM4.5); and
- Norwich Southern Bypass Landscape Protection Zone (South Norfolk Local Plan Policy DM4.6).

4.7.5.2 Given the limited spatial extent of the onshore cable corridor in relation to these designated areas and the nature of potential effects (i.e. short-term construction activity followed by landscape reinstatement) it is unlikely that construction of the onshore cable corridor would undermine the special qualities or reasons for designation of these landscapes. Significant effects are therefore not anticipated and these designations are not considered further in relation to the onshore cable corridor.

*Onshore HVAC Booster Station*

4.7.5.3 There are no designated landscapes located within the onshore HVAC booster station study area .

*Onshore HVDC Converter/HVAC Substation*

4.7.5.4 The following designated landscapes or landscapes protected by policy lie within the onshore HVDC converter/HVAC substation study area, as illustrated on Figure 4.1:

- Broads National Park;
- River Valleys (South Norfolk Local Plan Policy DM4.5); and
- Norwich Southern Bypass Landscape Protection Zone (South Norfolk Local Plan Policy DM4.6).

4.7.5.5 The Broads National Park lies almost entirely outside of the onshore HVDC converter/HVAC substation study area, extending as a sliver no more than 350 m into the study area and falling largely outside of the ZTV and completely outside the ZVI. Effects on the Broads are therefore unlikely to be significant and this designation is not considered further in assessing effects of the onshore HVDC converter/HVAC substation.

4.7.5.6 Areas within the onshore HVDC Converter/HVAC substation study area that are covered by South Norfolk Local Plan Policy DM4.5 are coincident with the A1 and F1 character areas. These have previously been identified as unlikely to experience notable landscape effects as a result of the onshore HVDC converter/HVAC substation and thus this landscape designated by local policy is also not considered further in assessing effects of the onshore HVDC converter/HVAC substation.

4.7.5.7 Three attributes concerned with protecting the setting of Norwich and the openness of the A47 corridor are defined by South Norfolk Local Plan Policy DM4.6: The Norwich Southern Bypass Landscape Protection Zone (NSBLPZ); Key Views 'cones' and Undeveloped Approaches. The NSPLPZ and Key Views 'cones' (shown as View Cones) are illustrated on Figure 4.1. The B1113 between Swardeston and Norwich where it runs through the NSBLPZ is an Undeveloped Approach, as are other roads approaching Norwich to the west and east. . This is primarily a land use policy, such as greenbelt, rather than a landscape designation to protect inherent qualities of the landscape itself. Relevant consideration of this policy in relation to the onshore HVDC converter/HVAC substation are considered at section 4.11.

*Offshore HVAC Booster Station*

4.7.5.8 In addition the onshore elements identified in section 4.7 it was agreed through consultation (see Table 4.4) that potential visual effects on receptors on the north Norfolk coast including the Norfolk Coast AONB resulting from the offshore HVAC booster station would be considered as part of the landscape and visual resources assessment. A commentary on the effects of the offshore HVAC booster station on the Qualities of Natural Beauty of the AONB has been included within volume 6, annex 4.7: Effects of the Offshore HVAC Booster Station and summarised in section 4.16.

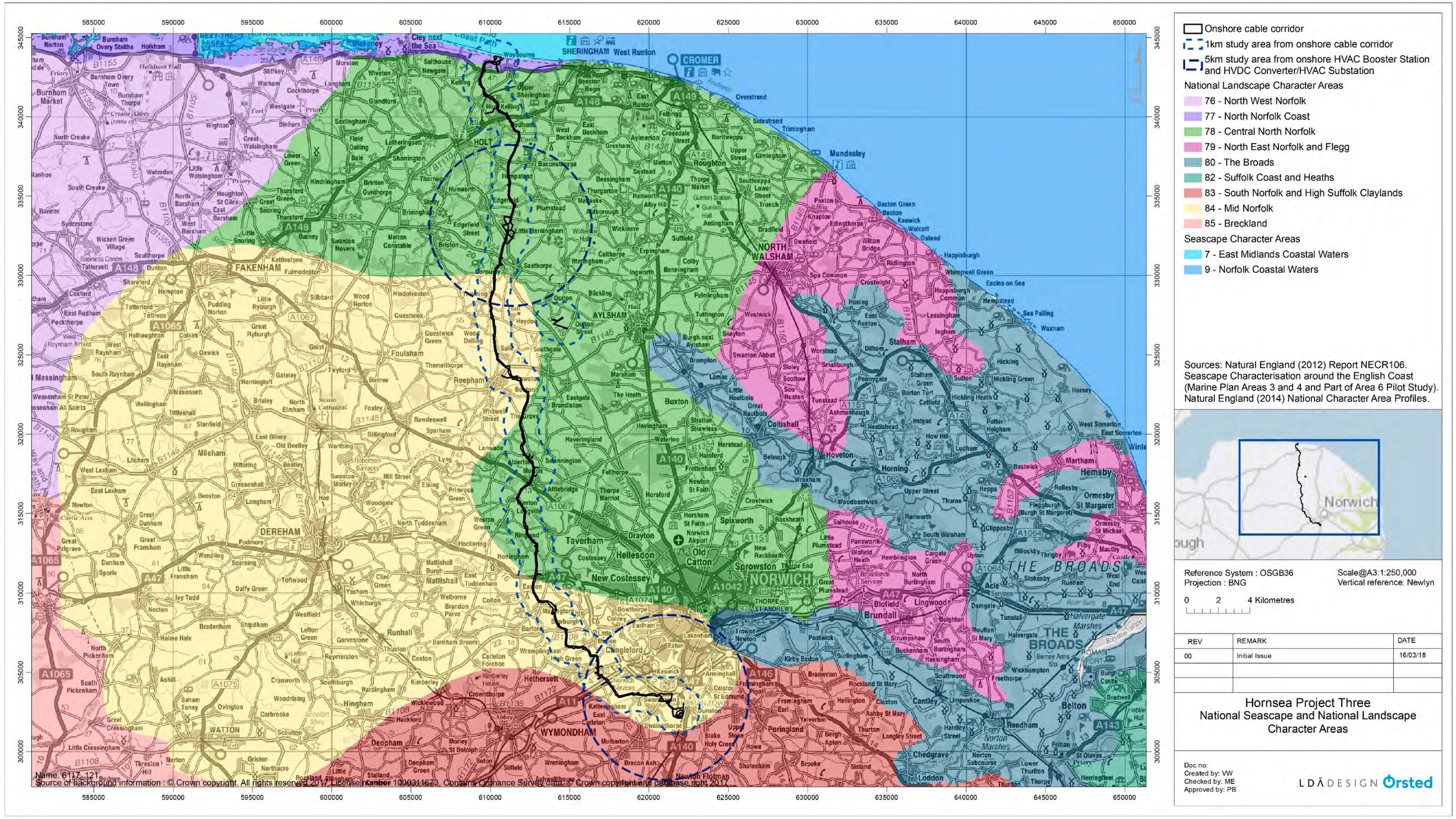


Figure 4.2: National Seascape Character Areas and National Character Areas.

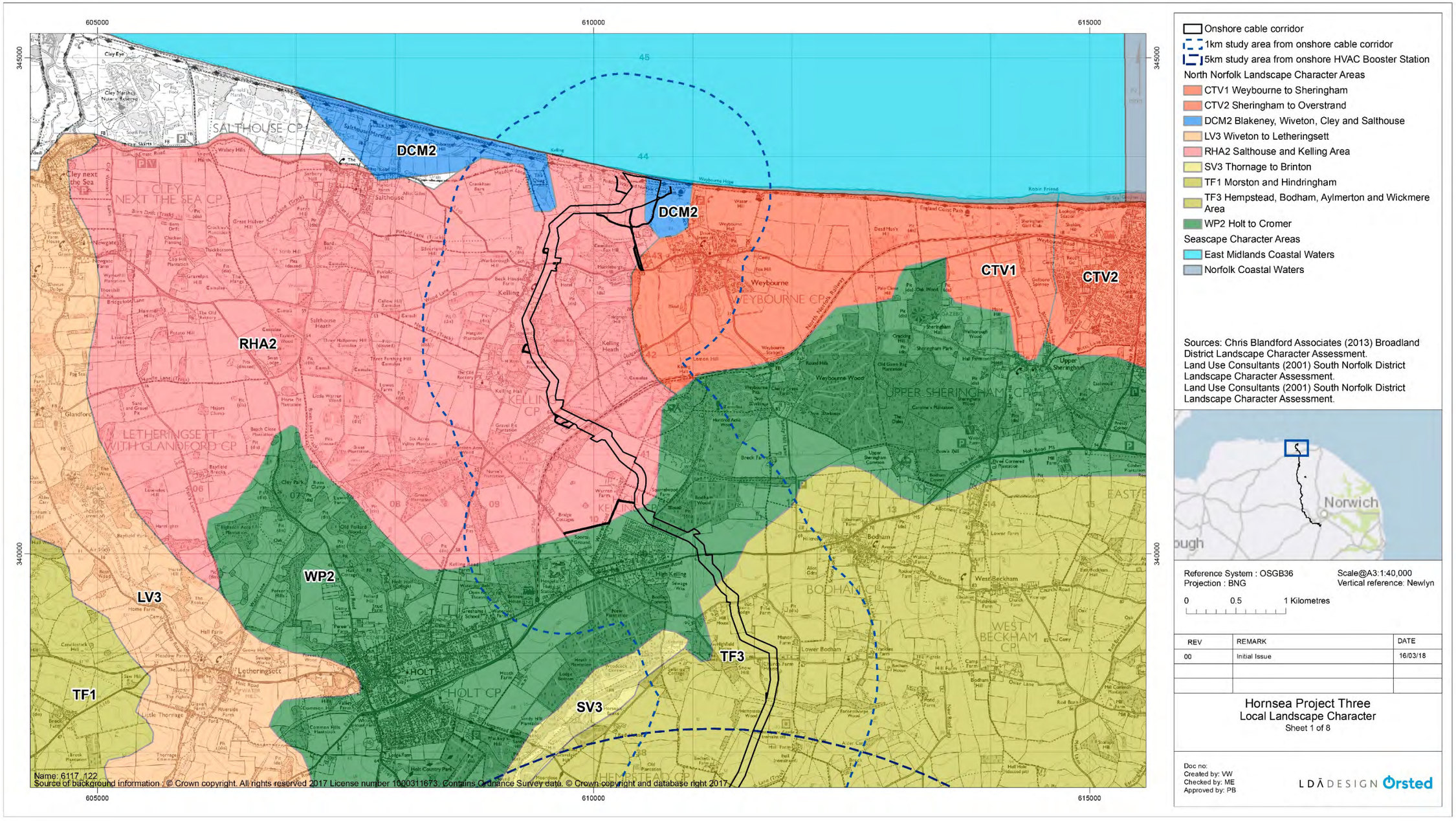


Figure 4.3: Local Landscape Character Sheet 1 of 8.

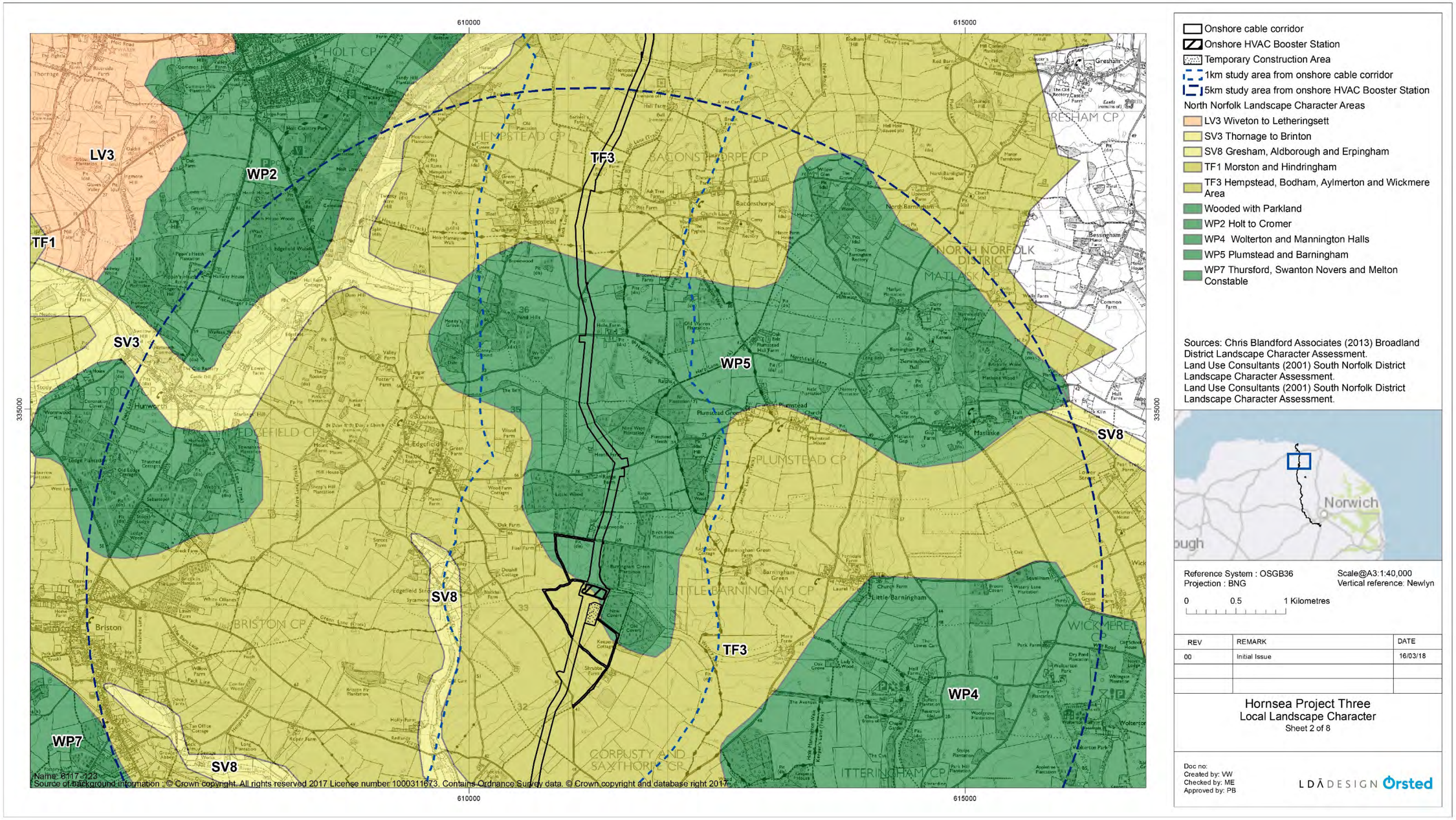


Figure 4.3: Local Landscape Character Sheet 2 of 8

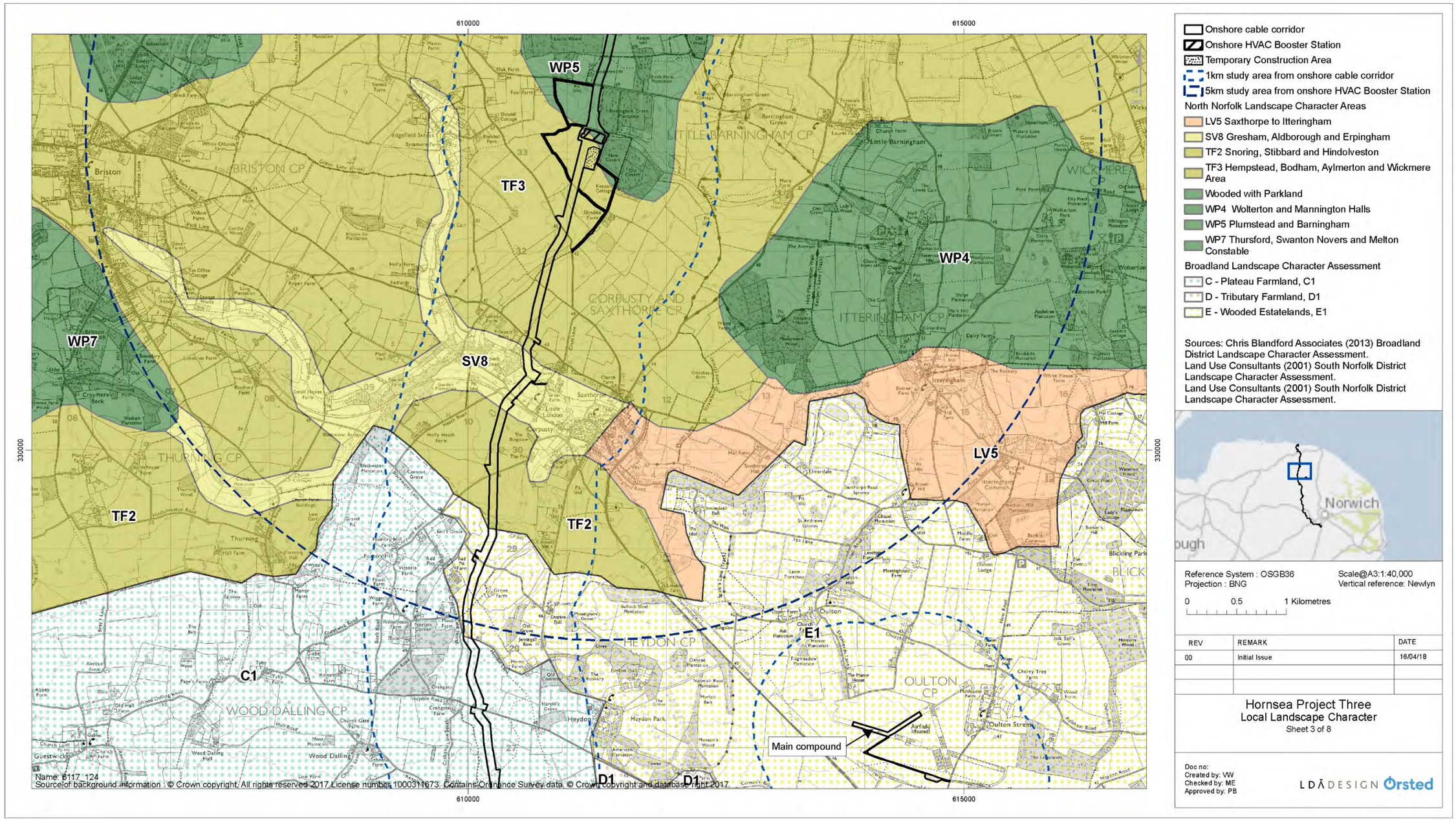


Figure 4.3: Local Landscape Character Sheet 3 of 8.

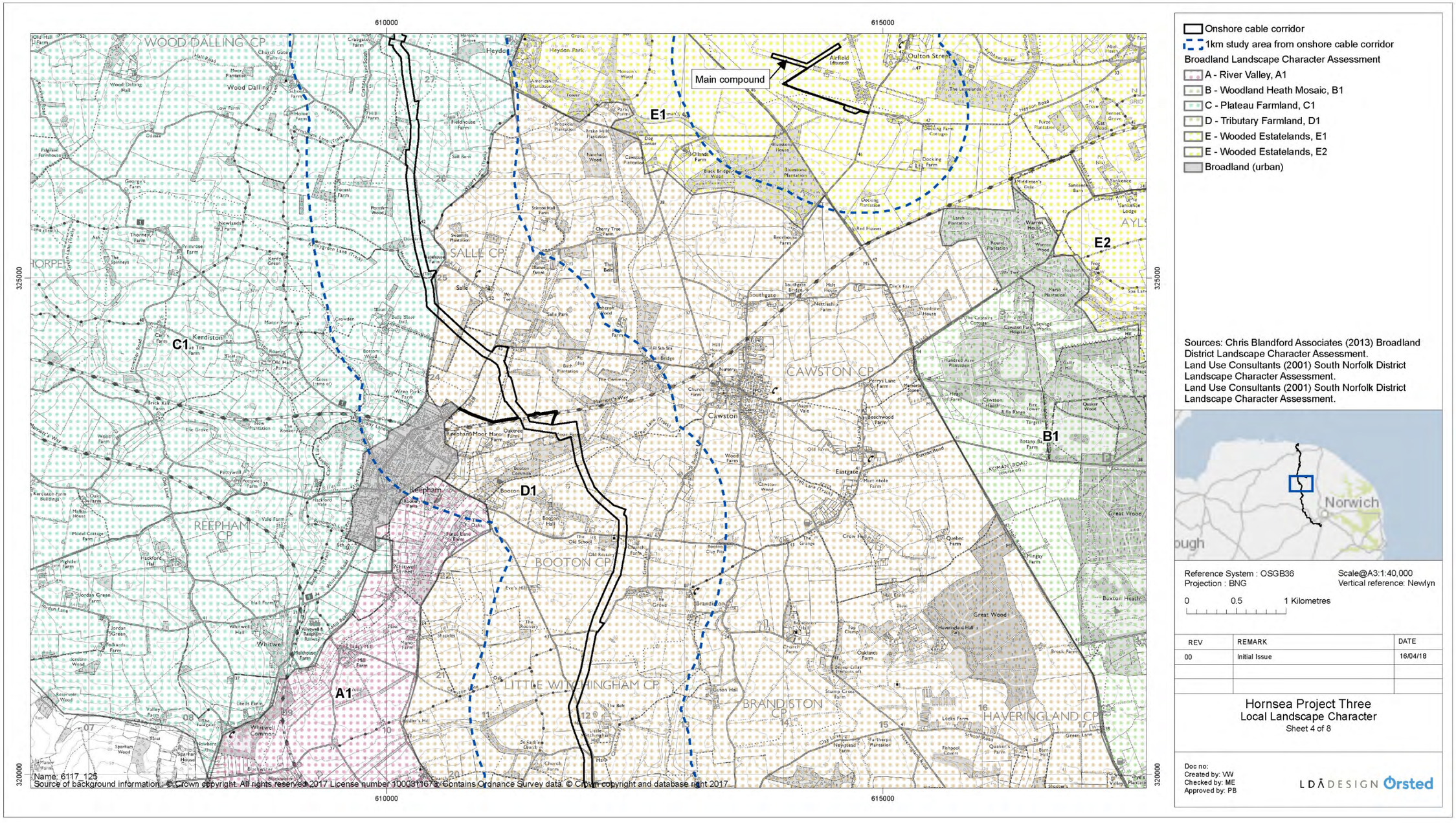


Figure 4.3: Local Landscape Character Sheet 4 of 8.

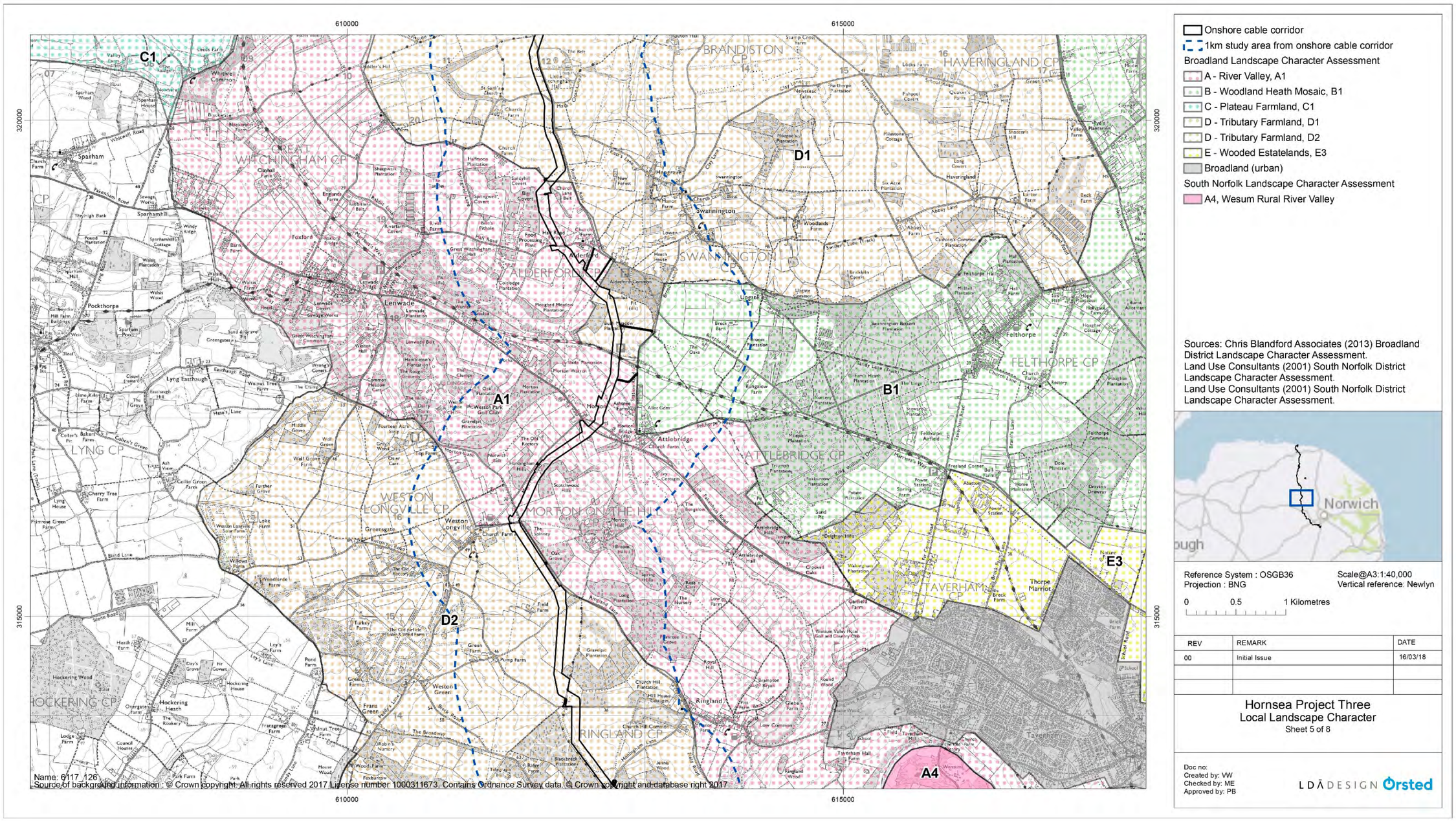


Figure 4.3: Local Landscape Character Sheet 5 of 8.

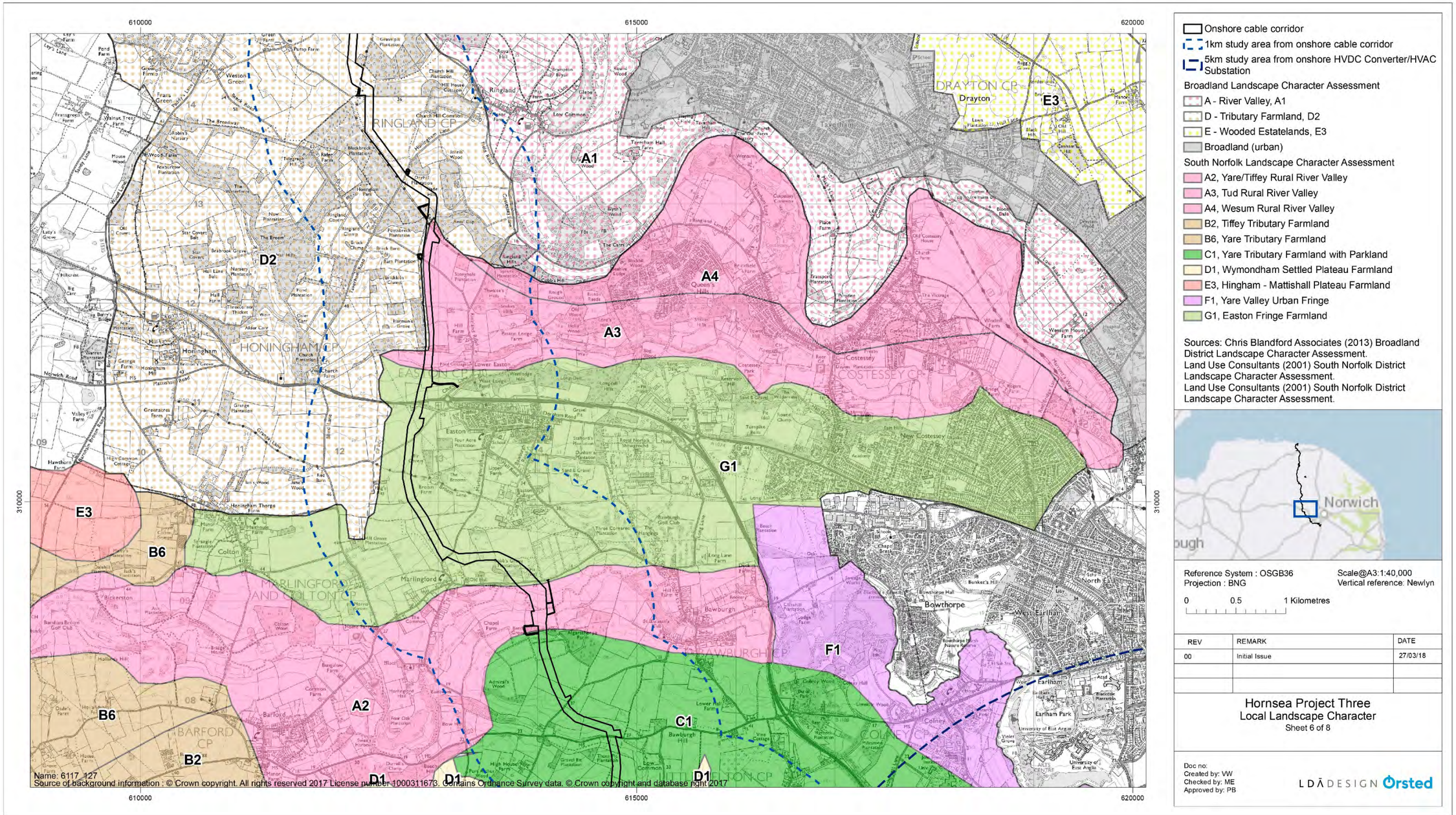


Figure 4.3: Local Landscape Character Sheet 6 of 8.

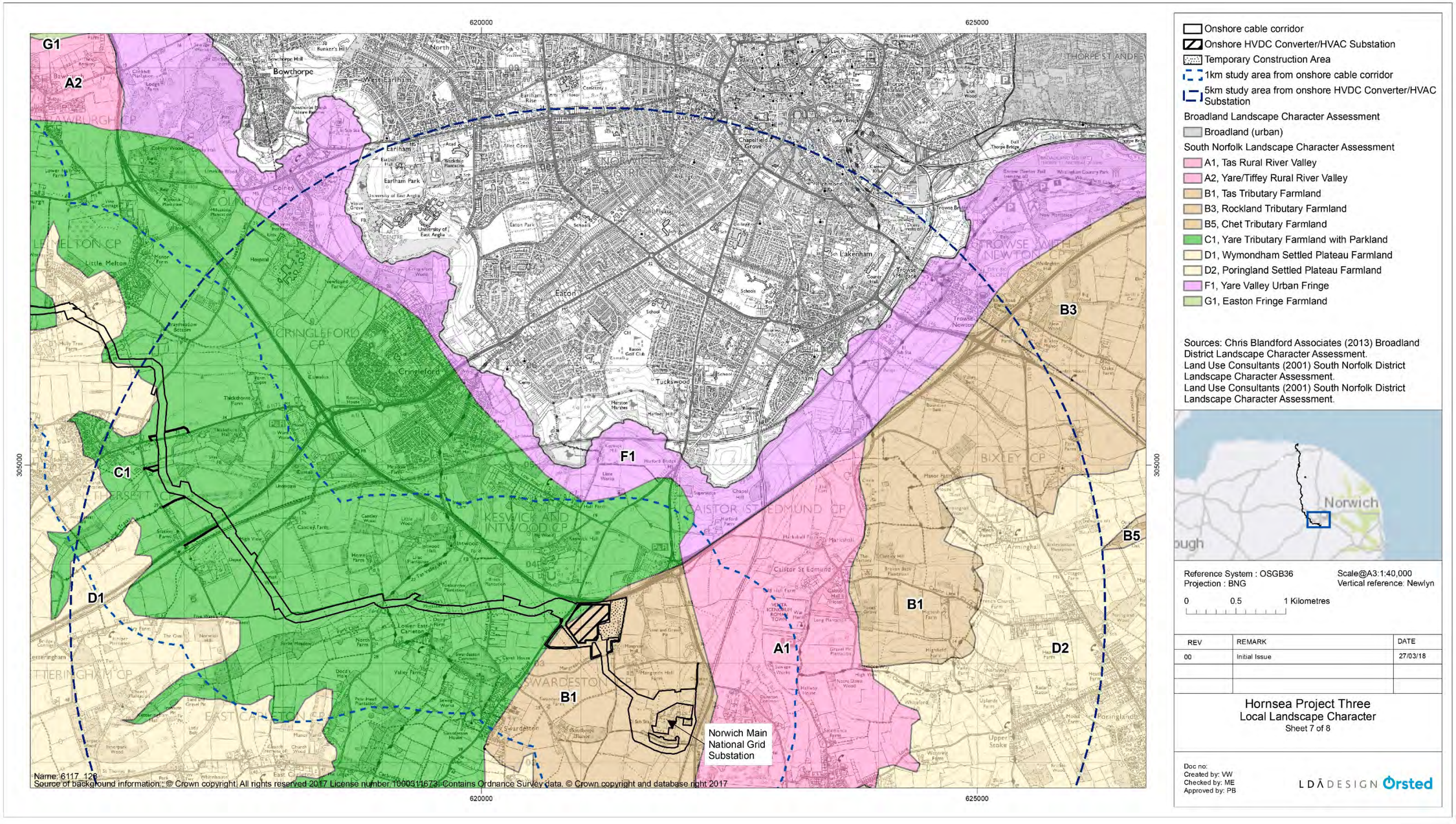


Figure 4.3: Local Landscape Character Sheet 7 of 8.

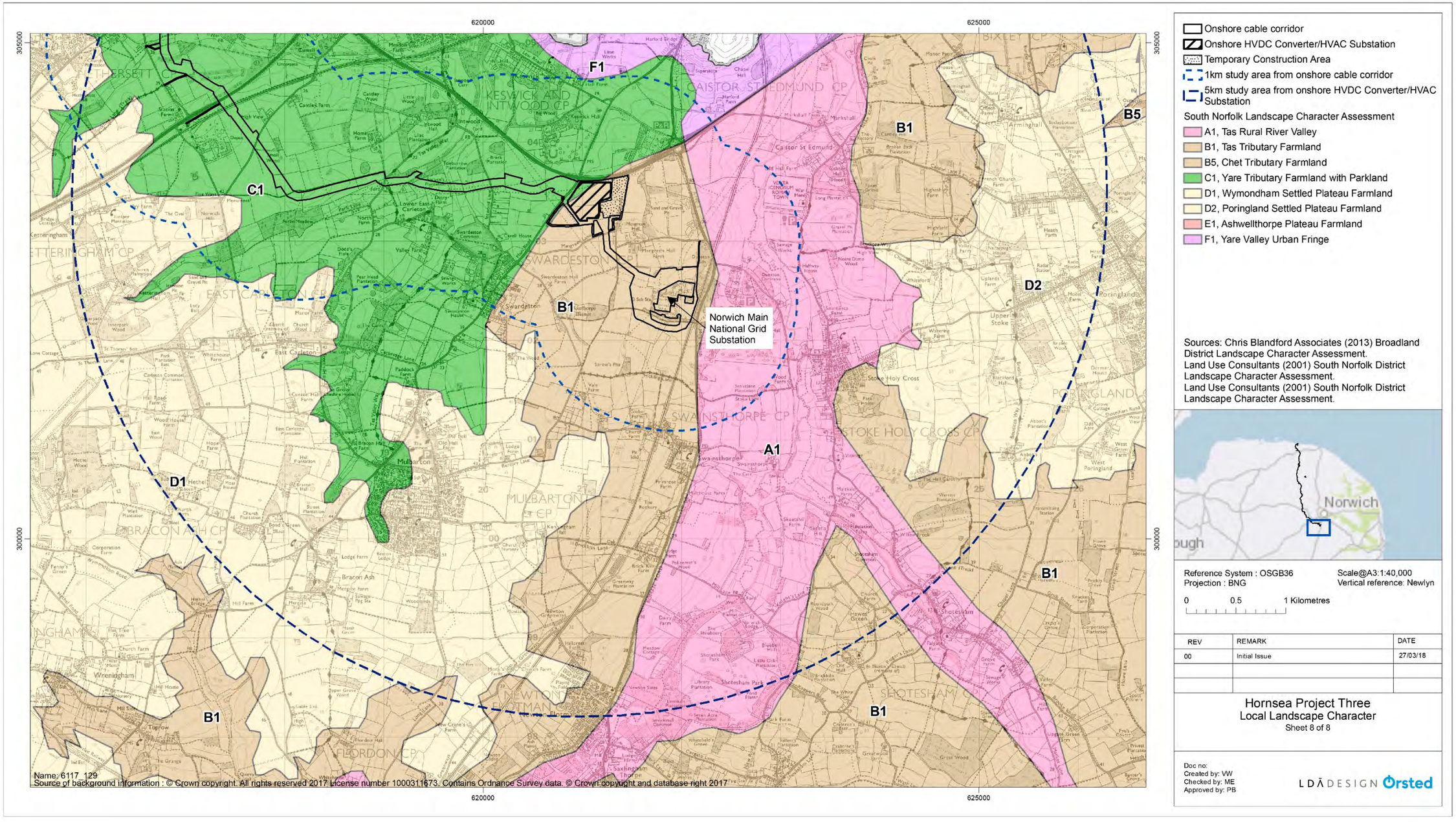


Figure 4.3: Local Landscape Character Sheet 8 of 8.

## 4.7.6 Visual Baseline

4.7.6.1 Visual receptors are "the different groups of people who may experience views of the development" (GLVIA3, para 6.3). In order to identify those groups who may be significantly affected the ZTV study, baseline desk study and site visits have been used.

4.7.6.2 The different types of groups assessed encompass residents within settlements; people using key routes such as roads; cycle ways or long distance paths; people within accessible or recreational landscapes; people using Public Rights of Way; or people visiting key viewpoints. In dealing with Public Rights of Way and local roads, receptors are grouped into areas where effects might be expected to be broadly similar, or areas which share particular factors in common.

4.7.6.3 The visual receptors that have been considered within this chapter are set out below while the sensitivity for visual receptor types is set out in section 4.9.1.

*Onshore Cable Corridor*

4.7.6.4 The onshore cable corridor study area has been determined by the footprint of the corridor, accesses, construction compounds and storage areas plus 1 km, as described in section 4.3 and illustrated on Figure 4.1. Hereafter within this chapter, 'onshore cable corridor' refers to the corridor, accesses, construction compounds and storage areas, and this is illustrated on Figure 4.1, Figure 4.2, Figure 4.3, Figure 4.4, Figure 4.5, Figure 4.6, Figure 4.7, Figure 4.8, Figure 4.9 and Figure 4.10. The study area extends broadly south from the landfall at Weybourne beach for approximately 40 km before turning southeast and continuing to where it terminates in the vicinity of the existing Norwich Main substation near Dunston, to the south of Norwich. The onshore cable corridor study area encompasses a primarily rural area incorporating areas of woodland, farmland and frequent small settlements.

4.7.6.5 The existing Oulton airfield site hosts numerous large scale agricultural sheds, poultry sheds and silos although extensive vegetation within the airfield site and around its perimeter largely screen existing buildings from publicly accessible locations in the surrounding area. The photograph panel from viewpoint CC6, illustrated on Figure 4.1 and presented in volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages, shows the most open existing view into the site although this is briefly glimpsed from a gap in a tree belt and located on a seldom used single track road. The Hornsea Three main construction compound would be located close to existing poultry sheds on the former runway in the middle of the airfield site. The nature of temporary buildings, equipment and materials stored at the main construction compound would not be fundamentally different from existing uses on the airfield site and given the extent of screening from existing vegetation it is unlikely that effects on visual receptors resulting from the Hornsea Three main construction compound would be significant; it is therefore not considered further.

4.7.6.6 Visual receptors within the onshore cable corridor study area are set out below; distances/directions stated are approximate and given from the nearest edge of the onshore cable corridor.

Settlements

4.7.6.7 In this assessment, impacts on settlements include all of the routes, public spaces, homes and businesses within them. The following settlements are located within the onshore cable corridor study area (listed north to south), with approximate distances and directions of the settlements from the onshore cable corridor noted:

- Weybourne – 300 m south east;
- Kelling – 30 m west;
- High Kelling – 30 m south;
- Hempstead – 380 m west;
- Baconsthorpe – 560 m east;
- Edgefield Street – 1 km west;
- Saxthorpe and Corpustry – 100 m south east;
- Norton Corner – 460 m west;
- Heydon – 1 km east;
- Wood Dalling – 980 m southwest;
- Reepham – 450 m south west;
- Booton – 630 m south west;
- Hengrave and Swannington – 800 m east;
- Alderford – 90 m north east;
- Attlebridge – 200 m east;
- Morton – 80 m west;
- Weston Longville – 110 m west;
- Ringland – 1 km east;
- Easton – 300 m east;
- Marlingford – 130 m south;
- Bawburgh – 1 km north west;
- Little Melton – 10 m north;
- Hethersett – 500 m west;
- Lower East Carleton – 240 m south;
- Swardeston – 640 m south;
- Dunston – 410 m east; and
- Swainsthorpe – 880 m south.

4.7.6.8 Of the settlements listed above, Edgefield Street, Heydon, Wood Dalling, Ringland, Bawburgh and Swainsthorpe all lie largely outside of the onshore cable corridor study area at a distance where construction phase impacts are unlikely to be greater than negligible and as such they are not considered in further detail in assessing effects of the onshore cable corridor. In addition to the settlements listed above there are other areas of dispersed settlement, such as isolated farms, manor houses and small hamlets, throughout the onshore cable corridor study area which may be referred to in section 4.11 as necessary.

Key Routes

4.7.6.9 The following key road, rail and recreational routes are pass within the onshore cable corridor study area (listed north to south):

- Peddars Way and Norfolk Coast Path – crosses corridor;
- A149 – crosses corridor;
- North Norfolk Railway – crosses corridor;
- A148 – crosses corridor;
- Holt-Mannington Walk – crosses corridor (two locations);
- Marriot's Way – crosses corridor (two locations);
- National Cycle Network Route 1 – crosses corridor (two locations);
- A1067 – crosses corridor;
- A47 – crosses corridor;
- A11 – crosses corridor;
- Rail line between Norwich and Wymondham – crosses corridor;
- Tas Valley Way – crosses corridor;
- Rail line between Norwich and Ipswich – 20 m east; and
- A140 – 40 m east.

4.7.6.10 Two of these routes, Marriot's Way and National Cycle Route 1, follow the same path as they pass through the onshore cable corridor study area so will be considered together. These key routes are considered in further detail at section 4.11.

Accessible and Recreational Landscapes

4.7.6.11 The following accessible and recreational landscapes are located within the onshore cable corridor study area (listed north to south):

- Weybourne Beach – corridor crosses this area;
- Fox Hill/Muckleburgh Hill – 20 m east;
- Kelling Heath – 10 m east;
- Bodham Wood – corridor crosses this area;
- Bodham Common and adjacent woodland* – 400 m south west;
- Alderford Common – 10 m north;
- Church Hill Common – 530 m east;
- Ringland Hills – 410 m south east;
- Swardeston Common – 260 m south; and
- Venta Icenorum Roman Town – 730 m south west.

4.7.6.12 Of the areas listed above Bodham Common and adjacent woodland, Alderford Common, Church Hill Common, Ringland Hills and Swardeston Common are all wooded areas from within which construction activity would be screened from view, although glimpsed views might be possible from parts of some of these areas. As a result, visual impacts on receptors in these areas are unlikely to be significant and are not considered further in assessing effects of the onshore cable corridor.

4.7.6.13 Although the Hornsea Three onshore cable corridor crosses the southern section of Bodham Wood this would be achieved using HDD. Construction activity associated with this would be located outside of the woodland and is unlikely to be visible from within the majority of the accessible landscape. As a result, visual impacts on receptors in this area are unlikely to be significant and are not considered further in assessing effects of the onshore cable corridor.

4.7.6.14 The only section of the Hornsea Three onshore cable corridor within 1 km of Venta Icenorum Roman Town is the existing access to Norwich Main substation which is surrounded by woodland. Construction activity associated with the onshore cable corridor is unlikely to be seen from Venta Icenorum and thus unlikely to be significant, as such impacts on this accessible area of landscape are not considered further in assessing effects of the onshore cable corridor.

Local Roads and Public Rights of Way

4.7.6.15 Local routes within settlements are assessed as part of the settlements identified at paragraph 4.7.6.7, all other local routes within the onshore cable corridor study area are grouped by parish for ease of reference. The following parishes contain local routes that fall within the onshore cable corridor study area (listed north to south):

- Salthouse;
- Kelling;
- Weybourne;
- High Kelling;
- Holt;
- Bodham;
- Hempstead;
- Baconsthorpe;
- Edgefield;
- Plumstead;
- Little Barningham;
- Corpustry and Saxthorpe;

- Heydon;
- Wood Dalling;
- Salle;
- Reepham;
- Cawston;
- Booton;
- Brandiston;
- Little Witchingham;
- Great Witchingham;
- Swannington;
- Alderford;
- Weston Longville;
- Attlebridge;
- Moreton on the Hill;
- Ringland;
- Honingham;
- Easton;
- Marlingford and Colton;
- Bawburgh;
- Great Melton;
- Little Melton;
- Colney;
- Hethersett;
- Cringleford;
- Ketteringham;
- Keswick and Intwood;
- East Carleton;
- Caistor St Edmund;
- Swardeston;
- Stoke Holy Cross;
- Swainsthorpe; and
- Mulbarton.

4.7.6.16 The parishes of High Kelling, Cawston, Brandiston, Great Witchingham, Colney, Cringleford, Swainsthorpe and Mulbarton all lie largely outside the onshore cable corridor study area or only have very short sections of routes within it. Overall, visual impacts on local roads and Public Rights of Way in these parishes are unlikely to be significant, due to their distance from the onshore cable corridor and very limited extent of routes within the onshore cable corridor study area, and they are therefore not considered further in assessing effects of the onshore cable corridor.

4.7.6.17 The parishes of Briston, Itteringham and Taverham fall partly within the onshore cable corridor study area although are not included in the list above as they contain no local roads or Public Rights of Way that fall within the onshore cable corridor study area. Visual impacts on local routes in these parishes are therefore not considered in in assessing effects of the onshore cable corridor.

Specific Viewpoints

4.7.6.18 No specifically promoted viewpoints or viewpoints marked on OS maps have been identified within the Hornsea Three onshore cable corridor study area.

*Onshore HVAC Booster Station*

4.7.6.19 The study area for the Hornsea Three onshore HVAC booster station has been determined by its footprint plus 5 km, as described in section 4.3 and illustrated on Figure 4.1. It encompasses a largely rural area primarily given over to agriculture with frequent small blocks of woodland and contains a number of small settlements. The landform is undulating with some shallow valleys and a low ridgeline to the north of the onshore booster station, as illustrated by Figure 4.4. The ZTV study for the booster station is presented at Figure 4.5, this has been used in combination with further desk study and fieldwork to identify visual receptors unlikely to have any visibility of the onshore HVAC booster station that are, as a result, not considered in further detail. Visual receptors within the onshore HVAC booster station study area are set out below; distances/directions stated are approximate and given from the nearest edge of the booster station footprint.

Settlements

4.7.6.20 In the landscape and visual resources assessment of the Environmental Statement, impacts on settlements include all of the routes, public spaces, homes and businesses within them. The following settlements are located within the onshore HVAC booster station study area:

- Edgefield Street – 1.2 km west;
- Edgefield – 1.6 km north west;
- Plumstead – 2.0 km north east;
- Corpusty and Saxthorpe – 2.2 km south;
- Little Barningham – 2.2 km east;
- Hempstead – 3.3 km north;
- Itteringham – 3.6 km south east;
- Matlaske – 3.7 km north east;
- Baconsthorpe – 3.8km north;
- Hunworth – 4.3 km north west; and
- Briston – 4.3 km west.

4.7.6.21 Of the settlements listed above, Plumstead, Hempstead, Baconsthorpe, and Hunworth lie outside of the ZTV and are not considered further. Edgefield Street, Corpustry and Saxthorpe, Little Barningham, Itteringham, Matlaske and Briston are all shown by the ZTV to have some limited areas of potential visibility on their periphery however their distance from the onshore HVAC booster station and the extent of localised vegetation mean that, in reality, views would be limited. Due to such a small extent of each of these settlements potentially experiencing views the effects would not be significant and they are therefore also excluded from further consideration.

4.7.6.22 The remaining settlement, Edgefield, is considered in further detail at section 4.11.

4.7.6.23 In addition to the settlements listed above there are other areas of dispersed settlement, such as isolated farms, manor houses and small hamlets, throughout the onshore HVAC booster station study area which are referred to in section 4.11 as necessary.

Key Routes

4.7.6.24 The only key road, rail or recreational route that passes within the onshore HVAC booster station study area is the Holt-Mannington Walk which passes approximately 1.1 km to the east of the proposed onshore HVAC booster station at its closest point. Intervening hedgerows and woodland would limit potential views and where they are possible the HVAC booster station would be largely screened from view. Two viewpoints are located on this route, as illustrated on Figure 4.5; BS2 is located at the closest point on the route to the onshore HVAC booster station, 1.2 km east, and BS3 slightly further afield (see visualisations in volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages). These are the closest and most open views likely from this route and as a result it is not considered further as effects would not be significant.

Accessible and Recreational Landscapes

4.7.6.25 The following accessible and recreational landscapes are located within the onshore HVAC booster station study area:

- Mannington Hall – 2.8 km east;
- Holt Country Park / Edgefield Woods / Holt Lowes – 4.2 km north west
- Hunworth Common – 4.8 km north west; and
- Wolterton Hall – 4.8km east.

4.7.6.26 Holt Country Park / Edgefield Woods / Holt Lowes and Hunworth Common are both located outside of the ZTV and are not considered further. Although in private ownership, and therefor subject to potential access restrictions, the areas of parkland around Mannington Hall and Wolterton Hall have various permissive routes and accessible areas and are currently promoted as visitor attractions. These are shown to have some limited potential visibility by the ZTV, however, they are both surrounded by extensive parkland vegetation, including mature hedgerows and tree belts that limit views out and make visibility of the onshore HVAC booster station unlikely. They are therefore not considered further.

Local Routes (Roads and Public Rights of Way)

4.7.6.27 Local routes within settlements are assessed as part of the settlements identified at paragraph 4.7.6.20, all other local routes within the onshore HVAC booster station study area are grouped into areas where potential effects are likely to be similar. These are:

- Routes within 1 km of the HVAC booster station – 0.1 km east;
- Routes immediately north of Corpustry and Saxthorpe 1.0 km south;
- Routes surrounding Little Barningham and Itteringham – 1.1 km east;
- Routes west and south west of Edgefield and Edgefield Street – 1.8 km north west;
- Routes south of the B1354 – 1.9 km south; and
- Routes to the north of Edgefield and Plumpstead – 2.2 km north.

4.7.6.28 The ZTV illustrates that there would be no potential visibility of the onshore HVAC booster station from the study area to the north of Edgefield and Plumpstead so local routes here are excluded from further consideration as effects would not be significant. Although the ZTV indicates potential visibility of the onshore HVAC booster station from areas to the south of the B1354, in reality, the layering effect of localised vegetation not modelled by the ZTV means that views in this area are unlikely. Routes south of the B1354 are therefore also excluded from further consideration as effects would not be significant. Routes around Itteringham and Little Barningham are also shown to have potential visibility on the ZTV although, as demonstrated at viewpoint BS2, views in this direction would be highly constrained by the woodland adjacent to the booster station. These routes are also not considered further as effects are unlikely to be significant.

Specific Viewpoints

4.7.6.29 No specifically promoted viewpoints, or viewpoints marked on OS maps have been identified within the Hornsea Three onshore HVAC booster station onshore HVAC booster station study area.

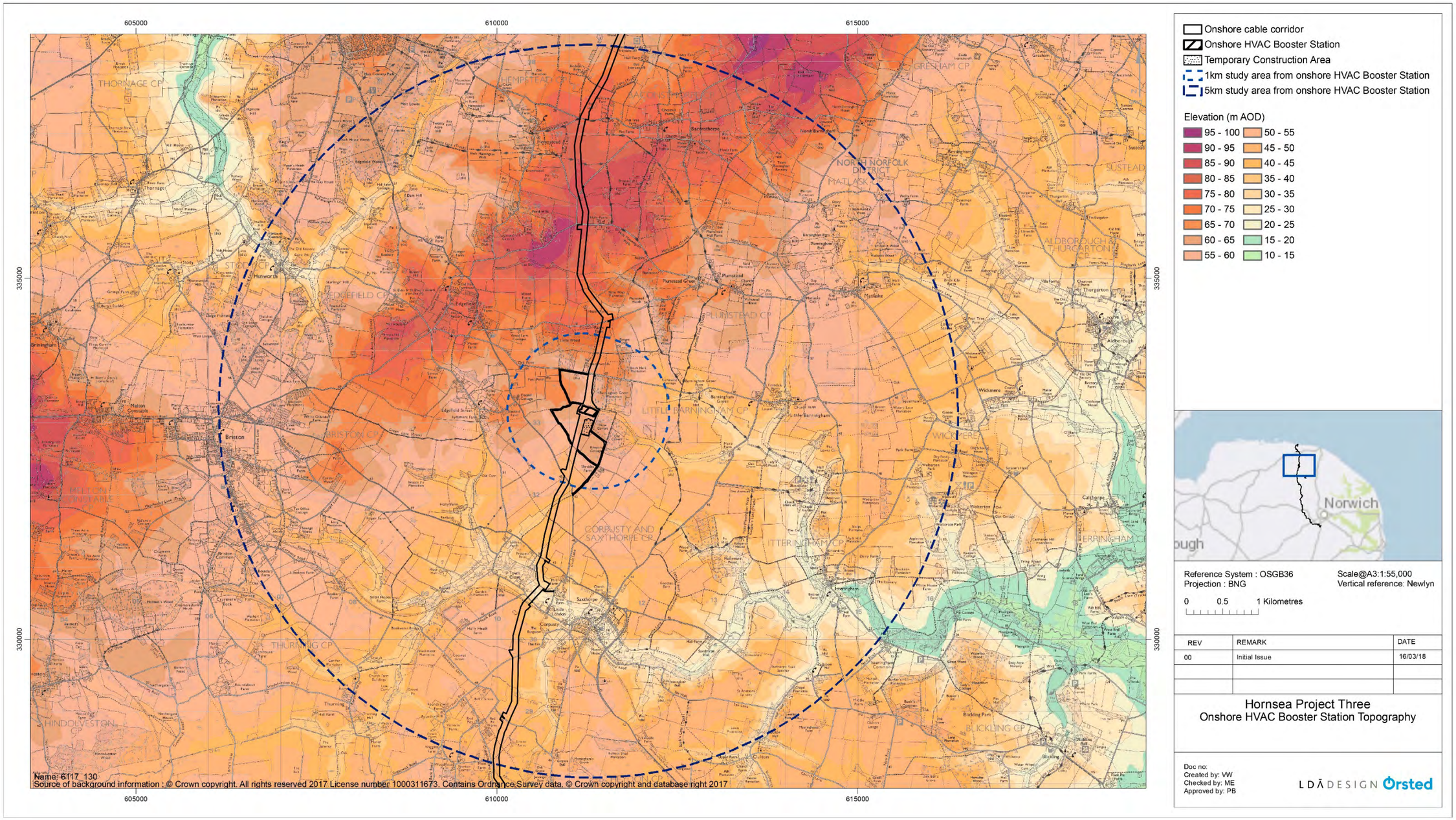


Figure 4.4: Onshore HVAC Booster Station Topography.

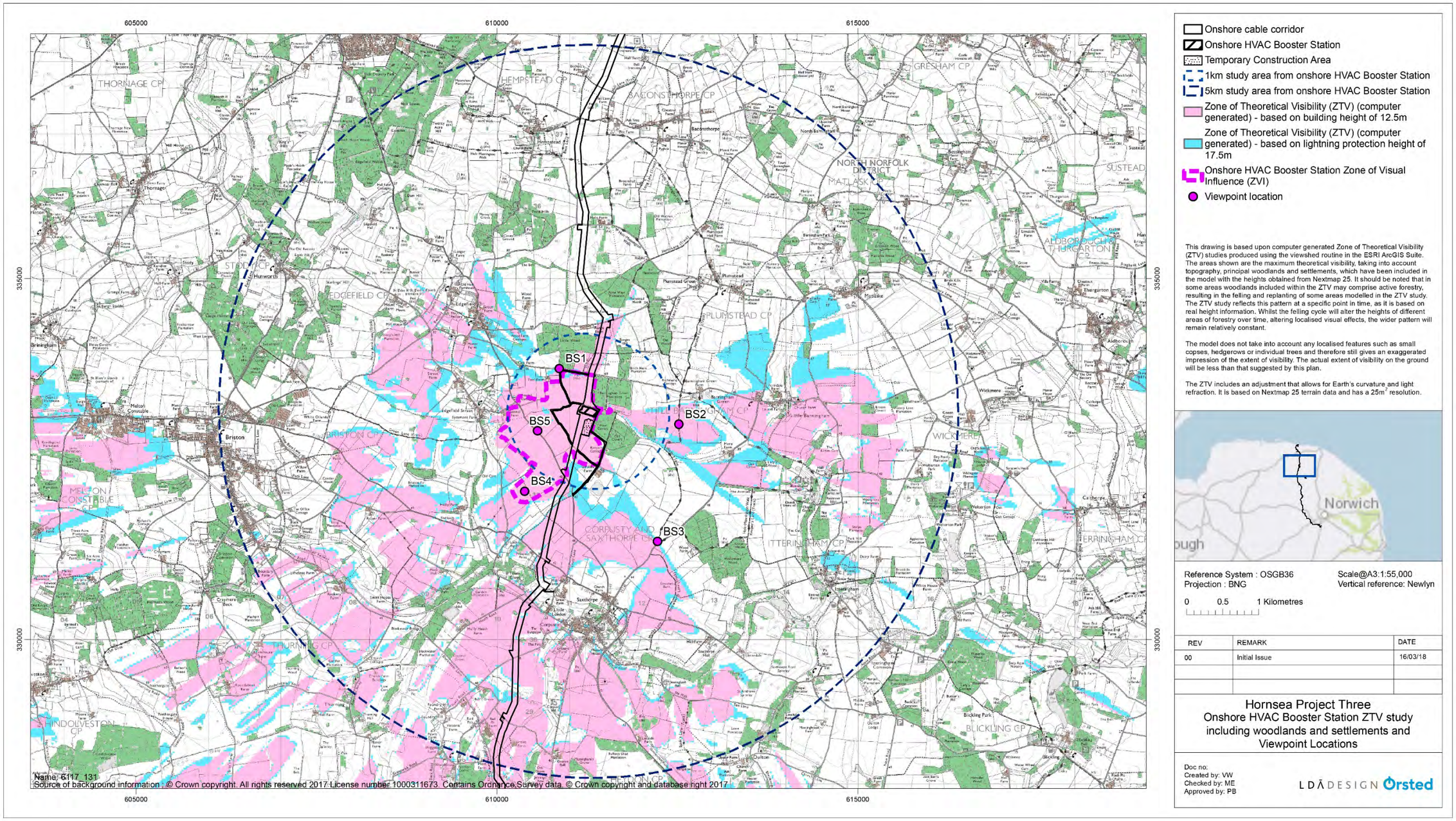


Figure 4.5: Onshore HVAC Booster Station Zone of Theoretical Visibility and Viewpoint Locations.

*Onshore HVDC Converter/HVAC Substation*

4.7.6.30 The study area for the Hornsea Three onshore HVDC converter/HVAC substation has been determined by the footprint plus 5 km, as described in section 4.3 and illustrated on Figure 4.1.

4.7.6.31 The northern quadrant of the onshore HVDC converter/HVAC substation study area encompasses the southern edge of Norwich and its suburbs which are cut through by the River Yare valley and surrounded by wetlands and parkland. To the south of the A47 the onshore HVDC converter/HVAC substation study area becomes more rural and primarily in agricultural use. There are numerous settlements ranging from hamlets to large commuter villages and the area is scattered with small woodlands. As illustrated by Figure 4.6 the landform of the onshore HVDC converter/HVAC substation study area gently undulates with two distinct river valleys, those of the Yare and the Tas, cutting through it. To the east of the study area lies an area of notably higher ground in the vicinity of Poringland.

4.7.6.32 The ZTV study for the onshore HVDC converter/HVAC substation is presented at Figure 4.7, this has been used in combination with further desk study and fieldwork to identify visual receptors unlikely to have any visibility of the onshore HVAC booster station that are, as a result, not considered in further detail. Visual receptors within the onshore HVDC converter/HVAC substation study area are set out below; distances/directions stated are approximate and given from the nearest edge of the booster station footprint.

Settlements

4.7.6.33 All settlements apart from Swardeston and Keswick lie outside the ZVI.

4.7.6.34 In the landscape and visual resources assessment of the Environmental Statement, impacts on settlements include all of the routes, public spaces, homes and businesses within them. The following settlements are located within the onshore HVDC converter/HVAC substation study area:

- Swardeston – 0.7 km south west;
- Keswick – 0.9 km north;
- Dunston – 1.6 km south east;
- Swainsthorpe – 1.9 km south;
- Cringleford – 2.0 km north west;
- Norwich – 2.0 km north;
- Caistor St Edmund – 2.3 km east;
- Stoke Holy Cross – 2.4 km south east;
- East Carleton – 2.6 km south west;
- Mulbarton – 2.6 km south west;
- Arminghall – 3.8 km north east;
- Bracon Ash – 3.8 km south west;
- Upper Stoke – 4.1 km east;
- Ketteringham – 4.3 km west;
- Poringland – 4.3 km east;
- Newton Flotman – 4.4 km south;
- Trowse Newton – 4.4 km north east;
- Hethersett – 4.8 km north west; and
- Shotesham – 4.8 km south east.

4.7.6.35 The ZTV illustrates that of the above list of settlements Dunston, Poringland and Newton Flotman have extremely limited potential visibility with site work confirming views would be unlikely; they are therefore not considered further. Keswick, East Carleton, Ketteringham and Trowse Newton are all shown by the ZTV to have some degree of potential visibility however the extent of localised vegetation in and around these settlements mean views of the onshore HVDC converter/HVAC substation would be unlikely in reality, they are also therefore not considered further.

4.7.6.36 Hethersett, Shotesham and Bracon Ash are all illustrated to have somewhat more potential visibility although their distance from the onshore HVDC converter/HVAC substation and the layering effect of vegetation in the intervening landscape mean views would be unlikely and they are not considered further as effects are unlikely to be significant.

4.7.6.37 Potential visibility is also shown across the southern edge of Norwich that falls within the onshore HVDC converter/HVAC substation onshore HVDC converter/HVAC substation study area, including Cringleford. The density of buildings and extent of garden vegetation in these urban areas mean views would be unlikely and they are therefore not considered further as effects would not be significant.

4.7.6.38 Arminghall, Mulbarton and Upper Stoke are all shown by the ZTV to have some potential visibility around their periphery however, due to such a small extent of each of these settlements potentially experiencing views the effects would not be significant and they are therefore also excluded from further consideration.

4.7.6.39 Potential visibility is also shown at Caistor St Edmund. Viewpoint SS1 is located on the periphery of this settlement and provides a closer, more open view than is possible from elsewhere in the settlement. The scale of effect at this viewpoint is considered to be negligible and as such it is unlikely effects at Caistor St Edmund would be significant and it is not considered further.

4.7.6.40 In addition to the settlements listed above there are other areas of dispersed settlement, such as isolated farms, manor houses and small hamlets, throughout the onshore HVDC converter/HVAC substation study area which are referred to in section 4.11 as necessary.

Key Routes

4.7.6.41 The following key road, rail and recreational routes are located within the onshore HVDC converter/HVAC substation study area for the onshore HVDC converter/HVAC substation:

- A47 – 0.0 km north;
- A140 – 0.8 km east;
- Rail line between Norwich and Stowmarket – 1.2 km east;

- Tas Valley Way – 1.2 km south west;
- Rail line between Norwich and Wymondham – 1.7 km north;
- Boudicca Way – 2.0 km east;
- A11 – 2.6 km north west;
- A146 – 3.2 km north;
- A1042 – 4.1 km north east;
- A147 – 4.6 km north; and
- National Cycle Network (NCN) Route 1 – 4.6 km north east.

4.7.6.42 Of those routes listed above the A146, A1042, A147 and NCN Route 1 all pass through the onshore HVDC converter/HVAC substation study area in built up areas of Norwich where potential views out of the city towards the onshore HVDC converter/HVAC substation are unlikely, as illustrated by the ZTV, and they are therefore not considered further as effects are unlikely to be significant.

4.7.6.43 The two rail lines follow a routes through the onshore HVDC converter/HVAC substation study area lined, in the most part, by dense vegetation and often running through areas of cutting or areas shown by the ZTV to have no potential visibility. Views would be unlikely from trains travelling these routes and they are therefore not considered further as effects would not be significant.

4.7.6.44 Although the ZTV indicates potential visibility from the A140 and A11 this would, in reality be considerably more limited due to the extent of roadside vegetation. Where views are possible they would be briefly glimpsed through roadside vegetation, this would impact such small sections of the routes that effects would not be significant. They are not considered further.

Accessible and Recreational Landscapes

4.7.6.45 All of these accessible and recreational landscapes lie outside the ZVI.

4.7.6.46 The following accessible and recreational landscapes are located within the onshore HVDC converter/HVAC substation study area:

- Swardeston Common – 0.8 km south west;
- Eaton Common – 1.4 km north;
- Venta Icenorum – 1.5 km east;
- Dunston Common – 1.6 km south east;
- Marston Marshes – 1.7 km north;
- Mulbarton Common – 2.6 km south west;
- Shotesham Common – 3.8km south east;
- Trowse Common – 4.5 km north east; and
- Bracon Common – 4.7 km south west.

4.7.6.47 Locations within Dunston Common and Bracon Common do not generally experience views out, on account of the areas being covered by woodland, and they are not considered further. Trowse Common, while not being covered by woodland, is bounded by mature trees and houses which mean views out are also very constrained. It is also excluded from further consideration as views of the onshore HVDC converter/HVAC substation would be unlikely and therefore effects would not be significant.

4.7.6.48 Viewpoints SS4 and SS8 are located at the areas of Marston Marshes and Swardeston Common where there would potentially be the most open views of Hornsea Three. The scale of effect at these locations is assessed to be negligible, as set out in Table 4.14 and volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages, and effects on receptors within these areas would not therefore be significant so they are not considered further. Eaton Common is located immediately adjacent to Marston Marshes with a similar pattern of landform and vegetation cover, as such, effects here are unlikely to be different to those at Marston Marshes and it is therefore also excluded from further consideration as effects are unlikely to be significant.

4.7.6.49 Viewpoint SS1 is located within Venta Icenorum at the location with the most elevated and open view towards the site of the onshore HVDC converter/HVAC substation. This illustrates views would be extremely limited and as such effects at Venta Icenorum would not be significant, it is not considered further.

Local Routes (Roads and Public Rights of Way)

4.7.6.50 Local routes within settlements are assessed as part of the settlements identified at paragraph 4.7.6.20, all other local routes within the onshore HVDC converter/HVAC substation study area are grouped into areas where potential effects are likely to be similar. These are:

- Local routes to the north of the A47 – 0.1 km north;
- Local routes east of the Tas Valley – 1.9 km east;
- Local routes west of the B1113 – 0.8 km west;
- Local routes between the B1113 and A140, north of Swainsthorpe – 0.2 km south; and
- Local routes between the B1113 and A140, south of Swainsthorpe – 2.1 km south.

4.7.6.51 While the ZTV illustrates potential visibility from local routes between the B1113 and A140, south of Swainsthorpe and local routes west of the B1113 in reality these typically run alongside hedgerows or shelterbelts to the edge of fields which, combined with the layering effect of other vegetation in the landscape, mean views would be constrained. In conjunction with their increased distance from the onshore HVDC converter/HVAC substation and the presence of other transmission infrastructure within potential views it is unlikely effects on these groups would be significant and they are not considered further.

Specific Viewpoints

4.7.6.52 No specifically promoted viewpoints, or viewpoints marked on OS maps have been identified within the Hornsea Three onshore HVDC converter/HVAC substation onshore HVDC converter/HVAC substation study area.

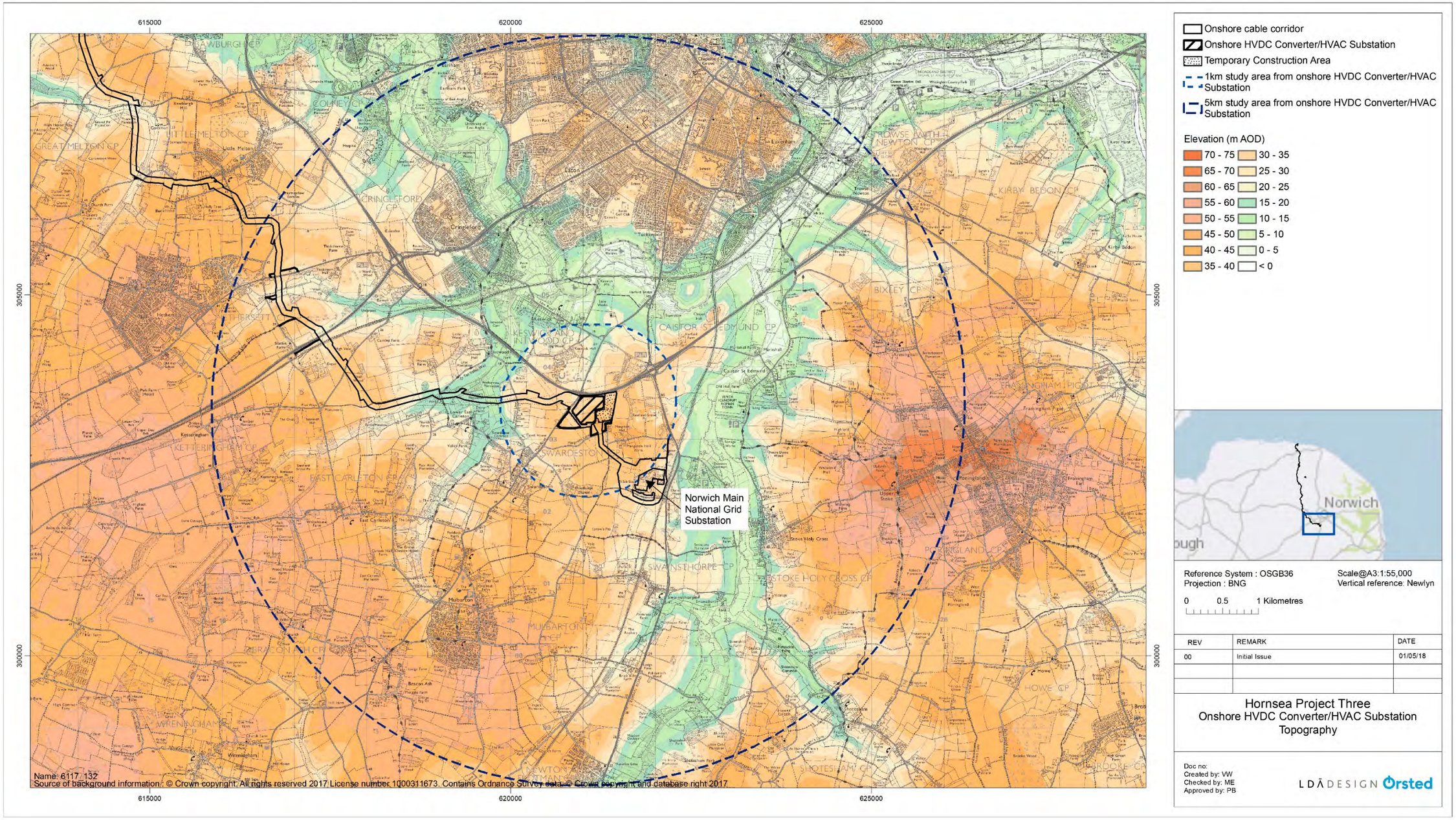


Figure 4.6: Onshore HVDC Converter/HVAC Substation Topography.

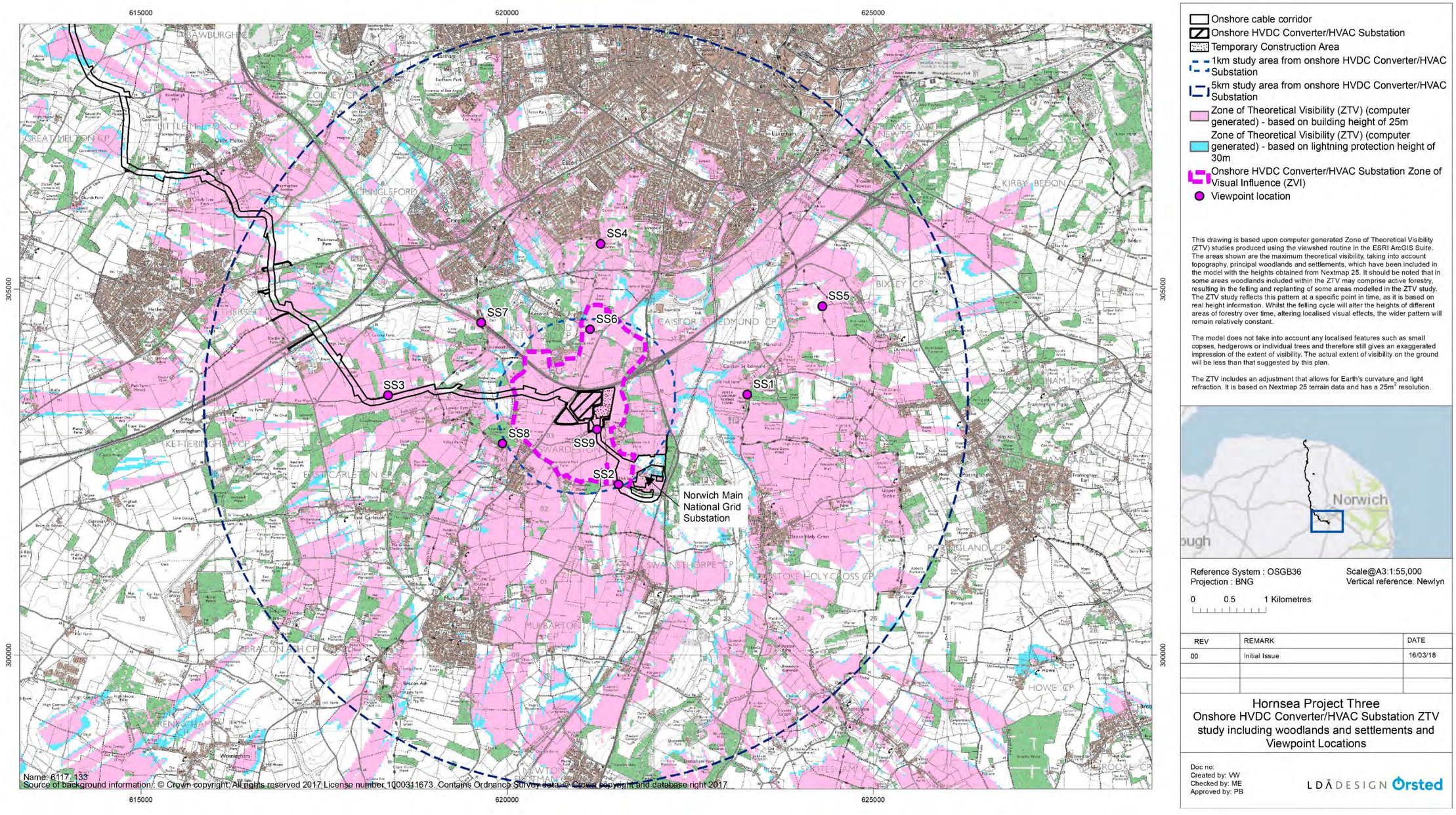


Figure 4.7: Onshore HVDC Converter/HVAC Substation Zone of Theoretical Visibility and Viewpoint Locations.

### 4.7.7 Future baseline scenario

4.7.7.1 With regard to development within the Norfolk Coast AONB, it is unlikely that there will be much change in terms of development, other than small additions to existing properties, conversions of properties and potentially, small developments within villages.

4.7.7.2 Outside the Norfolk Coast AONB small to medium sized residential developments are likely on the edges of some of the larger villages and on the edges of Norwich. The fringes of Norwich are also likely to see an increase in the amount of business and commercial development. All development will increase the amount of vehicles on the roads.

4.7.7.3 As far as long term change in the countryside is concerned, the biggest is likely to result from climate change. The Countryside Agency (now Natural England) and Scottish Natural Heritage published 'Topic Paper 9: Climate change and natural forces – the consequences for landscape character', in 2002. The paper provides an insight into the effects of climate change on landscape character, for the different regions of the different parts of the British Isles.

### 4.7.8 Data limitations

4.7.8.1 Currently there is no known limitation in the data that has informed this chapter.

## 4.8 Key parameters for assessment

### 4.8.1 Maximum design scenario

4.8.1.1 The maximum design scenarios identified in Table 4.6 have been selected as those having the potential to result in the greatest effect on an identified resource, receptor or receptor group. These scenarios have been selected from the details provided in the project description (volume 1, chapter 3: Project Description). Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the project Design Envelope (e.g. different building and infrastructure layout), to that assessed here be taken forward in the final design scheme.

### 4.8.2 Impacts scoped out of the assessment

4.8.2.1 On the basis of the baseline environment and the project description outlined in volume 1, chapter 3: Project Description, a number of impacts have been scoped out of the assessment for landscape and visual resources as agreed during consultation at the scoping stage (see Table 4.4). These impacts are outlined, together with a justification for scoping them out, in Table 4.7. In addition, some potential impacts have been scoped out of a full assessment and thus have only been considered at a high-level as, based on the baseline information and project description (as set out in volume 1, chapter 3: Project Description), effects are identified as unlikely to be significant (see section 4.7).

Table 4.6: Maximum design scenario considered for the assessment of potential impacts on landscape and visual resources.

| Potential impact | Maximum design scenario | Justification |
|---|---|---|
| *Construction phase* | | |
| Onshore Cable Corridor<br>Temporary impacts of construction works along the onshore cable corridor may affect designated and non-designated landscape resources.<br>Temporary impact of construction works along the onshore cable corridor may affect visual receptors. | Onshore cable corridor construction activity including:<br>• 60,000 m² landfall construction compound and works incorporating HDD with 6 exit pits measuring 50 m x 5 m;<br>• Approximately 53 km long, 80 m wide onshore cable corridor working area including (total area approx. 4,300,000 m²);<br>• Up to 120 HDD locations per phase (up to 105 minor HDDs and 15 major HDDs per phase), including 15 HDD compounds;<br>• 40,000 m² main construction compound located at Oulton Airfield;<br>• Up to five secondary compounds (total area approx. 33,000 m²);<br>• Up to 55 storage areas;<br>• Site access roads;<br>• 60 m wide grid export cable working area between onshore HVDC converter/HVAC substation and Norwich Main substation; and<br>• When locations for compounds have been chosen, the impacts of the compounds and the side access (including access track crossings and culvert/bridge crossings) for both options will be similar, as it is assumed that the same number of accesses and areas of compounds will be used for both HVDC and HVAC options.<br><br>The maximum duration of construction for the Hornsea Three onshore cable corridor is 30 months (approximately 2.5 years), this therefore means that the maximum duration over which construction could occur would be 5.5 years incorporating two phases (assuming a three-year gap with no active construction between the two phases). The work in each phase is expected to progress along the Hornsea Three onshore cable corridor with a typical active construction works duration of three months at any particular location. | The maximum extent of works and maximum duration over which these will occur. |
| Onshore HVAC Booster Station<br>Temporary impacts of construction works for the onshore HVAC booster station may affect designated and non-designated landscape resources.<br>Temporary impact of construction works for the onshore HVAC booster station may affect visual receptors. | Onshore HVAC booster station construction activity including:<br>• 30,407 m² permanent area of site;<br>• 25,000 m² temporary works area;<br>• Buildings/equipment up to 12.5 m height across the permanent area of site; and<br>• Lightning protection up to 17.5 m height across the permanent area of site.<br><br>The maximum duration of construction for the onshore HVAC booster station is two years, this therefore means that the maximum duration over which construction could occur would be five years incorporating two phases (assuming a three-year gap with no active construction activity between the two phases). | The maximum extent of works and the maximum envelope in which buildings and lightning protection could be present.<br><br>The maximum duration over which construction activity would occur. |

| Potential impact | Maximum design scenario | Justification |
|---|---|---|
| Onshore HVDC Converter/HVAC Substation<br>Temporary impacts of construction works for the onshore HVDC converter/HVAC substation may affect designated and non-designated landscape resources.<br>Temporary impact of construction works for the onshore HVDC converter/HVAC substation may affect visual receptors. | Onshore HVDC converter/HVAC substation construction activity including:<br>• 149,302 m2 permanent area of site;<br>• 91,000 m2 temporary works area;<br>• Buildings/equipment up to 25 m height across the permanent area of site; and<br>• Lightning protection up to 30 m height across the permanent area of site.<br><br>The maximum duration of construction for the onshore HVDC converter/HVAC substation is three years, this therefore means that the maximum duration over which construction could occur would be six years incorporating two phases (assuming a three-year gap with no active construction activity between the two phases). | The maximum extent of works and the maximum envelope in which buildings and lightning protection could be present.<br><br>The maximum duration over which construction activity would occur. |
| *Operation phase* | | |
| Onshore HVAC Booster Station<br>The impact of the onshore HVAC booster station during the operation and maintenance phase may affect designated and non-designated landscape resources.<br>The impact of the onshore HVAC booster station during the operation and maintenance phase may directly affect visual receptors. | Permanent extent of the HVAC booster station including:<br>• 30,407 m2 permanent area of site;<br>• Buildings/equipment up to 12.5 m height across the permanent area of site;<br>• Lightning protection up to 17.5 m height across the permanent area of site; and<br>• Landscape mitigation planting. | The maximum envelope in which buildings/equipment and lightning protection could be present. |
| Onshore HVDC Converter/HVAC Substations<br>The impact of the onshore HVDC converter/HVAC substation during the operation phase may affect designated and non-designated landscape resources.<br>The impact of the onshore HVDC converter/HVAC substation during the operation phase may affect visual receptors. | Permanent extent of the onshore HVDC converter/HVAC substation including:<br>• 149,302 m2 permanent area of site;<br>• Buildings/equipment up to 25 m height across the permanent area of site;<br>• Lightning protection up to 30 m height across the permanent area of site;<br>• Landscape mitigation planting. | The maximum envelope in which buildings/equipment and lightning protection could be present. |
| *Decommissioning phase* | | |
| Onshore HVAC Booster Station<br>Temporary impacts of decommissioning works for the onshore HVAC booster station may affect designated and non-designated landscape resources.<br>Temporary impact of decommissioning works for the onshore HVAC booster station may affect visual receptors. | Removal of buildings/equipment across the permanent area of site. | The maximum envelope in which buildings/equipment and lightning protection could be present. |
| Onshore HVDC Converter/HVAC Substation<br>Temporary impacts of decommissioning works for the onshore HVDC converter/HVAC substation may affect designated and non-designated landscape resources.<br>Temporary impact of decommissioning works for the onshore HVDC converter/HVAC substation may affect visual receptors. | Removal of buildings/equipment across the permanent area of site. | The maximum envelope in which buildings/equipment and lightning protection could be present. |

Table 4.7: Impacts scoped out of the assessment for landscape and visual resources.

| Potential impact | Justification |
|---|---|
| *Construction phase* | |
| All impacts of the offshore elements of Hornsea Three on landscape and visual receptors | Impacts during construction will be short to medium term and temporary and are unlikely to be significant. |

| Potential impact | Justification |
|---|---|
| All impacts on landscape and visual receptors outside of the onshore cable corridor study area | The assessment is designed to focus on the likely significant effects of the onshore cable route. Landscape and visual receptors at distances greater than 1 km from the onshore cable corridor are not anticipated to experience significant effects. |
| All impacts on landscape and visual receptors outside of the onshore HVAC booster station study area or the onshore HVDC converter/HVAC substation study area | The assessment is designed to focus on the likely significant effects of the HVAC booster station or HVDC converter/HVAC substation. Landscape and visual receptors at distances greater than 5 km from these components are not anticipated to experience significant effects. |
| *Operation and maintenance phase* | |
| All impacts of the offshore elements of Hornsea Three on landscape and visual receptors, except the offshore HVAC booster station which is the closest offshore element to the coast | The offshore HVAC booster station is assessed at section 4.16. In line with the findings of this, impacts of the remaining, more distant, offshore elements on land based receptors are scoped out on the grounds that they are too far offshore to have any significant impacts. |
| All impacts of the onshore cable corridor on landscape and visual receptors | As set out in Table 4.3, Table 12.3 of the Scoping Report proposes scoping out impacts of the onshore cable route corridor are scoped out for the operation and maintenance phase on the grounds that there will be no significant changes to landscape character or visual amenity as the cable will be buried underground. As such, the operation and maintenance phase of the onshore cable corridor will not be likely to give rise to any adverse landscape or visual effects that could be considered significant. The Secretary of State agreed in their Scoping Opinion that the matters identified in Table 12.3 could be scoped out of the landscape and visual impact assessment (LVIA). |
| All impacts on landscape and visual receptors outside of the HVAC booster station study area or the HVDC converter/HVAC substation study area | The assessment is designed to focus on the likely significant effects of the HVAC booster station or HVDC converter/HVAC substation. Landscape and visual receptors at distances greater than 5 km from these components are not anticipated to experience significant effects. |
| *Decommissioning phase* | |
| All impacts of the offshore elements of Hornsea Three on landscape and visual receptors | Impacts due to decommissioning will be short to medium term and temporary and are unlikely to be significant. |
| All impacts of the onshore cable corridor on landscape and visual receptors | The decommissioning requirements of the onshore cable route will not cause any changes to the landscape character or visual amenity of the onshore cable corridor study area due to the minimal activities (i.e. cables will be left in the ground, as described in volume 1, chapter 3: Project Description) . Decommissioning activities for the onshore cable corridor will not be likely to give rise to any adverse landscape or visual effects that could be considered significant. |
| All impacts on landscape and visual receptors outside of the HVAC booster station study area or the HVDC converter/HVAC substation study area | The assessment is designed to focus on the likely significant effects of the HVAC booster station or HVDC converter/HVAC substation. Landscape and visual receptors at distances greater than 5 km from these components are not anticipated to experience significant effects. |

## 4.9 Impact assessment methodology

4.9.1.1 The landscape and visual resources EIA has followed the methodology set out in volume 1, chapter 5: Environmental Impact Assessment Methodology, adapting it in some instances to ensure compliance with GLVIA3. Specific to the landscape and visual resources EIA, the following guidance documents have also been considered:

- Council of Europe, The European Landscape Convention (2000, ratified 2006) ETS No. 176;
- Topic Paper 6: Techniques and Criteria for judging Capacity and Sensitivity (Countryside Agency and Scottish Natural Heritage, 2004);
- An Approach to Landscape Character Assessment, Natural England, 2014; and
- GLVIA3.

4.9.1.2 In addition, the landscape and visual resources EIA has considered the legislative framework as described in section 4.4.

4.9.1.3 The LVIA for the construction, operation and maintenance, and decommissioning phases of the onshore elements of Hornsea Three follows the LVIA methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology. This is summarised in the following sections.

4.9.1.4 The criteria for determining the significance of effects is a two stage process that involves defining the sensitivity of the receptors and the magnitude of the impacts.

### 4.9.1 Sensitivity

4.9.1.1 The sensitivity of landscape resources and visual receptors to a development is dependent on a range of factors and is classified on a five point scale (negligible, low, medium, high and very high), informed by assessments of susceptibility and value as set out in Table 4.8 and Table 4.9.

Table 4.8: Definition of terms relating to the susceptibility and value of landscape resources.

| | Definition | |
|---|---|---|
| | Landscape resource susceptibility | Landscape resource value* |
| Very High | Exceptional landscape quality, no or limited potential for substitution. Key elements features well known to the wider public.<br><br>Little or no tolerance to change. | Nationally/internationally designated/valued landscape, or key elements or features of nationally/internationally designated landscapes. |
| High | Strong/distinctive landscape character; absence of landscape detractors.<br><br>Low tolerance to change. | Regionally/nationally designated/valued countryside and landscape features. |
| Medium | Some distinctive landscape characteristics; few landscape detractors.<br><br>Medium tolerance to change. | Locally/regionally designated/valued countryside and landscape features. |
| Low | Absence of distinctive landscape characteristics; presence of landscape detractors.<br><br>High tolerance to change. | Undesignated countryside and landscape features. |
| Negligible | Absence of positive landscape characteristics. Significant presence of landscape detractors.<br><br>High tolerance to change. | Undesignated countryside and landscape features. |

* Also informed by assessment of factors outlined in Box 5.1 of GLVIA3 (see volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology).

4.9.1.2 For visual receptors; judgements of susceptibility and value are closely interlinked considerations; for example the most valued views are likely to be those which people go and visit because of the available view – and it is at those viewpoints that their expectations will be highest. The value attributed to visual receptors also relates to the value of the view – for example a National Trail is nationally valued for its access, not necessarily for its views. Views will be treated as valued where there is documentary evidence of that value – such as recommendations to visitors; or reference within special qualities of designated areas.

Table 4.9: Definition of terms relating to the sensitivity of visual receptors.

| Sensitivity | Definition |
|---|---|
| Very High | Visitors to valued viewpoints or routes which people might visit purely to experience the view, e.g. promoted or well-known viewpoints, routes from which views that form part of the special qualities of a designated landscape can be well appreciated; key designed views; panoramic viewpoints marked on maps. |

| Sensitivity | Definition |
|---|---|
| High | People in locations where they are likely to pause to appreciate the view, such as from local waypoints such as benches; or at key views to/from local landmarks. Visitors to local attractions, heritage assets or public parks where views are an important contributor to the experience, or key views into/out of Conservation Areas would also fall into this category. People in the streets around their home, or using public rights of way, navigable waterways or accessible open space (public parks, open access land). Users of promoted scenic rail and road routes. |
| Medium | Users of cycle routes, local roads and railways. Users of A-roads which are promoted scenic routes. |
| Low | Outdoor workers. Users of sports facilities such as cricket grounds and golf courses. |
| Negligible | Users of Motorways and A-roads; shoppers at retail parks, people at their (indoor) places of work. |

### 4.9.2 Magnitude of change

4.9.2.1 The magnitude of change of a particular proposal depends on:

- Nature of proposed development and change to existing baseline;
- Scale of proposed change;
- Duration of change;
- Extent of change; and
- Reversibility.

4.9.2.2 The magnitude of impact is rated within the range of Major, Moderate, Minor, Negligible and No Change, and is informed by combining the scale, duration and extent of an impact.

4.9.2.3 The scale of impacts is assessed as summarised in Table 4.10.

Table 4.10: Definition of terms relating to the scale of an impact.

| Scale | Definition | |
|---|---|---|
| | Landscape resource | Visual resource |
| Large | Total loss or addition or/very substantial loss or addition of key elements/features/patterns of the baseline, i.e. pre-development landscape and/or introduction of dominant, uncharacteristic elements with the attributes of the receiving landscape. | Complete or very substantial change in view involving complete or very substantial obstruction of existing view or complete change in character and composition of baseline, e.g. through removal of key elements. |
| Medium | Partial loss or addition of or moderate alteration to one or more key elements/features/patterns of the baseline, i.e. pre-development landscape and/or introduction of elements that may be prominent, but may not necessarily be substantially uncharacteristic with the attributes of the receiving landscape. | Moderate change in view: which may involve partial obstruction of existing view or partial change in character and composition of baseline, i.e., pre-development view through the introduction of new elements or removal of existing elements. Change may be prominent, but would not substantially alter scale and character of the surroundings and the wider setting. Composition of the views would alter.<br>View character may be partially changed through the introduction of features which, although uncharacteristic, may not necessarily be visually discordant. |
| Small | Minor loss or addition of or alteration to one or more key elements/features/patterns of the baseline, i.e., pre-development landscape and/or introduction of elements that may not be uncharacteristic with the surrounding landscape. | Minor change in baseline, i.e., pre-development view – change would be distinguishable from the surroundings whilst composition and character would be similar to the pre- change circumstances. |
| Negligible | Very minor loss or addition of or alteration to one or more key elements/features/patterns of the baseline, i.e., pre-development landscape and/or introduction of elements that are not uncharacteristic with the surrounding landscape approximating to a 'no-change' situation. | Very slight change in baseline, i.e., pre-development view – change barely distinguishable from the surroundings.<br>Composition and character of view substantially unaltered. |
| No change | No loss, alteration or addition to the receiving landscape resource. | No alteration to the existing view. |

4.9.2.4 The duration of impacts falls into two criteria, temporary and permanent. Where impacts are identified they can be:

- Temporary short term (0-2 years);
- Temporary medium term (2-5 years);
- Temporary long term (5-15 years); or
- Permanent (15 years or greater).

4.9.2.5 The extent of impacts indicates the geographic area over which effects are felt. Where impacts are identified they can be:

- Limited – site, or part of site, or small part of a receptor area (< approx. 10%);
- Localised – site and surroundings up to 2 km, or part of receptor area (up to approx. 25%);
- Intermediate – up to approx. 2-4 km, or around half of receptor area; or
- Wide – beyond 4 km, or more than half of receptor.

### 4.9.3 Significance of Effects

4.9.3.1 The significance of the effect upon landscape and visual resources is determined by correlating the magnitude of the impact and the sensitivity of the receptor. The significance of effects on landscape and visual receptors is evaluated according to a scale: substantial, major, moderate, minor or negligible as set out in Table 4.11. Where a range of significance of effect is presented, the final assessment for each effect is based upon expert judgement.

Table 4.11: Matrix used for assessment of significance showing the combinations of receptor sensitivity and the magnitude of impact.

| | | Magnitude of impact | | | | |
|---|---|---|---|---|---|---|
| Sensitivity of receptor | | *No change* | *Negligible* | *Minor* | *Moderate* | *Major* |
| | *Negligible* | Negligible | Negligible | Negligible or minor | Negligible or minor | Minor |
| | *Low* | Negligible | Negligible or minor | Negligible or minor | Minor | Minor or moderate |
| | *Medium* | Negligible | Negligible or minor | Minor | Moderate | Moderate or major |
| | *High* | Negligible | Minor | Minor or moderate | Moderate or major | Major or substantial |
| | *Very high* | Negligible | Minor | Moderate or major | Major or substantial | Substantial |

4.9.3.2 For the purposes of this assessment those effects indicated as being of substantial, or major significance are regarded as significant. Effects of moderate and lesser significance have been identified in the assessment, but are not considered significant. Where impacts have been judged to be negligible magnitude the overall effects will usually be considered neutral as such a small change is unlikely to be notably detrimental or beneficial.

4.9.3.3 Effects are defined as adverse, neutral or positive. Neutral effects are those which overall are neither adverse nor positive, but may incorporate a combination of both.

4.9.3.4 The decision regarding the significance of effect and the decision regarding whether an effect is beneficial or adverse are entirely separate. For example, a rating of major and positive would indicate an effect that was of great significance and on balance positive, but not necessarily that the proposals would be extremely beneficial. Whether an effect is positive, neutral or adverse is identified based on professional judgement.

## 4.10 Measures adopted as part of Hornsea Three

4.10.1.1 As part of the project design process, a number of designed-in measures have been identified to reduce the potential for impacts on landscape and visual resources (see Table 4.12). T As there is a commitment to implementing these measures, they are considered inherently part of the design of Hornsea Three and have therefore been considered in the assessment presented in section 4.10 (i.e. the determination of magnitude and therefore significance assumes implementation of those measures). These measures are considered standard industry practice for this type of development.

### 4.10.2 Onshore Cable Corridor

4.10.2.1 The onshore cable corridor, including the landfall area, has been developed taking into account a number of constraints; in particular, ecological and landscape. The onshore cable corridor will be buried underground for its entire length; burying the cable would lead to less landscape and visual effects than overhead power lines.

4.10.2.2 Where hedgerows and trees occur within the working area (and cable installation is not limited to HDD techniques), they will be removed. The width of hedge removed will be limited where possible – for example if the project is delivered in two phases the construction contractor may not need to remove the full 80 m temporary easement. Further details on hedgerow removal, retention and replacement can be found in volume 3, chapter 3: Ecology and Nature Conservation, the Outline EMP (document reference A8.6) and the Outline LMP (document reference A8.7).

4.10.2.3 Where possible, the cable corridor avoids areas of woodland and trees. Where the cable corridor crosses areas of woodland these will mostly be retained by use of HDD. Where this is not possible, Hornsea Three will seek to minimise tree loss by micro-siting cable routes to avoid trees during the construction phase.

4.10.2.4 Many hedges that are crossed by the onshore cable corridor will be retained by HDD. Where works are required to hedgerows, these will be minimised, with the course of action for each hedgerow to have been pre-determined and outlined in the Outline EMP (document reference A8.6) and the Outline LMP (document reference A8.7). Prior to the commencement of any works to a hedgerow, an Ecological Clerk of Works (ECoW) will be present on site to ensure that the specified protection and mitigation measures are appropriately implemented.

### 4.10.3 Construction Compounds and Storage Areas for the Onshore Cable Corridor

4.10.3.1 The Outline CoCP (document reference A8.5) describes proposals for a main construction compound at Oulton Airfield and a series of secondary construction compounds and storage areas along the onshore cable route; these are shown on Figure 4.1.

4.10.3.2 The site identified for the main construction compound at Oulton Airfield already comprises hard standing suitable for the temporary placement of site facilities (such as offices, briefing rooms, catering facilities, storage and the like typically housed in port-a-cabins); the location is shown on Figure 4.1 sheets 3 and 4 of 8. Hornsea Three will be set within the existing context of hardstanding including former runways, buildings including poultry sheds and a solar farm, and in a location that is partially enclosed by development and vegetation, helping to minimise landscape and visual impacts.

4.10.3.3 The secondary construction compounds would be in place for periods of up to 3 months (per phase) then removed and the sites restored to their original condition when the work front in that locality has passed, helping to minimise landscape and visual impacts due to the short term duration of the works.

*Storage Areas*

4.10.3.4 It is envisaged that each storage area will be in place for periods of one month (per phase) and the sites restored to their original condition when the work front has passed, helping to minimise landscape and visual impacts due to the short-term presence.

## 4.10.4 Onshore HVAC Booster Station and Onshore HVDC Converter/HVAC Substation

4.10.4.1 The onshore HVAC booster station is located in a gently undulating landscape that is occupied by predominantly mixed farmland with a strong existing landscape framework. Similarly, the onshore HVDC converter/HVAC substation site is located in gently undulating landscape of predominantly mixed farmland that is influenced by the A47 which lies immediately to the north. The landscape in the onshore HVDC converter/HVAC substation study area is influenced by developments including the settlement of Norwich to the north, Norwich Main substation to the south east, and a quarry to the east of the site.

4.10.4.2 The landscapes within the study areas of the onshore HVAC booster station and onshore HVDC converter/HVAC substation are characterised by fields and local roads enclosed by dense hedgerows, hedgerow trees, tree blocks and woodlands. This provides layers of vegetation that would help to screen and filter views of Hornsea Three, and integrate the onshore HVAC booster station and onshore HVDC converter/HVAC substation into the landscape. To supplement this existing landscape screening, proposals for mitigation planting would provide further screening. Landscape proposals are detailed in the Outline LMP (document reference A8.7).

4.10.4.3 While it is recognised that the onshore HVAC booster station and onshore HVDC converter/HVAC substation would not be screened entirely in some views, a strong landscape structure around them would assist in mitigating visual and landscape impacts.

4.10.4.4 Proposals are designed to:

- Minimise the heights of structures to reduce their visibility from the surrounding landscape. It has been possible to identify maximum design scenarios for the heights and footprints of the onshore HVAC booster station and onshore HVDC converter/HVAC substation. Buildings and equipment will not be a uniform height throughout the developed areas, and much of the equipment will be lower and cover smaller footprints than the maximum design scenarios;
- Reduce the landscape and visual impacts of Hornsea Three by filtering and screening views of the developments and integrating them into their landscape contexts;
- Retain and protect all existing trees, hedgerows and other vegetation except where removal is necessary to construct and maintain Hornsea Three;
- Enhance existing landscape features such as hedgerows by planting gaps with hedgerow plants and trees along field edges adjacent to the onshore HVAC booster station and onshore HVDC converter/HVAC substation; and
- Utilise native species that are present locally.

4.10.4.5 The onshore HVAC booster station and onshore HVDC converter/HVAC substation lie within different landscapes and are different in terms of, inter alia, scale and appearance. In addition to the generic objectives listed above, the design principles followed are specifically designed to respond to the proposals and contexts for each development as described below, as illustrated in the Outline LMP (document reference A8.7).

*Onshore HVAC Booster Station Landscape Proposals*

4.10.4.6 Key design principles are as follows:

- The onshore HVAC booster station is located close to existing woodlands and in local low point in the landscape so that it will be largely screened in views from the east, and seen with a woodland backdrop in views from the west;
- Create a HVAC booster station enclosed by a mixed wood which appears as an extension to the existing woods to the east. This will be appropriate to local landscape character and also help to screen and filter views of the onshore HVAC booster station infrastructure from surrounding landscape and visual receptors, and integrate it into its landscape context;
- Along the line of the onshore cable route, a strip of mature trees and scrub along the field boundary immediately north of the onshore HVAC booster station, and hedgerows bounding fields further to the north and to the south, are to be retained by installation of cables by horizontal direct drilling (HDD); and
- Create areas of new woodland and scrub, and new and strengthened hedgerows with hedgerow trees that would provide further screening and filtering of views and enhance landscape character.

*Onshore HVDC Converter/HVAC Substation Landscape Proposals*

4.10.4.7 Key design principles are as follows:

- The onshore HVDC converter/HVAC substation is contained within existing hedged field boundaries, two lines of pylons and overhead lines to the south west, the B1113 to the west and the A47 to the north. These features and associated vegetation help to limit the spread of effects on landscape character beyond the site and provide some filtering and screening of views;
- Existing hedgerows and hedgerow trees along the route of the onshore cable corridor are, where possible, to be retained at the site boundaries of the onshore HVDC converter/HVAC substation by use of HDD. There will be some locations where hedges and trees will need to be removed such as at the proposed site entrance as illustrated on drawing number 6117_512 of the Outline LMP (document reference A8.7); the locations for this removal will be confirmed during post consent / pre-commencement of the onshore HVDC converter/HVAC substation;
- New woodland and scrub planting is proposed around the onshore HVDC converter/HVAC substation. This will be appropriate to local landscape character and also help to screen and filter views of the onshore HVDC converter/HVAC substation from surrounding landscape and visual receptors, and integrate it into its landscape context;
- Strengthen existing hedgerows by planting gaps with new hedge plants and hedgerow trees that will provide further screening and filtering of views and enhance landscape character;
- Minimise harm to the NSBLPZ. Policy DM4.6 Landscape Setting of Norwich of the South Norfolk Development Management Policies Document (2015) aims to protect the openness of the NSBLPZ around the southern bypass (A47) and, where possible, enhance the landscape setting of the southern bypass. There are existing open views of countryside looking south across the site from the A47 and these will be obscured by the onshore HVDC converter/HVAC substation. A short distance west and east of the site existing southern views from the A47 are obscured by roadside vegetation or embankments, restricting views of open countryside;
- The proposed onshore HVDC converter/HVAC substation will be set back from the A47 with woodland and woodland edge planting is proposed between the substation and the road. This will, as planting matures, create a view of woodland in the foreground with the onshore HVDC converter/HVAC substation beyond. This will create a longer section of A47 with views of open countryside obscured, but views of the onshore HVDC converter/HVAC substation will be filtered by proposed and existing vegetation and existing landform; and
- Minimise harm to the Undeveloped Approaches to Norwich. Policy DM4.6 Landscape Setting of Norwich of the South Norfolk Development Management Policies Document (2015) aims to protect Undeveloped Approaches to Norwich, including the B1113. The policy states that all development proposals within the visual zone of influence viewed from the identified Undeveloped Approaches to Norwich should reinforce and avoid undermining the rural character of the Undeveloped Approaches to Norwich.

4.10.4.8 The onshore HVDC converter/HVAC substation is set back from the B1113 with woodland and woodland edge planting proposed between the substation and this road. Existing trees and hedges along the B1113 will be retained and protected except where it is necessary for them to be removed for construction and operation of the onshore HVDC converter/HVAC substation. A permanent gap will be required at the site entrance on the B1113, but its width will be the minimum required for construction and operation in order to maximise screening of the onshore HVDC converter/HVAC substation.

4.10.4.9 The illustrative landscape proposals also show potential tree planting within the edges of fields adjacent to residential properties to the south west (House on the Hill) and south east (Pond Cottage, Holly View Cottage, Park View Cottage, Mangreen Cottage) to provide additional screening. This will be offered as optional mitigation, to be taken forward should residents wish this, and it is not essential to mitigate the effects. Some residents may prefer to retain the openness of views (including some visibility of the onshore HVDC converter/HVAC substation) rather than having a tree belt close to their house. This is discussed in the assessment of effects on residential visual amenity, volume 6, annex 4.6: Residential Visual Amenity.

4.10.4.10 The assessment of effects within this chapter is based on only the following areas of planting or seeding being implemented shown within the Outline LMP (document reference A8.7):

- Areas defined as 'Minimum area of planting' or 'Minimum area of planting and seeding' on the illustrative planting and seeding proposals for the onshore HVAC booster station and onshore HVDC converter/HVAC substation shown on drawings 6117_500 and 6117_510; and
- Planting for the onshore HVAC booster station and onshore HVDC converter/HVAC substation shown on drawings 6117_501 and 6117_511.

4.10.4.11 There is potential for additional planting or seeding to be implemented within the onshore HVAC booster station and onshore HVDC converter/HVAC substation which will be determined post consent / pre-commencement of the onshore HVAC booster station and HVDC converter/HVAC substation, as noted on drawings 6117_500 and 6117_510. This has not been factored into the assessment of effects within the Environmental Statement.

4.10.4.12 The façade style and general external treatment of the onshore HVAC booster station and onshore HVDC/HVAC substation buildings will be discussed with the relevant Local Planning Authorities. Façade treatments can be used to reduce the visual impact of buildings, and to break up the impression of massing between different built elements within the same site. Hornsea Three will continue to discuss these principles with the relevant stakeholders as the project design work progresses, and in response to ongoing consultation. These potential additional mitigation measures have not been taken into consideration for the determination of effects in the Environmental Statement..

### 4.10.5 Lighting

4.10.5.1 Lighting during operation will take into account guidance from the Institute of Lighting Professionals (Institute of Lighting Professionals, 2011 'Guidance Notes for the Reduction of Obtrusive Light'). Lighting during the onshore construction phase will be short term and temporary, used only when required (and generally limited to certain working hours) and designed to avoid unnecessary illumination. Light spill during out of hours working will be minimised through the use of task-orientated lighting. At permanent onshore infrastructure (e.g. onshore HVAC booster station and HVDC converter/HVAC substation), security lighting may be required during operation to ensure a safe working environment. Light spill from these elements would be minimised through design, in particular the use of directional lighting. Further details on the lighting strategy for temporary works and permanent infrastructure (onshore and offshore) is set out in volume 1, chapter 3: Project Description, and in the Outline CoCP (document reference A8.5).

Table 4.12: Summary of designed-in measures adopted as part of Hornsea Three.

| Measures adopted as part of Hornsea Three | Justification |
|---|---|
| The location of the onshore cable corridor avoids as many landscape features as possible (e.g. areas of woodland). | To reduce the impact of the project upon existing landscape features. |
| The onshore cable corridor will be buried underground for its entire length. | To reduce the potential landscape and visual impact of Hornsea Three |
| The location of the onshore HVAC booster station is in a natural low point in the landform and closely associated with existing woodland. | To reduce the potential landscape and visual impact of Hornsea Three. |
| An Outline LMP (document reference A8.7) has been produced and will be followed. The Outline LMP contains illustrative landscape proposals including minimising removal of existing vegetation and implementation of mitigation planting for the onshore HVAC booster station and onshore HVDC/HVAC substation. It also details management of the proposed planting to enable the proposed planting to thrive. | To reduce the potential landscape and visual impact of Hornsea Three and help integrate it into the landscape. To enhance existing hedgerows and biodiversity. |
| Replacement hedgerow planting along the onshore cable corridor (where practical) with shallow rooted shrubs. The Outline LMP (document reference A8.7) describes how hedgerows will be replaced and maintained along the onshore cable corridor. | Mitigation for hedgerows removed. Shallow rooted plants only over the onshore cable corridor to prevent disturbance of the cables by tree roots. |
| Gapping up of derelict hedgerows that are impacted upon by the construction phase (where practical). Increasing diversity in species-poor hedgerows. Replacement tree planting, on a one for one basis within hedgerows, not over the cables, of any trees removed during the construction works. The Outline LMP (document reference A8.7) describes how hedgerows and trees will be protected, enhanced and maintained along the onshore cable corridor. | Enhancement of landscape character, visual resources and ecological habitats. Trees not replanted over the onshore cable corridor to prevent disturbance of the cables by tree roots. |
| Restoration and repair of gates and fences that have been removed/damaged during the construction works. | Mitigation and enhancement of landscape character and visual resources. |

## 4.11 Assessment of significance

### 4.11.1 Construction phase

4.11.1.1 The impacts of the onshore construction of Hornsea Three have been assessed on landscape and visual resources. The potential impacts arising from the construction of Hornsea Three are listed in Table 4.6, along with the maximum design scenario against which each construction phase impact has been assessed.

4.11.1.2 A description of the potential effects on landscape and visual receptors caused by each identified impact is given below.

#### Onshore Cable Corridor

*Landscape Effects*

Local Landscape Character

*Magnitude of impact*

4.11.1.3 The onshore cable corridor passes through a series of landscapes that can be broadly categorised as rural. Typically, they comprise extensive areas of farmland with fields defined by hedgerows and tree belts in varying proportions and frequently there are small to medium size blocks of woodland. Settlement is typically small to medium sized villages and there are frequently isolated houses and farms. Towards the southern end of the onshore cable corridor shallow river valleys become a more frequently occurring character type.

4.11.1.4 As noted at section 4.7 only those character areas within the cable corridor itself would potentially be likely to experience notable impacts on landscape character. These would be direct as a result of short term construction activity involving the digging of cable trenches, HDD works and the removal of short sections of hedgerow and some individual or small groups of trees in a localised part of each landscape character area. Although occurring in concert as part of Hornsea Three, some of these activities are not dissimilar in nature to other 'normal', short term activities that may occur at any time in any landscape (e.g. temporary road and other construction works, tree and hedgerow management, ploughing or digging of farmland).

4.11.1.5 Continuous tree belts, woodlands, watercourses and transport infrastructure, and many hedgerows would all be crossed using HDD techniques and would experience no direct impacts. Where hedgerows are removed they would be reinstated as would all ground crossed and disturbed by the onshore cable corridor. Individual or small groups of trees that are removed may not be replaced however the loss of these would not be particularly notable when considered on the wider scale of any individual landscape character area.

4.11.1.6 The impact of construction lighting on landscape receptors would be limited to those areas where artificial light is not currently present at night (i.e. away from settlements, street lighting, busy roads and other artificial light sources). Impacts would only occur during periods where working hours extend beyond the hours of daylight (e.g. autumn/winter) and only for a few hours each day. These impacts would be transient due to construction activity progressing along the route of the onshore cable corridor.

4.11.1.7 The impacts are predicted to be of local spatial extent, short term duration (two construction phases of three months at any particular location), small scale and reversible. It is predicted that the effects would affect landscape receptors directly. The magnitude of impact would be negligible.

*Sensitivity of the receptor*

4.11.1.8 Construction activity would be transient and could not be considered completely atypical of any of the character areas crossed due to the present extent of a range of human activity within them. Construction of the onshore cable corridor is unlikely to result in undue consequences for the maintenance of the baseline landscape character of any area that it crosses and thus all character areas are considered to be of low susceptibility.

4.11.1.9 The value of landscape character areas crossed by the onshore cable corridor varies. Those falling within the North Norfolk AONB are generally considered to be of high value due to the national designation of the landscape. Elsewhere, the 2012 South Norfolk Landscape Planning Policies Review identifies river valley character types within South Norfolk as being of particular value and these areas, further covered by South Norfolk Local Plan Policy DM4.5, are considered to be of medium value. Although equivalent reviews and policy do not exist for North Norfolk and Broadland districts the similarities between river valley character types across all these areas suggest that they should be considered of equivalent value. There is no further documentary evidence to suggest that other landscape character areas or types within the onshore cable corridor study area are of increased value and these are generally considered to be low value.

4.11.1.10 Landscape receptors are deemed to be of low susceptibility, and range from high to low value. The sensitivity of landscape character areas is therefore, considered to range from medium to low.

*Significance of the effect*

4.11.1.11 Overall, the sensitivity of landscape character areas is considered to range from medium to low and the magnitude of the impact is deemed to be negligible. The effect would range from **minor adverse to negligible** significance, which is not significant.

*Visual Effects*

Settlements

*Magnitude of impact*

4.11.1.12 A total of 27 settlements have been identified within the onshore cable corridor study area for the Hornsea Three onshore cable corridor of which five have been excluded from further consideration due to likely negligible impact, as detailed at section 4.7.6. The magnitude of impact on visual receptors within the remaining 21 settlements would vary with those closest to the cable corridor generally experiencing the greatest effects and those more distant experiencing effects of lesser magnitude.

4.11.1.13 The Hornsea Three onshore cable corridor does not pass directly through any settlements although it does run within approximately 100 m of five of the identified settlements and it is at these where visual impacts would be greatest; the proximity of the onshore cable corridor to three of these is illustrated on Figure 4.8, Figure 4.9 and Figure 4.10 (Kelling, Longville and Little Melton). These have been illustrated because they are the closest settlements to the onshore cable corridor with potential to experience the greatest impacts. Impacts would arise from the introduction of construction activities (excavations, temporary work lighting, individual tree felling, limited hedgerow removal, etc.) into views that presently, in the most part, look out across open fields adjacent to the settlements as illustrated by viewpoints CC3, CC4 and CC12 in volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages (viewpoint locations are shown on Figure 4.1). In all cases the maximum design scenario would see construction activity present in any one location for no more than three months so the impact would be temporary short term and reversible i.e. landscape features would be reinstated following completion of construction activities. In the two phase construction scenario the temporary short term impacts would occur twice, separated by a period of up to three years, although would not result in impacts of notably different magnitude.

4.11.1.14 Views would tend to be limited to the periphery of nearby settlements, on the sides closest to the cable corridor, and would often be partially obscured by buildings or vegetation. These may include views of excavators, other heavy plant and HGV's, temporary compounds and storage areas and, at High Kelling, HDD compounds. Further within settlements it is likely that views of Hornsea Three would be completely obscured.

4.11.1.15 Beyond this, in settlements more distant from the cable corridor, the potential for views and therefore the magnitude of impact would rapidly diminish as the layering of vegetation within the flat or gently undulating landscape interrupts views of construction activities. The scale of impacts would vary depending on the exact nature of views available from individual settlements although beyond approximately 200 m impacts are likely to be negligible.

4.11.1.16 The most affected settlements would be those smaller settlements where construction activity would be seen from a wider extent, such as Kelling (see Figure 4.8), or those where the onshore cable corridor passes very close to part of the settlement, such as at Little Melton (see Figure 4.10). In this case impacts may be large scale but only experienced in very localised areas over a short period of time with the wider settlement relatively unaffected.

4.11.1.17 Construction lighting is likely to have limited impact on settlements due to the existing presence of artificial light sources. Lighting may be more notable where settlements are particularly small or where street lighting is limited. Impacts would only occur during periods where working hours extend beyond the hours of daylight (e.g. autumn/winter) and only for a few hours each day.

4.11.1.18 The impacts on visual receptors within settlements are predicted to be of localised spatial extent, up to large scale, temporary short term duration and reversible. It is predicted that the impact would, in some instances, affect the receptor directly. The magnitude would range from minor at settlements where the construction works would be most visible, such as Kelling, through to negligible and no change on settlements where views of the construction works would be very limited or non-existent.

*Sensitivity of receptor*

4.11.1.19 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology the sensitivity of visual receptors within settlements is considered to be high.

*Significance of effect*

4.11.1.20 Overall, the sensitivity visual receptors within settlements is considered to be high and the magnitude of the impact is deemed to range from moderate to no change. The effects on settlements would range from **moderate adverse** significance, at the most affected settlements, to **negligible** significance, which is not significant.

Key Routes

*Magnitude of impact*

4.11.1.21 As detailed at section 4.7.6 a total of 14 key routes have been identified within the onshore cable corridor study area for the Hornsea Three onshore cable corridor and all but two of these are crossed by the cable corridor. These comprise six main roads, three rail lines and five promoted long distance walking/cycle routes, one of which is a National Trail.

4.11.1.22 Where intersected by the cable corridor the majority of these routes would be crossed using HDD which would avoid the need for closures or diversions. The exceptions to this are the Holt-Mannington Walk, the Tas Valley Way and, potentially, the Peddars Way and Norfolk Coast Path (see viewpoint CC1 in volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages) as set out in volume 1, chapter 3: Project Description. Impacts would primarily arise from the introduction of construction activity, and sometimes temporary construction or HDD compounds, into views at close proximity to each of the routes. These would be seen over short sections, up to several hundred meters, of these long distance routes.

4.11.1.23 The transient nature of construction activities and short term duration of activities at any one location would result in impacts on all visual receptors using key routes being temporary short term. In the two phase construction scenario the temporary short term impacts would occur twice, separated by a period of up to three years, although would not result in impacts of notably different magnitude.

4.11.1.24 In the case of people travelling by car or train, views of Hornsea Three would tend to be very brief in relation to journey time, seen as the cable corridor is passed at high speed. The magnitude of impacts on these receptors would be negligible due to the brief, and temporary short term changes to views.

4.11.1.25 Those travelling by foot or cycle would generally experience views of construction activity for longer, when travelling on a given route, due to the lower speed of travel and would experience a more notable change to the baseline as a result.

4.11.1.26 In order for construction activities to cross the Holt-Mannington Walk, the Tas Valley Way and, potentially, the Peddars Way and Norfolk Coast Path would require temporary closure or diversion of routes. Users of these routes would experience changed views as a result of diversions. Impacts on diverted sections are likely to be similar to those on routes crossed by HDD i.e. close views of construction activities over a short extent of the route. Some offshore activity associated with the landfall and works in the intertidal zone would also be visible from the Peddars Way and Norfolk Coast Path.

4.11.1.27 Two routes, the Holt-Mannington Walk and Marriot's Way/NCN Route 1, are crossed by the Hornsea Three onshore cable corridor at two locations. Due to construction activity progressing along the onshore cable corridor, the crossings are likely to be made successively so users of the routes would experience views of construction activities for a longer period of time. The total duration for the crossings of each route across two phases would, however, remain temporary short term.

4.11.1.28 Impacts associated with construction lighting would only occur during periods where core working hours as set out in the Outline CoCP (document reference A8.5) extend beyond the hours of daylight (e.g. autumn/winter), which at most would be for a few hours each day. Furthermore it is noted that when this does occur, it is likely that other existing uses will already be creating artificial illumination (e.g. vehicles and street lighting) which minimises the effect of Hornsea Three. The impact of construction lighting may be more notable for users of unlit PRoW and cycle routes although these are likely to see less use during hours of darkness. Any activities outside of the core working hours would need to be agreed with the relevant Environmental Heath Office in consultation with relevant stakeholders as required.

4.11.1.29 The overall impacts on visual receptors using key routes within the onshore cable corridor study area is predicted to be of limited spatial extent, up to large scale, temporary short term duration and would be reversible. It is predicted that the impact would affect the receptor directly. The magnitude is therefore, considered to be minor.

*Sensitivity of the receptor*

4.11.1.30 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology the sensitivity of visual receptors using key routes is considered to range from very high (users of the Peddars Way and Norfolk Coast Path) to negligible (users of major A-roads).

*Significance of the effect*

4.11.1.31 Overall, for users of the Peddars Way and Norfolk Coast Path, it is predicted that the sensitivity of the receptor is considered to be very high and the magnitude of the impact is deemed to be minor. The effect would be of **moderate adverse** significance, which is not significant.

4.11.1.32 Overall, for users of other long distance paths, it is predicted that the sensitivity of the receptor is considered to be high and the magnitude of the impact is deemed to be minor. The effect would be of **moderate-minor adverse** significance, which is not significant.

4.11.1.33 Overall, for rail users, it is predicted that the sensitivity of the receptor is considered to be medium and the magnitude of the impact is deemed to be minor. The effect would be of **minor adverse** significance, which is not significant.

4.11.1.34 Overall, for users key road routes, it is predicted that the sensitivity of the receptor is considered to be negligible and the magnitude of the impact is deemed to be minor. The effect would be of **negligible** significance, which is not significant.

Accessible and Recreational Landscapes

*Magnitude of impact*

4.11.1.35 Only three accessible and recreational landscapes have been identified, at section 4.7.6, as having the potential to experience significant effects as a result of the construction activities associated with the Hornsea Three onshore cable corridor; Weybourne Beach, Fox Hill/Muckleburgh Hill and Kelling Heath.

4.11.1.36 The accessible landscapes of both Kelling Heath and Fox Hill/Muckleburgh Hill occupy elevated areas comprising a mix of woodland cover and more open areas of heathland crossed by numerous paths. Users of these areas would experience intermittent, elevated views of construction activities including temporary construction and HDD compounds. Some offshore activity associated with the landfall and works in the intertidal zone would be visible from some areas on Fox Hill/Muckleburgh Hill, as illustrated by viewpoint CC2 in volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages. Along the southern edge of Kelling Heath views of works to the cable corridor would be at close proximity but more typically across the two areas the works would be seen from a distance of several hundred meters.

4.11.1.37 Weybourne beach would experience effects the same as those described for the Peddars Way/ England Coast Path, as described above, which follow a route along the beach as they pass through the onshore cable corridor study area.

4.11.1.38 Where construction activities are visible within these areas the construction lighting would be also, although other light sources associated with settlements, roads and shipping would also be seen in the distance. Construction lighting would be likely to have the most notable impact at Weybourne beach due to the close proximity of the receptor to the lighting, however, all of these accessible landscapes would be more frequently visited during the hours of daylight. Impacts associated with construction lighting would only occur during periods where core working hours as set out in the Outline CoCP (document reference A8.5) extend beyond the hours of daylight (e.g. autumn/winter), which at most would be for a few hours each day. Any activities outside of the core working hours would need to be agreed with the relevant Environmental Heath Office in consultation with relevant stakeholders as required.

4.11.1.39 The overall impact on visual receptors within accessible and recreational landscapes is predicted to be of localised spatial extent, up to large scale, temporary short term duration and reversible. It is predicted that the impact would affect the receptor directly. The magnitude would range from minor, where the construction works would be seen up close (Weybourne Beach), through to negligible where views of the construction works would be very limited or non-existent (Kelling Heath).

*Sensitivity of the Receptor*

4.11.1.40 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology the sensitivity of visual receptors within accessible and recreational landscapes is considered to be high.

*Significance of the effect*

4.11.1.41 Overall, the sensitivity of visual receptors within accessible and recreational landscapes is considered to be high and the magnitude of the impact is deemed to range from minor to negligible. The effect would be up to **moderate-minor adverse** significance, which is not significant.

Local Routes (Roads and Public Rights of Way)

*Magnitude of impact*

4.11.1.42 Impacts on local roads and Public Rights of Way would occur as a result of construction activities being seen by users of these routes. The greatest magnitude impacts would be experienced where the Hornsea Three onshore cable corridor intersects routes and they are crossed, such as at viewpoints CC4, CC5, CC8, CC9 and CC13 (see volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages); for these routes the nature of impacts would be the same as described for Key Routes above. Where routes are not crossed by the cable corridor views would generally be intermittent due to the extent of roadside and field boundary vegetation that filters or screens views. The greatest magnitude impacts would typically be experienced within a few tens of meters of the construction activities where they are most visible and where routes run parallel to the cable corridor and thus experience close views over a greater extent. Beyond approximately 100 m from the cable corridor the layering effect of vegetation in the surrounding landscape would frequently result in views becoming very limited; where construction activities are seen they would be in the distance and are unlikely to be especially notable.

4.11.1.43 As described for Key Routes, views of construction lighting are likely to have limited impact on road users but may be more notable from unlit PRoW, although these are likely to see less use during hours of darkness. In all cases impacts would only occur during periods where working hours extend beyond the hours of daylight (e.g. autumn/winter) and only for a few hours each day.

4.11.1.44 The overall impact on visual receptors using local routes is predicted to be of localised spatial extent, ranging from large scale to negligible, temporary short term duration and reversible. It is predicted that the impact would affect the receptor directly. The magnitude would range from minor, where the construction works would be seen up close, through to negligible or no change where views of the construction works would be very limited or non-existent.

*Sensitivity of the Receptor*

4.11.1.45 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology the sensitivity of visual receptors using PRoW group is considered to be high while those using local roads are considered to be medium.

*Significance of the effect*

4.11.1.46 Overall, for users of PRoW, the sensitivity of the receptor is considered to be high and the magnitude of the impact is deemed to range between minor and no change. The effect would be of up to **moderate-minor adverse** significance, which is not significant.

4.11.1.47 Overall, for users of local roads in the group, the sensitivity of the receptor is considered to be medium and the magnitude of the impact is deemed to minor. The effect would be of **minor adverse** significance, which is not significant.


Figure 4.8: Onshore cable corridor aerial photo: Kelling.

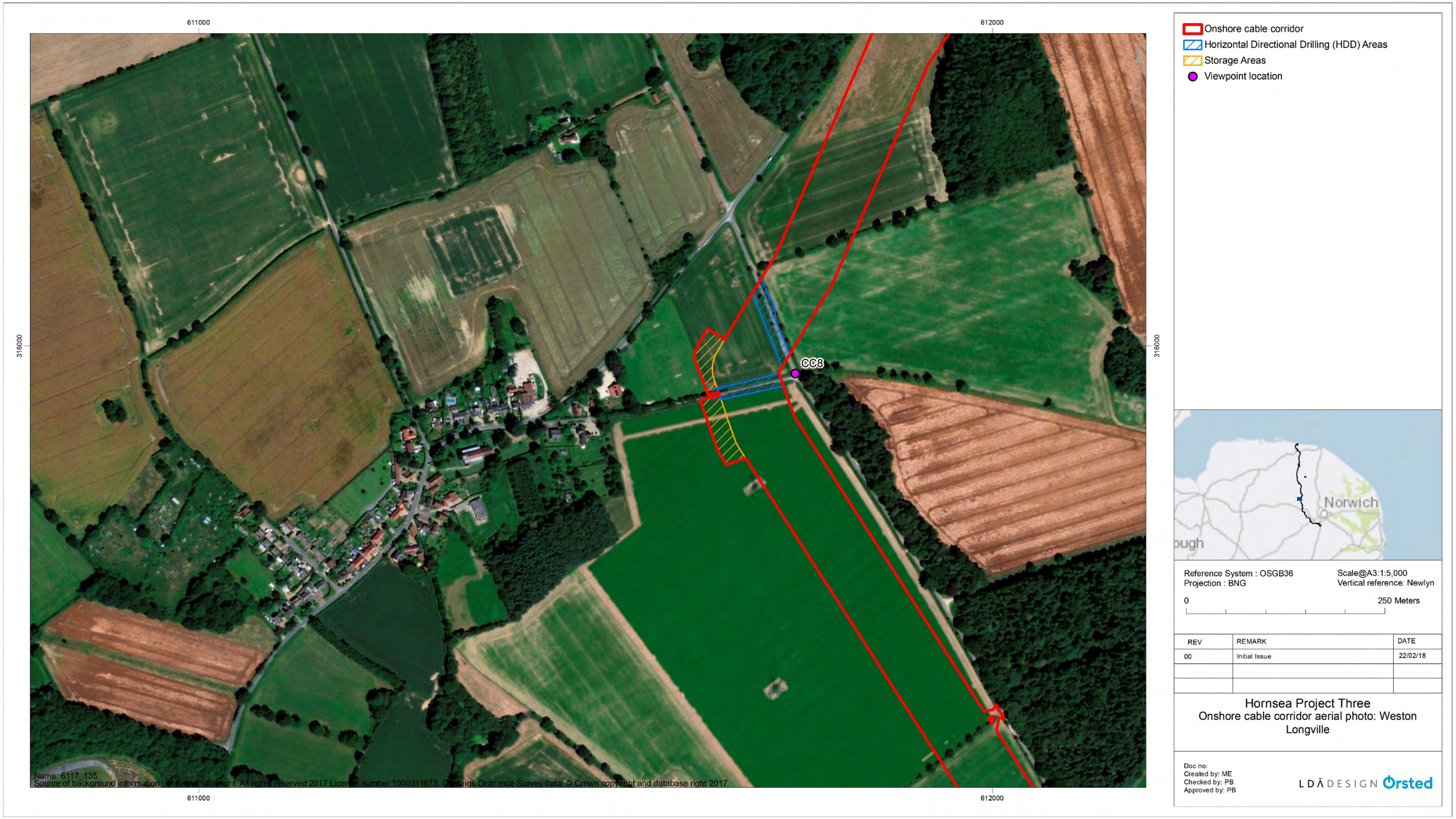


Figure 4.9: Onshore cable corridor aerial photo: Weston Longville.


Figure 4.10: Onshore cable route aerial photo: Little Melton.

### Onshore HVAC Booster Station

*Landscape and Visual Effects*

4.11.1.48 The only landscape receptor likely to experience construction effects from the construction works associated with the HVAC booster station that are markedly different to the operational effects is the onshore HVAC booster itself, which would temporarily (short term to medium term) take on the character of a construction site. There would be a localised alteration to the fabric of the site to establish access and working areas within the site. The temporary construction area, adjacent to the onshore HVAC booster station, would be removed and ground reinstated following the construction phase; other site infrastructure would remain throughout the operation of the Hornsea Three.

4.11.1.49 In terms of visual receptors, residents of some of the nearby houses, primarily those close to the site on Sweetbriar Lane and with more open views, would be likely to see vehicle movements and some of the ground works during construction. These effects would be different in nature to those experienced once the onshore HVAC booster station is complete, but lower in terms of their magnitude and significance. Much of the preliminary construction work would be at ground level and therefore potentially screened by intervening vegetation and/or landform.

4.11.1.50 The presence of vehicles, plant and machinery on site would give rise to landscape and visual effects, but these would be restricted to localised and short to medium term, temporary views of construction activity, which would not give rise to notable landscape character or visual effects over and above those of the operational site.

4.11.1.51 Construction lighting may be required, at certain times, throughout the onshore HVAC booster station site and the adjacent temporary construction compound associated with it. Lighting would be task based and designed to avoid light spill and, where visible, would generally be seen from a distance resulting in limited impact. In all cases impacts would only occur during periods where working hours extend beyond the hours of daylight (e.g. autumn/winter) and only for a few hours each day.

4.11.1.52 The primary landscape and visual effects arising from the Hornsea Three would be from the permanent onshore HVAC booster station and therefore greater focus is placed on landscape and visual effects the operation and maintenance phase as discussed at section 4.11.2.

### Onshore HVDC Converter/HVAC Substation

*Landscape and Visual Effects*

4.11.1.53 The only landscape receptor likely to experience construction effects that are markedly different to the operational effects is the site itself, which would temporarily (short term to medium term) take on the character of a construction site. There would be a localised alteration to the fabric of the site to establish access and working areas within the site. The temporary construction area, adjacent to the onshore HVDC converter/HVAC substation, would be removed and ground reinstated following the construction phase; other site infrastructure would remain throughout the operation of the Hornsea Three.

4.11.1.54 In terms of visual receptors, residents of some of the nearby houses, primarily those close to the site on Mangreen and Mangreen Lane, would be likely to see vehicle movements and some of the ground works during construction. These effects would be different in nature to those experienced once the onshore HVDC Converter/HVAC substation is complete, but lower in terms of their magnitude and significance despite the slightly closer proximity. Much of the preliminary construction work would be at ground level and therefore potentially screened by intervening vegetation and/or landform.

4.11.1.55 The presence of vehicles, plant and machinery on site would give rise to landscape and visual effects, but these would be restricted to localised and short to medium term, temporary views of construction activity, which would not give rise to notable landscape character or visual effects over and above those of the operational site.

4.11.1.56 Construction lighting may be required, at certain times, throughout the onshore HVDC Converter/HVAC substation site and the adjacent temporary construction compound associated with it. Lighting would be task based and designed to avoid light spill and, where visible, would generally be seen from a distance and in relatively close proximity to other artificial light sources such as traffic on the A47. In all cases impacts would only occur during periods where working hours extend beyond the hours of daylight (e.g. autumn/winter) and only for a few hours each day.

4.11.1.57 The primary landscape and visual effects arising from the Hornsea Three would be from the permanent onshore HVDC Converter/HVAC substation and therefore greater focus is placed on landscape and visual effects of the operation and maintenance phase as discussed at section 4.11.2.

*Future monitoring*

4.11.1.58 No landscape and visual monitoring to test the predictions made within the construction phase impact assessment is considered necessary.

## 4.11.2 Operation and Maintenance Phase

4.11.2.1 The impacts of the onshore operation and maintenance of Hornsea Three have been assessed on landscape and visual resources. The environmental impacts arising from the operation and maintenance of Hornsea Three are listed in Table 4.6, along with the maximum design scenario against which each operation and maintenance phase impact has been assessed.

4.11.2.2 In line with the decommissioning strategy set out in volume 1, chapter 3: Project Description, operation and maintenance phase impacts of the onshore HVAC booster station and onshore HVDC converter/HVAC substation are considered to be reversible as a strategy is in place for the complete removal of both the electrical infrastructure and the concrete foundations, should it be required. Despite this, in line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, impacts lasting greater than 15 years are considered permanent due to the length of time in relation to a person's life time. Thus, an impact may be considered both permanent duration and reversible. The overall assessment of effect does not rely on the reversibility of the impact and would remain the same whether the electrical infrastructure and concrete foundations of the onshore HVAC booster station and onshore HVDC converter/HVAC substation elements were removed or not.

4.11.2.3 A description of the potential effect on landscape and visual receptors caused by each identified impact is given below.

### Onshore HVAC Booster Station

*Landscape Effects*

4.11.2.4 The greatest impacts on landscape character would be experienced within the site itself, which would be changed from part of an arable field to an HVAC booster station; impacts here would be large scale. Impacts on landscape character would extend across the field that the onshore HVAC booster station is located within, and across the field to the immediate north of this. These would be medium scale within approximately 150 m beyond which the landform becomes more elevated and impacts would rapidly reduce to small scale, becoming negligible beyond these two fields.

4.11.2.5 In assessing landscape value of the site and land within the ZVI the criteria set out in Box 5.1 of GLVIA and listed in volume 4, annex 4.1: Landscape and Visual Impact Assessment Methodology, appendix C are referred to.

4.11.2.6 The site and landscape within the area covered by the ZVI has no notable scenic quality above other areas of arable farmland within wider area. The character of the fields within and surrounding the onshore HVAC booster station site are common to the character of the landscape within the host LCAs and there are no elements of the site or its surroundings what could be identified as 'rare' that could potentially be affected by Hornsea Three. The landscape of the site and its surrounds is typical of the host LCAs and does not contain a particular character with few elements which are important examples of these landscapes, most notably the woodland to the east.

4.11.2.7 As detailed in Volume 3, Chapter 3: Ecology and Nature Conservation, the site and surrounding area is predominantly low value arable farmland and the woodland to the east is a County Wildlife Site of ecological value. The site contains protected species such as foraging bats and nesting birds. These aspects are fairly typical of a rural, agricultural landscape. There are no below ground heritage assets in the vicinity of the onshore HVAC booster station and there are no above ground heritage assets within the ZVI, nor are there any known cultural associations with the landscape of the surrounding area.

4.11.2.8 There are a number of PRoW within the ZVI of the onshore HVAC booster station, the main recreational value of which is likely to be to local residents for the access they provide and not particularly dependent on the experience of the landscape itself or due to notable perceptual qualities. There are none within the site.

4.11.2.9 In addition to the factors in Box 5.1 of GLVIA3 discussed above, the landscape has a value to the people who live in the area. This is not unusual and is the case with most land within Norfolk.

TF3 Hempstead, Bodham, Aylmerton and Wickmere Area

*Magnitude of impact*

4.11.2.10 There are two units of this character area that fall within the onshore HVAC booster station study area. The site lies partly within one of these while the other is located approximately 3.3 km to the north and would experience no effects. Impacts on the host LCA would be large scale within the onshore HVAC booster station site itself, where part of an arable field would become the booster station with new woodland planting to the perimeter of the site. On completion, the scale of impacts beyond the site, across fields to the south and west, would reduce rapidly to negligible as described in paragraph 4.11.2.3.

4.11.2.11 Proposed woodland planting would grow to partially screen the onshore HVAC booster station and help it become more integrated in the landscape although it is unlikely to notably reduce the scale of landscape impacts in the adjacent fields.

4.11.2.12 The impacts are predicted to be of limited spatial extent, permanent duration and reversible. It is predicted that the impact would affect the TF3 character area directly. The within the site itself magnitude of impact would be major rapidly reducing with distance outside the site. The overall magnitude of impact on LCA TF3 would be negligible.

*Sensitivity of the receptor*

4.11.2.13 The North Norfolk Landscape Character Assessment evaluates the condition of this LCA as being fair to moderate, with the majority having been affected by commercial agriculture which has removed the underlying structure. This landscape will be valued by the local population.

4.11.2.14 The tributary farmland landscape type is relatively open and large scale and characterised by long views over rolling landscapes with distant woodland and fields enclosed by hedgerows with trees. Skylines are prominent as are features that break them, such as telecoms towers and churches. The North Norfolk Landscape Character Assessment notes this landscape as being "moderately sensitive depending upon the location within the Area and the type of development proposed". The TF3 character area is particularly influenced by estate parkland which increases the susceptibility of this LCA to this type of infrastructure development although there is some degradation to the condition of the LCA and its strength of character. On balance it is considered that this LCA is of medium susceptibility.

4.11.2.15 The receptor is deemed to be of medium susceptibility and low value. The sensitivity of the receptor is considered to be medium.

*Significance of the effect*

4.11.2.16 Within the site itself, magnitude of impact would be major and the significance of effect would be **major adverse**, which is significant. Effects would rapidly reduce outside the site and would not be significant.

4.11.2.17 The overall effects on LCA TF3 would be of **negligible** magnitude and **minor adverse** significance, which is not significant.

<u>WP5 Plumstead and Barningham</u>

*Magnitude of impact*

4.11.2.18 The site lies partly within this LCA where impacts would be large scale within the onshore HVAC booster station site itself, where part of an arable field would become the booster station with new woodland planting to the perimeter of the site. On completion, the scale of impacts beyond the site, across fields to the north, would reduce rapidly to negligible as described in paragraph 4.11.2.3.

4.11.2.19 Proposed woodland planting would grow to partially screen the onshore HVAC booster station and help it become more integrated in the landscape although it is unlikely to notably reduce the scale of landscape impacts in the adjacent fields.

4.11.2.20 The impact is predicted to be of limited spatial extent, permanent duration and reversible. It is predicted that the impact would affect the WP5 character area directly. The overall magnitude of impact on LCA WP5 would be negligible.

*Sensitivity of the receptor*

4.11.2.21 The wooded with parkland LCT is relatively enclosed with views limited by the extensive tree and woodland cover which includes both deciduous and coniferous plantations of all ages. The WP5 character area is more open than the norm within its type, less influenced by parkland and well removed from larger settlements. The condition of this LCA is considered to be generally good while its strength of character is moderate. The North Norfolk Landscape Character Assessment identifies the sensitivity of the key characteristics of the parent LCT as ranging between moderate and moderate to high although notes in relation to the LCA that "the very rural, sensitive and relatively intact nature of the landscape in this Area would be considerably disturbed by the introduction of large scale features". Given the generally good condition of this LCA and the elevated sensitivity noted by the character assessment the susceptibility is considered to be high-medium.

4.11.2.22 The North Norfolk Landscape Character Assessment highlights that this LCA is fairly remote, situated away from larger settlements and busier roads and is, as a result, quiet. This landscape will be valued by the local population although there is no indication that it should be considered more widely valued within the documented baseline.

4.11.2.23 The receptor is deemed to be of high-medium susceptibility and low value. The sensitivity of the receptor is considered to be high-medium.

*Significance of the effect*

4.11.2.24 Within the site itself, the magnitude of impact would be major and the significance of effect would be **major adverse**, which is significant. Effects would rapidly reduce outside the site and would not be significant.

4.11.2.25 The overall effects on LCA WP5 would be of negligible magnitude and **minor-negligible adverse** significance, which is not significant.

*Visual Effects*

4.11.2.26 Visualisations produced for representative viewpoints are used to aid the assessment of effects on visual receptors for the onshore HVAC booster station. These visualisations, along with a description of the effects and a judgement of the scale of effect at each viewpoint, both upon completion and long term once proposed mitigation planting begins to mature, is included within volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages. The scale of effect at each viewpoint is summarised in Table 4.13.

Table 4.13: Scale of impact at onshore HVAC booster station viewpoints.

| VP | Name | Distance/Direction | Scale of Impact (on completion) | Scale of Impact (long term) |
|---|---|---|---|---|
| BS1 | Sweetbriar Lane | 0.6km, NW | Negligible | Negligible |
| BS2 | Holt-Mannington Walk, Barningham Green | 1.2km, E | Negligible | Negligible |
| BS3 | Holt-Mannington Walk, Watery Lane | 1.9km, SE | No change | No change |
| BS4 | Public Footpath (Corpusty FP14) | 1.3km, SW | Small | Negligible |
| BS5 | B1149 | 0.6km, SW | Medium | Small |

Settlements

- Edgefield

*Magnitude of impact*

4.11.2.27 The ZTV indicates potential views of the onshore HVAC booster station would primarily occur from the B1149 to the north of the village where it could be seen relatively distantly across fields and set against a backdrop of woodland and is likely to be barely perceptible. Potential visibility of the upper, lighting protection elements, is also indicated along the southern edge of settlement in the vicinity of The Pigs pub and extending along the adjacent roads, Pecks Lane and Plumpstead Road. Within the core of the settlement views are unlikely due to the extent of garden vegetation and presence of buildings screening views out. Proposed planting to the perimeter of the onshore HVAC booster station is unlikely to be seen in views from Edgefield as only the upper parts of the booster station are likely to be visible, as such impacts on completion and long term would be similar.

4.11.2.28 The impacts are predicted to be of negligible scale, localised spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors at Edgefield directly. The magnitude would be negligible.

*Sensitivity of the receptor*

4.11.2.29 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors within Edgefield is considered to be high.

*Significance of the effect*

4.11.2.30 Overall, the sensitivity of the receptor is considered to be high and the magnitude of impact is deemed to be negligible. The effect would be of **minor neutral** significance, which is not significant.

Local Routes (Roads and Public Rights of Way)

- Routes within 1 km of the HVAC booster station

*Magnitude of impact*

4.11.2.31 This group includes parts of the B1149, Sweetbriar Lane and Ramsgate Street as well as some PRoW to the north and east. Within this area the ZTV indicates potential views on much of the routes to south of Little Wood and west of the woodland immediately adjacent to the site of the proposed onshore HVAC booster station; to the east of this woodland there are no views from routes within this group. Viewpoints BS1 and BS5 indicate the type of views potentially available where the scale of impact ranges from medium to negligible upon completion and ranging from small to negligible when proposed woodland planting to the perimeter of the onshore HVAC booster station matures.

4.11.2.32 The closest route within the group to the onshore HVAC booster station is the bridleway to the east that runs through Barningham Green Plantation and New Covert. Views would not be possible for the majority of this route although where it briefly runs between the two blocks of woodland there would be relatively open views of one edge of the booster station seen at close proximity. Proposed woodland planting would soften the built form seen here although would not result in a notable change to the scale of impacts as it matures over time.

4.11.2.33 The impacts on visual receptors using PRoW are predicted to be small scale, limited spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors directly. The magnitude would be negligible.

4.11.2.34 The impacts on visual receptors using local roads is predicted to be small scale, intermediate spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors directly. The magnitude would be minor.

*Sensitivity of the receptor*

4.11.2.35 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors using PRoW within this group is considered to be high while those using local roads are considered to be medium.

*Significance of the effect*

4.11.2.36 Overall, for users of PRoW in the group, the sensitivity of the receptor is considered to be high and the magnitude of the impact is deemed to be negligible. The effect would be of **minor adverse** significance, which is not significant.

4.11.2.37 Overall, for users of local roads in the group, the sensitivity of the receptor is considered to be medium and the magnitude of the impact is deemed to be minor. The effect would be of **minor adverse** significance, which is not significant.

- Routes immediately north of Corpustry and Saxthorpe

*Magnitude of impact*

4.11.2.38 This group includes roads and PRoW immediately north of Corpustry and Saxthorpe and beyond 1 km from the onshore HVAC booster station. The ZTV indicates potential visibility extending between Strawberry Lane and the unnamed road between the B1345 and Edgefield Street. This potential visibility is in several large patches confined to areas of higher ground with several PRoW experiencing little or no visibility on account of running through lower lying areas. Potential visibility covers an intermediate extent of the routes in this group although, in reality, vegetation including roadside hedgerows is likely to reduce this to a localised extent. Viewpoints BS3 and BS4 (see volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages) are both located within this area and the scale of impacts are judged to be no change and small respectively upon completion. In views from the south west the proposed woodland planting is likely to provide some additional screening as it matures and consequently the scale of impact at viewpoint BS4 is judged to reduce to negligible scale in the long term.

4.11.2.39 The impacts visual receptors using PRoW is predicted to be negligible scale, limited spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors directly. The magnitude would be negligible.

4.11.2.40 The impact for visual receptors using local roads is predicted to be small-negligible scale, localised spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors directly. The magnitude would be minor-negligible.

*Sensitivity of the receptor*

4.11.2.41 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors using PRoW within this group is considered to be high while those using local roads are considered to be medium.

*Significance of the effect*

4.11.2.42 Overall, for users of PRoW in the group, the sensitivity of the receptor is considered to be high and the magnitude of impact is deemed to be negligible. The effect would be of **minor adverse** significance, which is not significant.

4.11.2.43 Overall, for users of local roads in the group, the sensitivity of the receptor is considered to be medium and the magnitude of impact would be minor-negligible. The effect would be of **negligible** significance, which is not significant.

- Routes west and south west of Edgefield and Edgefield Street

*Magnitude of impact*

4.11.2.44 This group lies entirely outside the ZVI.

4.11.2.45 This group is centred around the junctions of Briston Road, Ramsgate Street, Rectory Road and Sweetbriar Lane to the southwest of Edgefield. The ZTV indicates that the two PRoW in this group, a footpath extending south of Sweetbriar Lane and a footpath extending east from Rectory Road, would have no potential visibility. Impacts would therefore result in no change to PRoW in this group. Views from local roads would be less than that shown by the ZTV as the majority of these are lined with tall hedgerows that prevent views out. Any views of the onshore HVAC booster station would be glimpsed through gaps in these hedgerows where it would be seen as a distant feature set against woodland beyond and would not be readily distinguishable. Proposed woodland to the perimeter of the onshore HVAC booster station site would further reduce the number of potential views as it matures but it is unlikely to result in a notable difference to the scale of impacts.

4.11.2.46 The impact for visual receptors using local roads is predicted to be negligible scale, limited spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors directly. The magnitude would be negligible.

*Sensitivity of the receptor*

4.11.2.47 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors using PRoW within this group is considered to be high while those using local roads are considered to be medium.

*Significance of the effect*

4.11.2.48 Overall, for users of PRoW in the group, the sensitivity of the receptor is considered to be high and the magnitude of impact would be no change. The effect would be of **negligible** significance, which is not significant.

4.11.2.49 Overall, for users of local roads in the group, the sensitivity of the receptor is considered to be medium and the magnitude of impact would be negligible. The effect would be of **negligible** significance, which is not significant.

### Onshore HVDC Converter/HVAC Substation

*Landscape Effects*

4.11.2.50 The greatest impacts on landscape character would be experienced within the site itself, which would be changed from parts of arable fields, crossed by power lines, to an onshore HVDC converter/HVAC substation; impacts here would be large scale. Medium scale effects would extend across the field immediately south west of the double row of pylons adjacent to the site and as far as Mangreen Lane. Medium scale impacts would also extend across the field immediately east of the onshore HVDC converter/HVAC substation as far as Mangreen, covering an area coincident with that of the construction phase works area. Small scale impacts on landscape character would extend to the field to the west of the site, beyond the B1113 and bounded by the A47 to the north and the double row of pylons to the south. Beyond these areas impacts on landscape character would be negligible, largely as a result of the influence of existing infrastructure and layers of vegetation including woodlands, trees and hedgerows within the landscape.

4.11.2.51 In assessing landscape value of the site and land within the ZVI the criteria set out in Box 5.1 of GLVIA and listed in volume 4, annex 4.1: Landscape and Visual Impact Assessment Methodology, appendix C are referred to.

4.11.2.52 The onshore HVDC converter/HVAC substation site and its immediate surroundings are heavily visually influenced by the presence of the A47 and electricity transmission infrastructure and not considered to be of particular scenic quality, and there are no landscape elements or features that would be considered 'rare' or particularly important examples within their character types. The condition of the site is fairly typical of agricultural landscapes in the surrounding area. The site and local landscape comprises, inter alia, intensively farmed arable farmland and there are no atypical wildlife features within the site and no underground heritage assets have been identified within the site or its close vicinity. There are number of grade II and II* listed buildings in the vicinity of the onshore HVDC converter/HVAC substation, as detailed in Volume 3, Chapter 5: Historic Environment, the closest being Mangreen Hall, Gowthorpe Manor and Keswick Hall.

4.11.2.53 The landscapes in and around the onshore HVDC converter/HVAC substation site are not remote and there is little sense of tranquillity due to proximity to Norwich and road and grid infrastructure. There are a number of PRoW and recreational access areas within the ZVI of the onshore HVDC converter/HVAC substation, the main recreational value of which is likely to be to local residents. The site and the landscape within the ZVI, and a wider area extending along the southern bypass (A47), are protected by local Policy DM4.6 which recognises the role that the landscape has as part of the experience of seeing the City within its setting, but, as noted in the 2012 South Norfolk Landscape Planning Policies Review (Chris Blandford Associates 2012) and the 2001 South Norfolk Landscape Assessment, Volume 3, Implications for Policy document (Land Use Consultants 2001) *"the setting of the Norwich Southern Bypass is not of special landscape character or quality …"*.

4.11.2.54 In addition to the factors in Box 5.1 of GLVIA3 discussed above, the landscape has a value to the people who live in the area. This is not unusual and is the case with most land within Norfolk.

B1 Tas Tributary Farmland

*Magnitude of impact*

4.11.2.55 There are two units of this LCA within the onshore HVDC converter/HVAC substation study area with only that hosting the site, the larger of the two units, likely to experience any impacts on landscape character. Impacts on the host LCA would be large scale within the onshore HVDC converter/HVAC substation site itself, where the majority of two arable fields would become the converter/substation with new woodland planting to the perimeter of the site. On completion, the scale of impacts beyond the site, across fields to the south and west, would reduce rapidly to negligible as described in paragraph 4.11.2.42.

4.11.2.56 Proposed woodland planting would grow to partially screen the onshore HVAC booster station and help it become more integrated in the landscape although it would not notably reduce the scale of landscape impacts in the adjacent fields.

4.11.2.57 The impact is predicted to be of limited spatial extent, permanent duration and reversible. It is predicted that the impact would affect the B1 character area directly. The overall magnitude of impact on LCA B1 would be negligible.

*Sensitivity of the receptor*

4.11.2.58 This LCA is characterised as an open, gently undulating landscape with large open fields defined by hedgerows and scattered hedgerow trees. Settlement is present as a small number of large villages and it is cut through by a number of major transport corridors. The South Norfolk Landscape Character Assessment notes particular sensitivities of this LCA include: infill development, loss of vegetation structure, sloping topography and open landscape, potential for adverse effects on views to/from Norwich and the bypass, and, views to/from The Broads.

4.11.2.59 The northern tip of the LCA, which contains the site, is heavily influenced by existing infrastructure including the A47 and two double rows of pylons that terminate at Norwich Main substation approximately 0.9 km south west of the onshore HVDC converter/HVAC substation site and also within this LCA. Although views to and from the bypass would be possible, wider visibility would be limited and there is unlikely to be intervisibility with either the wider city of Norwich or The Broads. On balance, the susceptibility of this LCA is considered to be medium.

4.11.2.60 This LCA will be valued by the local population although there is no wider recognition of its value within the documented baseline and existing infrastructure is a notable detractor in the localised area close to the onshore HVDC converter/HVAC substation.

4.11.2.61 The receptor is deemed to be of medium susceptibility and low value. The sensitivity of the receptor is medium-low.

*Significance of the effect*

4.11.2.62 The within the site itself magnitude of impact would be major and the significance of effect would be **major-moderate adverse**, which is significant. This assessment of significance within the site is higher than would result from strictly following Table 4.11 and is based on following the method in section 4.11 and professional judgement. Effects would rapidly reduce outside the site and would not be significant.

4.11.2.63 The overall effects on LCA B1 would be of negligible magnitude and **negligible** significance, which is not significant.

C1 Yare Tributary Farmland with Parkland

*Magnitude of impact*

4.11.2.64 This LCA extends from the site and extends broadly north west to the edge of the onshore HVDC converter/HVAC substation study area and extending considerably beyond that. The site is located on the boundary between this LCA and the adjacent B1 LCA. Impacts on this LCA would be large scale within the onshore HVDC converter/HVAC substation site itself, where part of an arable field would become the converter/substation with new woodland planting to the perimeter of the site. On completion, the scale of impacts beyond the site itself would be limited to an area of small scale impacts beyond the B1113, as described in paragraph 4.11.1.43. Elsewhere within this LCA impacts on landscape character would be negligible.

4.11.2.65 Proposed woodland planting would grow to partially screen the onshore HVAC booster station and help it become more integrated in the landscape although it would not notable reduce the scale of landscape impacts in this LCA.

4.11.2.66 The impact is predicted to be of limited spatial extent, permanent duration and reversible. It is predicted that the impact would affect the C1 character area directly. The overall magnitude of impact on LCA C1 would be negligible.

*Sensitivity of the receptor*

4.11.2.67 This LCA is defined as having a shelving landform with gently undulating topography. It is sparsely settled and occupied by peaceful farmland, small farm woodlands and large parkland estates. Particular sensitivities of this LCA identified by the South Norfolk Landscape Character Assessment include: loss of rural farmland character, loss of clarity of the urban/rural divide, openness of views and potential impact on views to Norwich, and, loss of mature tree boundaries (without replacement). It is noted as being a transitional landscape forming part of the transition between the rural and urban landscape and it is this characteristic that is most readily apparent in the vicinity of the onshore HVDC converter/HVAC substation site with other key characteristics providing lesser influence. It is considered that within this transitional area that the susceptibility to the type of development proposed is generally lower than elsewhere in the LCA although overall susceptibility of this LCA is considered to be medium.

4.11.2.68 The 2012 South Norfolk Landscape Planning Policies Review provided a review of policy designed to protect specific LCAs across South Norfolk. This review specifically considers landscape value in identifying landscapes of particular importance although only river valley character types are given special consideration. As such, this landscape will be valued by the local population although there is no wider recognition of its value and existing infrastructure is something of a detractor in the localised area close to the onshore HVDC converter/HVAC substation.

4.11.2.69 The receptor is deemed to be of medium susceptibility and low value. The sensitivity of the receptor is medium-low.

*Significance of the effect*

4.11.2.70 The within the site itself magnitude of impact would be major and the significance of effect would be **major-moderate adverse**, which is significant. Effects would rapidly reduce outside the site and would not be significant.

4.11.2.71 The overall effects on LCA C1 would be of negligible magnitude and **negligible** significance, which is not significant.

*Visual Effects*

4.11.2.72 Visualisations produced for representative viewpoints are used to aid the assessment of effects on visual receptors within the onshore HVDC converter/HVAC substation study area. These visualisations, along with a description of the effects and a judgement of the scale of impact at each viewpoint, both upon completion and long term once proposed mitigation planting begins to mature, is included within volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages. The scale of impact at each viewpoint is summarised in Table 4.14 below:

Table 4.14: Scale of impact at onshore HVDC converter/HVAC substation viewpoints.

| VP | Name | Distance/Direction | Scale of Impact (on completion) | Scale of Impact (long term) |
|---|---|---|---|---|
| SS1 | Venta Icenorum | 2.0km, E | Negligible | Negligible |
| SS2 | Bridleway (Swardeston BR12) | 1.0km, S | Small | Small-Negligible |
| SS3 | Bridleway (Keswick BR3) | 2.5km, W | Small-Negligible | Small-Negligible |
| SS4 | Marston Marshes | 2.0km, N | Negligible | Negligible |
| SS5 | Boudicca Way | 3.2km, NE | Small | Small |
| SS6 | Low Road | 0.9km, N | Medium | Medium |
| SS7 | Tas Valley Way | 1.6km, NW | Small | Small |

| VP | Name | Distance/Direction | Scale of Impact (on completion) | Scale of Impact (long term) |
|---|---|---|---|---|
| SS8 | Swardeston Common | 1.0km, SW | Negligible | Negligible |
| SS9 | Mangreen Lane | 0.2km, S | Large | Large |

Settlements

- Swardeston – 0.7 km south west

*Magnitude of impact*

4.11.2.73 Swardeston lies outside the ZVI.

4.11.2.74 Swardeston is a compact and well vegetated village with extensive garden and roadside vegetation throughout along with extensive tree cover in and around the village common. Although the ZTV indicates relatively extensive visibility this would be limited to the periphery of the settlement. There would potentially be views from the open area of the cricket ground, to one end of the common, which would be similar to those seen at viewpoint SS8 where the scale of impact is considered to be negligible. Proposed woodland planting to the perimeter of the onshore HVDC converter/HVAC substation would have no impact on views from Swardeston so the scale of impact at completion and in the long term would remain the same.

4.11.2.75 The impact is predicted to be of negligible scale, localised spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors at Swardeston directly. The magnitude of impact would be negligible.

*Sensitivity of the receptor*

4.11.2.76 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors within Swardeston is considered to be high.

*Significance of the effect*

4.11.2.77 Overall, the sensitivity of the receptor is considered to be high and the magnitude of the impact is deemed to be negligible. The effect would be of **minor neutral** significance, which is not significant.

- Swainsthorpe – 1.9 km south

*Magnitude of impact*

4.11.2.78 Swainsthorpe lies outside the ZVI.

4.11.2.79 Swainsthorpe is a relatively spread out settlement straddling the railway line which runs between Norwich and Stowmarket. Mature garden vegetation is extensive within the village and fields immediately surrounding it, particularly to the north, are bounded by mature tree belts. The combination of these limit views towards the site such that visibility of Hornsea Three would be considerably less than suggested by the ZTV. The most open view would be from Church Road at the western edge of the village although here the onshore HVDC converter/HVAC substation would be seen distantly, through or above trees and in the context of power lines running on pylons passing overhead. Proposed woodland planting to the perimeter of the onshore HVDC converter/HVAC substation would have no effect on views from Swainsthorpe so the scale of impact at completion and in the long term would be the same.

4.11.2.80 The impact would be of negligible scale, limited spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors at Swainsthorpe directly. The magnitude of impact would be negligible.

*Sensitivity of the receptor*

4.11.2.81 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology the sensitivity of visual receptors within Edgefield is considered to be high.

*Significance of the effect*

4.11.2.82 Overall, the sensitivity of the receptor is considered to be high and the magnitude of the impact is deemed to be negligible. The effect would be of **minor neutral** significance, which is not significant.

- Stoke Holy Cross – 2.4 km south east

*Magnitude of impact*

4.11.2.83 Stoke Holy Cross lies outside the ZVI.

4.11.2.84 This settlement runs along the far side of the River Tas valley from the onshore HVDC converter/HVAC substation. As with other settlements in the onshore HVDC converter/HVAC substation study area it is relatively well vegetated although becomes more open to the west of Norwich Road as the settlement extends into the valley bottom. Elevated views looking across the settlement and river valley are possible from some of the roads to the east of Norwich Road although these aren't aligned with the site. Visibility of the onshore HVDC converter/HVAC substation is likely to be limited the western edge of the village where views would be similar in nature, but more distant to those illustrated at viewpoint SS1 (see volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages). Proposed woodland planting to the perimeter of the onshore HVDC converter/HVAC substation would have no effect on views from Stoke Holy Cross so the scale of impact at completion and in the long term would be the same.

4.11.2.85 The impact is predicted to be of negligible scale, limited spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors at Stoke Holy Cross directly. The magnitude of impact would be negligible.

*Sensitivity of the receptor*

4.11.2.86 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology the sensitivity of visual receptors within Stoke Holy Cross is considered to be high.

*Significance of the effect*

4.11.2.87 Overall, the sensitivity of the receptor is considered to be high and the magnitude of the impact is deemed to be negligible. The effect would be of **minor neutral** significance, which is not significant.

Key Routes

- A47

*Magnitude of impact*

4.11.2.88 The A47 runs from the north east to north west of the onshore HVDC converter/HVAC substation study area following a broad arc to the centre of the study area where it passes immediately adjacent to the site. The route is lined with dense roadside vegetation along much of its length as it passes through the onshore HVDC converter/HVAC substation study area and embankments to either side are also present in parts. The most open views of the onshore HVDC converter/HVAC substation would occur as the road passes immediately adjacent where impacts would be large scale over a very localised area, as illustrated by a series of photographs taken from a moving car travelling east to west in the southern carriageway presented in volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages.

4.11.2.89 Elsewhere along the route channelled views would be seen looking along the road itself within approximately 1.5 km of the onshore HVDC converter/HVAC substation. These views would be similar, although from less elevated vantage points, to those at viewpoint SS7 (see volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages) where the scale of impact would be minor. Beyond this potential visibility breaks up and the presence of bridges crossing the road limits longer range views for road users. Hornsea Three would frequently be seen in the context of existing pylons and overhead wires, as illustrated by viewpoint SS7. As it matures proposed woodland planting would provide some screening, particularly at low level, as the A47 passes the onshore HVDC converter/HVAC substation and would lead to a slight reduction in the scale of impact.

4.11.2.90 Upon completion the impact is predicted to be of up to large scale, intermediate spatial extent, temporary long term duration and reversible. It is predicted that the impact would affect the receptors on the A47 directly. The magnitude if impact would be major-moderate.

4.11.2.91 When mitigation planting matures the impact is predicted to be of up to large-medium scale, intermediate spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors on the A47 directly. The magnitude would be moderate.

*Sensitivity of the receptor*

4.11.2.92 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors on the A47 is considered to be medium.

*Significance of the effect*

4.11.2.93 Overall, upon completion the magnitude of the impact would be major-moderate. The effect would be of **moderate adverse** significance, which is not significant.

4.11.2.94 When proposed mitigation begins to mature and provide screening the magnitude of the impact would be moderate. The effect would be of **moderate adverse** significance, which is not significant.

- Tas Valley Way

*Magnitude of impact*

4.11.2.95 The Tas Valley Way lies outside the ZVI.

4.11.2.96 This route extends broadly south from Norwich, passing to the east of the onshore HVDC converter/HVAC substation, as it heads towards Bracon Ash and out of the onshore HVDC converter/HVAC substation study area. The ZTV indicates potential visibility, albeit intermittently, along much of its length. In reality this would be considerably reduced as a result of passing alongside hedgerows and tree belts along its route and other intervening vegetation in the wider landscape. Where views of the onshore HVDC converter/HVAC substation are possible these would be seen relatively distantly and in the context of the pylons passing the site and other infrastructure such as the distant but often prominent masts at Poringland. Proposed woodland planting to the perimeter of the onshore HVDC converter/HVAC substation would have little effect, as it matures, on views from this route so the scale of impact at completion and in the long term would be the same. Viewpoint SS7 (see volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages), where impacts are judged to be of minor scale, is located on the Tas Valley Way at one of its closest locations to the onshore HVDC converter/HVAC substation.

4.11.2.97 The impact is predicted to be of minor scale, localised spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors on the Tas Valley Way directly. The magnitude would be minor-negligible.

*Sensitivity of the receptor*

4.11.2.98 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors on the Tas Valley Way is considered to be high.

*Significance of the effect*

4.11.2.99 Overall, the sensitivity of the receptor is considered to be high and the magnitude of the impact would be minor-negligible. The effect would be of **minor adverse** significance, which is not significant.

- Boudicca Way

*Magnitude of impact*

4.11.2.100 Boudicca Way lies outside the ZVI.

4.11.2.101 This route follows a broadly north-south route in the eastern part of the onshore HVDC converter/HVAC substation study area. It extends from Norwich southwards following a relatively elevated route past Arminghall and Stoke Holy Cross with a spur forking west to Venta Icenorum. As illustrated by the ZTV views would potentially be possible from a relatively wide extent of the route due to its elevated position. The onshore HVDC converter/HVAC substation would generally be seen appearing above dense woodland and below existing power lines. Viewpoints SS1 and SS5 (see volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages) are located on the Boudicca Way and the scale of impacts at these is judged to be negligible and small respectively. Proposed woodland planting to the perimeter of the onshore HVDC converter/HVAC substation would have little effect, as it matures, on views from this route so the scale of impact at completion and in the long term would be the same.

4.11.2.102 The impact is predicted to be of small scale, intermediate spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors on the Boudicca Way directly. The magnitude of impact would be minor.

*Sensitivity of the receptor*

4.11.2.103 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors on the Boudicca Way is considered to be high.

*Significance of the effect*

4.11.2.104 Overall, the sensitivity of the receptor is considered to be high and the magnitude of the impact would be minor. The effect would be of **moderate-minor adverse** significance, which is not significant.

<u>Accessible and Recreational Landscapes</u>

- Mulbarton Common

*Magnitude of impact*

4.11.2.105 Mulbarton Common lies outside the ZVI.

4.11.2.106 This area of open space is located at the northern end of Mulbarton. It is a flat, grassed amenity space dotted with occasional large trees. Large houses with mature garden vegetation bound the space with a school also present to the south. The ZTV indicates two bands of potential visibility extending across the common. In reality there would be no visibility of the onshore HVDC converter/HVAC substation due to intervening landform, and vegetation and development north of the open space. A wireline illustrating the maximum design scenario seen from this open space is presented on the wireline from Heritage Viewpoint Mulbarton (volume 3, chapter 5: Historic Environment) which confirms that the onshore HVDC converter/HVAC substation would not be visible.

4.11.2.107 The scale and magnitude of impact would be no change.

*Sensitivity of the receptor*

4.11.2.108 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors on Mulbarton Common is considered to be high.

*Significance of the effect*

4.11.2.109 Overall, the sensitivity of the receptor is considered to be high and the magnitude of the impact would be no change. The effect would be of **negligible** significance, which is not significant.

- Shotesham Common

*Magnitude of impact*

4.11.2.110 Shotesham Common lies outside the ZVI.

4.11.2.111 This area extends south west from Maltkiln Farm, following a narrow valley to Shotesham, just beyond the onshore HVDC converter/HVAC substation study area. This narrow valley is occupied by relatively open fields bounded by hedgerows and trees which would serve to break up views to a much greater extent than illustrated by the ZTV. Where the onshore HVDC converter/HVAC substation could potentially be seen it would be quite distant and only the upper parts would be visible appearing over the tops of trees and below existing pylons. Proposed woodland planting to the perimeter of the onshore HVDC converter/HVAC substation would not be seen beyond existing woodland from here so the scale of impact at completion and in the long term would be the same.

4.11.2.112 The impact is predicted to be of negligible scale, localised spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors within Shotesham Common directly. The magnitude would be negligible.

*Sensitivity of the receptor*

4.11.2.113 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors on Shotesham Common is considered to be high.

*Significance of the effect*

4.11.2.114 Overall, the sensitivity of the receptor is considered to be high and the magnitude of the impact would be negligible. The effect would be of **minor neutral** significance, which is not significant.

Local Routes (Roads and Public Rights of Way)

- Local routes to the north of the A47

*Magnitude of impact*

4.11.2.115 Parts of the B1113, Low Road and a minor road leading to Keswick Hall north of the A47 lie within the ZVI as illustrated on Figure 4.7. All other local routes within this group lie outside the ZVI.

4.11.2.116 This group includes the B1113 and some PRoW and local roads to the south of Eaton. The ZTV shows fragmented potential visibility across this group of routes and in reality this would be reduced due to the extent of vegetation and development screening views. Where views are possible they would be brief glimpses, similar in nature to that illustrated by viewpoint SS6 (see volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages) where the scale of impact is judged to be medium scale. Proposed woodland planting to the perimeter of the onshore HVDC converter/HVAC substation is unlikely to be seen from these routes, even as it matures and so would have little effect on views from this route; the scale of impact at completion and in the long term would therefore be the same. The onshore HVDC converter/HVAC substation would be less visible from PRoW than from local roads.

4.11.2.117 The impact is predicted to be of medium scale, limited spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors directly. The magnitude would be moderate-minor.

*Sensitivity of the receptor*

4.11.2.118 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors using PRoW within this group is considered to be high while those using local roads are considered to be medium.

*Significance of the effect*

4.11.2.119 Overall, for users of PRoW in the group, the sensitivity of the receptor is considered to be high and the magnitude of the impact would be moderate-minor. The effect would be of **minor adverse** significance, which is not significant.

4.11.2.120 Overall, for users of local roads in the group, the sensitivity of the receptor is considered to be medium and the magnitude of the impact would be moderate-minor. The effect would be of **minor adverse** significance, which is not significant.

- Local routes between the B1113 and A140, north of Swainsthorpe

*Magnitude of impact*

4.11.2.121 Only PRoW and local roads up to approximately 1km south of the onshore HVDC converter/HVAC substation lie within the as illustrated on Figure 4.7. All other local routes within this group lie outside the ZVI.

4.11.2.122 This group includes Mangreen Lane and Mangreen, immediately south of the onshore HVDC converter/HVAC substation, Gowthorpe Lane, Hickling Lane byway, and a number of other footpaths and bridleways. Views of the onshore HVDC converter/HVAC substation would tend to be quite intermittent across much of this area, despite what is indicated by the ZTV, as a result of extensive roadside, field boundary and other vegetation. Where views are possible the scale of impact would vary notably with distance. Hornsea Three would be seen in the context of pylons and overhead wires which run south of the site and, from some locations, road and other development to the north of the site. At close proximity, such as at viewpoint SS9, the scale of impact would be large while further afield, such as at viewpoint SS2, the scale of impact would rapidly reduce to small (see volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages). In close proximity the proposed woodland planting would soften the appearance of the onshore HVDC converter/HVAC substation but would not entirely screen it and would not notably reduce impacts as it matures. In more distant views, such as at viewpoint SS2, the proposed woodland planting would provide some additional screening and consequently reduce the scale of impacts slightly.

4.11.2.123 On completion, the impact for visual receptors using PRoW is predicted to be up to medium scale, limited spatial extent, temporary long term duration and reversible. It is predicted that the impact would affect the receptors directly. The magnitude would be moderate-minor.

4.11.2.124 As mitigation planting matures, the impact for visual receptors using PRoW is predicted to be up to medium-small scale, limited spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors directly. The magnitude would be minor.

4.11.2.125 The impact for visual receptors using local roads is predicted to be up to large scale, limited spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors directly. The magnitude would be moderate.

*Sensitivity of the receptor*

4.11.2.126 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors using PRoW within this group is considered to be high while those using local roads are considered to be medium.

*Significance of the effect*

4.11.2.127 On completion, for users of PRoW in the group the magnitude of the impact would be moderate-minor. The effect would be of major-moderate adverse significance, which is significant.

4.11.2.128 As mitigation planting matures the magnitude of the impact would be minor. The effect would be of moderate adverse significance, which is not significant.

4.11.2.129 Overall, for users of local roads in the group the impact would moderate. The effect would be of moderate adverse significance, which is not significant.

- Local routes east of the Tas Valley

*Magnitude of impact*

4.11.2.130 Local routes east of the Tas Valley lie outside the ZVI.

4.11.2.131 This group comprises local roads and PRoW located on elevated ground between the Tas Valley and the settlements of Arminghall and Upper Stoke. Impacts on this group would be similar to those previously described for the Boudicca Way. As illustrated by the ZTV views would potentially be possible from a relatively wide extent of the group due to the elevated position, although these might be somewhat intermittent or glimpsed as a result of field boundary and roadside vegetation screening views in some locations. The onshore HVDC converter/HVAC substation would generally be seen appearing above dense woodland and below existing power lines. Viewpoints SS1 and SS5 (see volume 6, annex 4.5: Photograph Panels, Wirelines and Photomontages) are located within the broad area occupied by this group and the scale of impact at these is judged to be negligible and small respectively. Proposed woodland planting to the perimeter of the onshore HVDC converter/HVAC substation would have little effect, as it matures, on views from these routes so the scale of impact at completion and in the long term would remain the same.

4.11.2.132 The impact is predicted to be of small scale, intermediate spatial extent, permanent duration and reversible. It is predicted that the impact would affect the receptors directly. The magnitude of impact would be minor.

*Sensitivity of the receptor*

4.11.2.133 In line with the methodology set out in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, and Table 4.9, the sensitivity of visual receptors using PRoW within this group is considered to be high while those using local roads are considered to be medium.

*Significance of the effect*

4.11.2.134 Overall, for users of PRoW in the group, the sensitivity of the receptor is considered to be high and the magnitude of impact would be minor. The significance of effect would be moderate adverse significance, which is not significant.

4.11.2.135 Overall, for users of local roads in the group, the sensitivity of the receptor is considered to be medium and the magnitude of impact would be minor. The effect would be of minor adverse significance, which is not significant.

*South Norfolk Local Plan Policy DM4.6*

4.11.2.136 As noted in section 4.7, this is primarily a land use policy tool rather than a designation to protect inherent qualities of the landscape itself, and significance of effects on the landscape, views and approaches protected by the policy are not assessed. The assessment below is presented as a narrative on description of potential effects.

4.11.2.137 Policy DM4.6 states:

*"Policy DM 4.6 Landscape Setting of Norwich All development proposals will not harm and where possible should enhance the landscape setting of Norwich with regard to the following considerations:*

*NSBLPZ*

*All development proposals within the Norwich Southern Bypass Landscape Protection Zone (NSBLPZ), as shown on the Policies Map, should have regard to protecting the openness of the Zone and, where possible, enhancing the landscape setting of the southern bypass, including the practice of wild flower planting and management regimes.*

*Key Views*

*All development proposals located within the Key Views 'cones' shown on the Policies Map should ensure they do not obstruct the long distance views to and from the City.*

*Undeveloped Approaches*

*"All development proposals within the visual zone of influence viewed from the identified Undeveloped Approaches to Norwich should reinforce and avoid undermining the rural character of the Undeveloped Approaches to Norwich."*

The NSBLPZ

4.11.2.138 This policy was reviewed in the 2012 South Norfolk Landscape Planning Policies Review (Chris Blandford Associates 2012) although the document defers to the 2001 South Norfolk Landscape Assessment, Volume 3, Implications for Policy document (Land Use Consultants 2001) in which it states "*the setting of the Norwich Southern Bypass is not of special landscape character or quality except in relation to the harm that unsuitable and uncharacteristic development in this area could cause, particularly as a result of the areas high levels of visual accessibility to and from the road and as part of the setting of Norwich.*" The 2001 document further states that the "*NSBPZ itself is not based on any intrinsic quality/character of the landscape.*" [Note, the NSBPZ is now referred to as the NSBLPZ.]

4.11.2.139 The 2001 report defines the purpose of the NSBPZ:

*"The purpose of the NSBPZ is to ensure that the new bypass does not come to be regarded as a development corridor or the development boundary for the City. The aim of planning policy is to protect the areas that contribute to the landscape setting of the road from development. The NSBPZ is not intended to be a Green Belt, nor to provide blanket restriction on all development. However, any proposed future development (over and above current allocations) within this zone will require very special justification and/or need to be approved through the Local Plan Review. Such exception could be made, for example, on the basis of an indisputable regional economic need or strategic requirement. Any development permitted would need to include appropriate commitments to mitigate landscape impacts, for example, by conserving particular landscape assets that contribute to local landscape character as defined in the landscape character assessment".*

4.11.2.140 Figure 4 in annex 4.5: Photograph Panels, Wirelines and Photomontages shows a series of photographs of the existing view looking approximately south-west taken from a car travelling west past the site on the southern carriageway of the A47. No locations on the A47 near the site were found at which to stop and take panoramic photographs, so these single moving shots were taken. They show that, looking south-west towards the countryside when travelling along this section of the A47, existing views from the west and east of the site are truncated by vegetation and roadside embankments (e.g. views A47_1, A47_2, A47_4, A47_16 and A47_17; obstructed views continue further west and east from these locations). Views across countryside open up close to and passing the site, with intermittent screening by existing vegetation. These images only show a single photograph frame looking sideways to the direction of travel, and do not illustrate the main direction of view travelling forwards including the existing pylons and overhead wires, road infrastructure and moving vehicles; they therefore do not show the complete view or the extent of infrastructure already dominant in views. The onshore HVDC converter/HVAC substation would obstruct views across open countryside from part of this section of road. The onshore HVDC converter/HVAC substation would be softened and partially screened by proposed woodland planting between it and the road as shown in the Outline LMP (document reference A8.7), but it would still be clearly visible. The onshore HVDC converter/HVAC substation would therefore affect the landscape of the NSBLPZ as seen from travellers in fast moving vehicles on the A47 where it approaches and passes the site, but it would not establish the bypass as a 'development corridor'.

Key Views

4.11.2.141 The onshore HVDC converter/HVAC substation would lie on the eastern edge of a view cone as shown on Figure 4.1 but is unlikely to obstruct long distance views to from the City. There is potential for onshore HVDC converter/HVAC substation to be visible in some views but it is unlikely to cause significant harm to them.

Undeveloped Approaches

4.11.2.142 The onshore HVDC converter/HVAC substation would be visible from the B1113 which is defined as one of the 'undeveloped approaches', where it passes between Swardeston and the A47. It would be seen in the context of existing large scale infrastructure including pylons and overhead lines and the A47 with associated moving traffic. This section of the road is lined by almost continuous roadside and field boundary vegetation in the form of hedges, scrub and trees which would restrict visibility of the onshore HVDC converter/HVAC substation, with greatest potential visibility as it passes the site. Viewpoint CC13 (annex 4.5 - Photograph Panels, Wirelines and Photomontages) is located on this road adjacent to the site of the onshore HVDC converter/HVAC substation, where a section of hedge would be removed to create a new site entrance, and trees planted between the hedge and the substation as illustrated in the Outline LMP (document reference A8.7). The onshore HVDC converter/HVAC substation would affect this 'undeveloped approach' adjoining the A47, in an area where it is already influenced by large scale infrastructure.

## 4.11.3 Decommissioning phase

4.11.3.1 The impacts of the onshore decommissioning of Hornsea Three have been assessed on landscape and visual resources. The environmental effects arising from the decommissioning of Hornsea Three are listed in Table 4.6, along with the maximum design scenario against which each decommissioning phase impact has been assessed.

4.11.3.2 A description of the potential effect on landscape and visual receptors caused by each identified impact is given below.

### Onshore HVAC Booster Station

4.11.3.3 The only landscape receptor likely to experience decommissioning effects that are markedly different to the operational effects is the site itself, which would temporarily (short term to medium term) take on the character of a demolition and restoration site. There would be a localised alteration to the fabric of the site to establish access and working areas within the site. The onshore HVAC booster station and its foundations, and any temporary works area, would be removed and ground reinstated during the decommissioning phase.

4.11.3.4 In terms of visual receptors, residents of some of the nearby houses, primarily those close to the site on Sweetbriar Lane and with more open views, would be likely to see vehicle movements and some of the ground works during decommissioning. These impacts would be different in nature to those experienced during the construction, and operation and maintenance phases, but similar in terms of their scale of impact. Due to the shorter-term the effects would be of lower significance than those that occur during the operation and maintenance phase.

4.11.3.5 The presence of vehicles, plant and machinery on site would give rise to landscape and visual impacts, but these would be restricted to localised and short to medium term, temporary views of demolition and restoration activity, which would not give rise to notable landscape character or visual effects over and above those of the operational site.

4.11.3.6 The primary landscape and visual effects arising from the Hornsea Three would be from the permanent onshore HVAC booster station and therefore greater focus is placed on landscape and visual effects the operation and maintenance phase as discussed at section 4.11.2.

### Onshore HVDC Converter/HVAC Substation

4.11.3.7 The only landscape receptor likely to experience decommissioning effects that are markedly different to the operational effects is the site itself, which would temporarily (short term to medium term) take on the character of a demolition and restoration site. There would be a localised alteration to the fabric of the site to establish access and working areas within the site. The onshore HVDC converter/HVAC substation and its foundations, and any temporary works area, would be removed and ground reinstated during the decommissioning phase.

4.11.3.8 In terms of visual receptors, residents of some of the nearby houses, primarily those close to the site on Mangreen and Mangreen Lane, would be likely to see vehicle movements and some of the ground works during decommissioning. These impacts would be different in nature to those experienced during the construction, and operation maintenance phases, but similar in terms of their scale of impact. Due to the shorter-term the effects would be of lower significance than those that occur during the operation and maintenance phase.

4.11.3.9 The presence of vehicles, plant and machinery on site would give rise to landscape and visual impacts, but these would be restricted to localised and short to medium term, temporary views of demolition and restoration activity, which would not give rise to notable landscape character or visual effects over and above those of the operational site.

4.11.3.10 The primary landscape and visual effects arising from the Hornsea Three would be from the permanent onshore HVDC converter/HVAC substation and therefore greater focus is placed on landscape and visual effects the operation and maintenance phase as discussed at section 4.11.2.

## 4.12 Cumulative Effect Assessment Methodology

### 4.12.1 Screening of other projects and plans into the Cumulative Effect Assessment

4.12.1.1 The Cumulative Effect Assessment (CEA) takes into account the impact associated with Hornsea Three together with other projects and plans. The projects and plans selected as relevant to the CEA presented within this chapter are based upon the results of a screening exercise undertaken as part of the 'CEA long list' of projects (see annex 5.3: Cumulative Effects Screening Matrix). Each project on the CEA long list has been considered on a case by case basis for scoping in or out of this chapter's assessment based upon data confidence, effect-receptor pathways and the spatial/temporal scales involved.

4.12.1.2 In undertaking the CEA for Hornsea Three, it is important to bear in mind that other projects and plans under consideration will have differing potential for proceeding to an operational stage and hence a differing potential to ultimately contribute to a cumulative impact alongside Hornsea Three. For example, relevant projects and plans that are already under construction are likely to contribute to cumulative impact with Hornsea Three (providing effect or spatial pathways exist), whereas projects and plans not yet approved or not yet submitted are less certain to contribute to such an impact, as some may not achieve approval or may not ultimately be built due to other factors. For this reason, all relevant projects and plans considered cumulatively alongside Hornsea Three have been allocated into 'Tiers', reflecting their current stage within the planning and development process. This allows the CEA to present several future development scenarios, each with a differing potential for being ultimately built out. Appropriate weight may therefore be given to each Tier in the decision making process when considering the potential cumulative impact associated with Hornsea Three (e.g. it may be considered that greater weight can be placed on the Tier 1 assessment relative to Tier 2). An explanation of each tier is included below:

- Tier 1: Hornsea Three considered alongside:
    - Other project/plans currently under construction; and/or
    - Those with consent, and, where applicable (i.e. for low carbon electricity generation projects), that have been awarded a Contract for Difference (CFD) but have not yet been implemented; and/or
    - Those currently operational that were not operational when baseline data was collected, and/or those that are operational but have an on-going impact.
- Tier 2: All projects/plans considered in Tier 1, as well as:
    - Those project/plans that have consent but, where relevant (i.e. for low carbon electricity generation projects) have no CFD; and/or
    - Submitted but not yet determined.
- Tier 3: All projects/plans considered in Tier 2, as well as those on relevant plans and programmes likely to come forward but have not yet submitted an application for consent (the PINS programme of projects and the adopted development plan including supplementary planning documents are the most relevant sources of information, along with information from the relevant planning authorities regarding planned major works being consulted upon, but not yet the subject of a consent application). Specifically, this Tier includes all projects where the developer has advised PINS in writing that they intend to submit an application in the future, those projects where a Scoping Report is available and/or those projects which have published a PEIR.

4.12.1.3 It is noted that offshore wind farms seek consent for a maximum design scenario and the as built offshore wind farm will be selected from the range of consented scenarios. In addition, the maximum design scenario quoted in the application (and the associated Environmental Statement) are often refined during the determination period of the application. For example, it is noted that the Applicant for Hornsea Project One has gained consent for an overall maximum number of turbines of 240, as opposed to 332 considered in the Environmental Statement. Similarly, Hornsea Project Two has gained consent for an overall maximum number of turbines of 300, as opposed to 360 considered in the Environmental Statement. The CEA presented in this landscape and visual resources chapter has been undertaken on the basis of information presented in the Environmental Statements for the other projects, plans and activities. Given that this broadly represents a worst-case scenario, the level of cumulative impact on landscape and visual resources would likely be reduced from those presented here.

4.12.1.4 The specific projects scoped into this CEA and the tiers into which they have been allocated, are outlined in Table 4.15. The projects included as operational in this assessment have been commissioned since the baseline studies for Hornsea Three were undertaken and as such were excluded from the baseline assessment.

4.12.1.5 The cumulative impact assessment methodology for landscape and visual resources is presented in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology.

Table 4.15: List of other projects and plans considered within the CEA.

| Tier | Phase | Project/Plan | Distance from Hornsea Three if within CEA study areas | Details | Date of Construction (if applicable) | Overlap of construction phase with Hornsea Three construction phase | Overlap of operation phase with Hornsea Three operation phase |
|---|---|---|---|---|---|---|---|
| 1 | *Residential* | | | | | | |
| | Construction and operation and maintenance phases | 2011/1804/O - Land North Of Hethersett Village Centre Little Melton Road Hethersett Norfolk | Onshore cable corridor 0 m<br>Onshore HVDC converter/HVAC substation 4.52 km | Residential led mixed use development of 1196 dwellings and associated uses. | Ongoing to 2016 | Yes | Yes |
| | Construction and operation and maintenance phases | 2015/1594 - Phase A1-A land north of Hethersett Village Centre, Little Melton Road, Hethersett | Onshore cable corridor 133 m<br>Onshore HVDC converter/HVAC substation 5 km | Residential development of 95 dwellings with associated open space and infrastructure. | 2018 to 2029 | Yes | Yes |
| | Construction and operation and maintenance phases | 2017/0151 - Land North Of Hethersett Village Centre Little Melton Road Including Extension To Thickthorn Park & Ride Hethersett (phase 1) | Onshore cable corridor 115 m | Reserved matters following outline planning permission 2011/1804/O - proposed residential development (phase A1-B) comprising 91 dwellings including 20% affordable housing and associated open space and infrastructure. | 2018 onwards | Yes | Yes |
| | Construction and operation and maintenance phases | 2013/0092 - Land south of Ringwood Close, Little Melton | Onshore cable corridor 1 m | Outline application for up to 20 residential units and associated highways works with all matters reserved. | 2020 to 2021 | Yes | Yes |
| | Construction and operation and maintenance phases | 2012/1644 - Land West Of School Cantley Lane Cringleford Norfolk | Onshore HVDC converter/HVAC substation 2.55 km | Outline Planning application for residential development and associated works including new access | 2019 to 2021 | Yes | Yes |
| | Unknown | 2017/2247 - Land Off Bobbins Way Swardeston | Onshore HVDC converter/HVAC substation 0.9 km | Reserved matters application for demolition of existing buildings, residential development of 38 dwellings and ancillary works following outline permission 2014/1642 for access, appearance, landscaping, layout and scale. | Unknown | Unknown | Unknown |
| | *Sport, leisure and tourism* | | | | | | |
| | Operation and maintenance | PF/13/1026 - Kelling Heath Holiday Park, Sandy Hill Lane, Weybourne, Holt | Onshore cable corridor 0 m | Creation of 20 hard standings (former rally field Area A) for the siting of 20 woodland lodges with associated access and infrastructure. Demolition of chicken sheds (Area B), change of use of land and creation of hard standings for the siting of 17 static caravans with associated access and infrastructure. | 2017 to 2018 | No | Yes |
| | Construction and operation and maintenance phases | 20151644 – 1-4 Station Road, Swannington, Attlebridge | Onshore cable corridor 249 m | Demolition of 4 Existing Units and Development of 10 Residential Units, Together with Associated Access (Outline). | 2022 to 2023 | Yes | Yes |
| | *Mixed use* | | | | | | |
| | Construction | 2014/2611 - Land north and south of Dereham Road, Easton | Onshore cable corridor 0 m | The erection of 890 dwellings; the creation of a village heart to feature an extended primary school, a new village hall, a retail store and areas of public open space; the relocation and increased capacity of the allotments; and associated infrastructure including public open space and highway works. | 2018 to 2028 | Yes | Yes |
| | *Employment, office, laboratory and research facilities* | | | | | | |

| Tier | Phase | Project/Plan | Distance from Hornsea Three if within CEA study areas | Details | Date of Construction (if applicable) | Overlap of construction phase with Hornsea Three construction phase | Overlap of operation phase with Hornsea Three operation phase |
|---|---|---|---|---|---|---|---|
| | Construction and operation and maintenance phases | 2016/0764 - Land west of Ipswich Road, Keswick | Onshore cable corridor 736 m<br>Onshore HVDC converter/HVAC substation 865 m | Outline Application for Proposed employment development consisting of B1, B2 and B8 uses, associated access and landscaping; and proposed link road between the A140 and the B1113 with some matters reserved. | 2021 to 2023 | Yes | Yes |
| | *Retail* | | | | | | |
| | Construction and operation and maintenance phases | 20170052 – Land off Church Lane, Honingham | Onshore cable corridor 252 m | Greater Norwich Food Enterprise Zone. | Unknown | Unknown | Yes |
| | *Agriculture* | | | | | | |
| | Operation and maintenance phase | 20170789 - Land North of Church Farm, Church Road, Booton, NR10 4NZ | 55 m | Erection of Grain Store (Revised Proposal)<br>Approved 19 July 2017 | 2020 | Yes | No |
| | *Extraction and quarrying* | | | | | | |
| | Construction and operation and maintenance phases | C/7/2014/7030 - Mangreen Quarry, Swardeston, Norwich | Onshore cable corridor 0 m<br>Onshore HVDC converter/HVAC substation 361 m | (I) For a southern extension to Mangreen Quarry and ancillary works with progressive restoration to agriculture and nature conservation by the importation of inert restoration materials; (II) Retention of existing consented facilities at Mangreen Quarry; (III) Establishment of crossing point over Mangreen Lane; and (IV) Proposed variation to approved restoration scheme at Mangreen Quarry. | 2019 to 2024 | Yes | Yes |
| *3* | *Energy and Infrastructure* | | | | | | |
| | Construction, operation and maintenance and decommissioning phases | EN010079 - Norfolk Vanguard Offshore Wind Farm | Onshore cable corridor 0 m | Norfolk Vanguard is a proposed offshore windfarm with an approximate capacity of 1800 MW off the coast of Norfolk. | 2020 to 2024 | Yes | Yes |

4.12.1.6 Of these, the following are not considered in detail:

- North Norfolk PF/13/1026 and South Norfolk 2013/0092 – These developments are complete (or substantially complete) and form part of the current baseline;
- South Norfolk 2016/0764 – This application was refused in July 2017 and has not been appealed; and
- 2012/1644 – This application for a small number of houses is located nearly 2km from the cable corridor within a built-up area and would have very localised impacts that would not interact with those of the proposal.

## 4.13 Maximum design scenario

4.13.1.1 The maximum design scenarios identified in Table 4.16 have been selected as those having the potential to result in the greatest effect on an identified receptor or receptor group. The cumulative impacts presented and assessed in this section have been selected from the details provided in the Hornsea Three project description (volume 1, chapter 3: Project Description), as well as the information available on other projects and plans, in order to inform a 'maximum design scenario'. Effects of greater adverse significance are not predicted to arise should any other development scenario, based on details within the project Design Envelope (e.g. different onshore HVAC booster station or HVDC converter/HVAC substation layout), to that assessed here be taken forward in the final design scheme.

Table 4.16: Maximum design scenario considered for the assessment of potential cumulative impacts on landscape and visual resources.

| Potential impact | Maximum design scenario | Justification |
|---|---|---|
| *Construction phase* | | |
| Onshore Cable Corridor<br>The temporary impact of the construction works along the onshore cable corridor may combine with temporary impacts from the construction of other developments. | Tier 1<br>• 2014/2611<br>• 2011/1804/O, 2017/0151 & 2015/1594<br>• 2014/1642 & 2017/2247<br>• 20151644<br>• 20170052<br>• 20170789<br>• C/7/2014/7030<br>Tier 3<br>• EN010079 | This list comprises projects which could potentially lead to cumulative impacts with Hornsea Three. Outcome of the CEA will be greatest when the greatest number of other schemes, present or planned, are considered. |
| Onshore HVAC Booster Station | None | The onshore HVAC booster station would not cause cumulative impacts with other identified developments. |
| Onshore HVDC Converter/HVAC Substation<br>The temporary impact of the construction works for the substation may combine with ongoing quarrying/restoration, and construction of developments within 5km | Tier 1<br>• 2014/1642 & 2017/2247<br>• C/7/2014/7030 | This list comprises projects which could potentially lead to cumulative impacts with Hornsea Three. Outcome of the CEA will be greatest when the greatest number of other schemes, present or planned, are considered. |
| *Operation phase* | | |
| Onshore HVAC Booster Station | None | The onshore HVAC booster station would not cause cumulative impacts with other identified developments. |
| Onshore HVDC Converter/HVAC Substation<br>The impacts arising from the operational substation may combine with operational impacts of developments within 5km | Tier 1<br>• 2014/1642 & 2017/2247 | The quarry which is subject to application C/7/2017/7030 is due to be restored by 2021, and would be unlikely to be operational at the same time as Hornsea Three and is therefore excluded. |
| *Decommissioning phase* | | |
| Onshore HVAC Booster Station | None | The onshore HVAC booster station would not cause cumulative impacts with other identified developments. |
| Onshore HVDC Converter/HVAC Substation | None | 2017/2247 is permanent development, and C/7/2014/7030 is due to be restored by 2021. None of the identified projects will be decommissioned at the same time as Hornsea Three. |

## Cumulative Effect Assessment

4.13.1.2 A description of the significance of cumulative effects upon landscape and visual receptors arising from each identified impact is given below. Where the magnitude of impact on landscape and visual receptors resulting from Hornsea Three alone is assessed to be negligible or no change it is considered that the effect is of such limited significance that it cannot therefore contribute towards any notable cumulative effect. In this case, an assessment of cumulative effects on the receptor in question is not required as effects would not be significant.

### 4.13.2 Construction Phase

4.13.2.1 The effects of other projects in construction would vary according to their scale – for instance it can be expected that the construction of nearly 1200 homes at North Hethersett would involve a significant construction project over a number of years; whereas the construction of a grain store or 10 homes would be completed more rapidly and involve a smaller scale of activity (in all likelihood before the construction of Hornsea Three).

4.13.2.2 The combined effects if all of the Tier 1 and Tier 3 projects were to be constructed simultaneously would be to slightly increase construction activity in the following areas:

- East of Reepham – Hornsea Three underground cable, grain store and Vanguard underground cable;
- Near Swannington – Hornsea Three underground cable,10 homes;
- Near Easton – Hornsea Three underground cable, housing development around Easton and Food Enterprise Zone to the west;
- North Hethersett – Hornsea Three underground cable, phased construction of 1196 homes; and
- Near Swardeston – Hornsea Three underground cable and substation, construction of 38 homes at Swardeston and ongoing extraction and restoration at Mangreen Quarry.

#### Onshore Cable Corridor

*Landscape Effects*

4.13.2.3 As set out in section 4.11 landscape effects resulting from the construction of the Hornsea Three onshore cable corridor would range from minor adverse to negligible significance. Should the Vanguard underground cable be constructed within the construction phase of Hornsea Three, the combined effects of both developments would occur to a local area where the two routes cross north of Reepham. Within this local area the combined duration is still likely to be short term and cumulative effects on landscape character are unlikely to be significant.

*Visual Effects*

4.13.2.4 The only visual effects of the construction of the onshore cable corridor that would result in impacts greater than negligible magnitude occur as a result of large scale effects occurring over a limited spatial extent for a short term duration. In order for cumulative effects with another development to occur that are greater than for those of Hornsea Three alone they would either have to notably increase the extent of effects or the duration as the scale cannot be increased further.

4.13.2.5 Where this arises it would involve developments that in themselves have notably greater effects than those of Hornsea Three (i.e. the larger housing projects), and the addition of the relatively smaller effects arising from Hornsea Three would not give rise to a greater cumulative effect. The combination of effects of Hornsea Three and any other project, therefore, would be no greater than any of the projects on their own and thus there would be no notable cumulative visual effects arising from Hornsea Three.

#### Onshore HVAC Booster Station

4.13.2.6 As set out in Table 4.16 there are no other projects that coincide with the construction phase of Hornsea Three that would result in cumulative effects with the onshore HVAC booster station.

#### Onshore HVDC converter/HVAC substation

*Landscape Effects*

4.13.2.7 As set out in section 4.11 landscape effects of greater than negligible scale resulting from the onshore HVDC converter/HVAC substation only occur within the site itself and within those fields immediately adjacent. The lack of direct impact or visibility of both Mangreen Quarry (C/7/2014/7030) and the housing development at Swardeston 2017/2247) from within these areas would mean that no cumulative landscape effects would occur.

*Visual Effects*

4.13.2.8 There are very few or, more likely, no views in which the onshore HVDC converter/HVAC substation and Mangreen Quarry would be seen together, on account of intervening woodland and therefore cumulative effects between the two schemes are unlikely to occur.

4.13.2.9 The only receptor likely to experience views of both the onshore HVDC converter/HVAC substation and housing development at Swardeston during construction would be the footpath immediately north of Gowthorpe Manor. At this location the relatively modest housing development is unlikely to give rise to effects of greater than negligible magnitude and thus effects would be no different to those of Hornsea Three alone.

#### Future monitoring

4.13.2.10 No future monitoring is required.

### 4.13.3 Operation and maintenance phase

4.13.3.1 The only project requiring consideration in the operation and maintenance phase is the proposed development of 38 homes at Swardeston (2017/2247), located approximately 0.9 km south west of the proposed onshore HVDC converter/HVAC substation.

Onshore HVDC converter/HVAC substation

*Landscape Effects*

4.13.3.2 As set out in section 4.11 landscape effects of greater than negligible scale resulting from the onshore HVDC converter/HVAC substation only occur within the site itself and within those fields immediately adjacent. The lack of direct impact or visibility with the housing development at Swardeston from within these areas would mean that no cumulative landscape effects would occur.

*Visual Effects*

4.13.3.3 In operation, the housing development at Swardeston would become integral to the settlement and as a relatively modest addition to the existing village it would not notably alter the scale or extent of the existing village or its relationship with any other nearby visual receptors. The only receptor likely to experience views of both the onshore HVDC converter/HVAC substation and housing development would be the footpath immediately north of Gowthorpe Manor. At this location the housing development would not be seen as distinct from the rest of the village and effects would therefore be negligible. Cumulative effects would therefore be no different to those of Hornsea Three alone.

### 4.13.4 Decommissioning phase

4.13.4.1 No developments have been identified that require consideration in respect of cumulative effects during decommissioning.

## 4.14 Residential Visual Amenity

4.14.1.1 Effects on residential visual amenity due to Hornsea Three are presented in volume 6, annex 4.6: Residential Visual Amenity. This concludes that no residential properties would be affected to the extent that Hornsea Three would be sufficiently "oppressive" or "overbearing" that the property would be rendered an unattractive place in which to live.

## 4.15 Effects of the Offshore HVAC Booster Station

4.15.1.1 Effects of the offshore HVAC booster station on land based receptors on the Norfolk Coast are presented in volume 6, annex 4.7: Effects of the Offshore HVAC Booster Station. This concludes that all landscape and visual effects on land based receptors will be **negligible** significance which is not significant in EIA terms.

## 4.16 Transboundary effects

4.16.1.1 A screening of transboundary impacts has been carried out and is presented in volume 4, annex 5.4: Transboundary Impacts Screening Note. This screening exercise identified that there was no potential for significant transboundary effects with regard to landscape and visual resources from Hornsea Three upon the interests of other EEA States.

## 4.17 Inter-related effects

4.17.1.1 Inter-relationships are considered to be the impacts and associated effects of different aspects of the proposal on the same receptor. These are considered to be:

- Project lifetime effects: Assessment of the scope for effects that occur throughout more than one phase of the project (construction, operation and maintenance, and decommissioning), to interact to potentially create a more significant effect on a receptor than if just assessed in isolation in these three key project stages (e.g., construction phase noise, operational noise and noise during decommissioning and dismantling of the onshore HVAC booster station and HVDC converter/HVAC substation).
- Receptor led effects: Assessment of the scope for all effects to interact, spatially and temporally, to create inter-related effects on a receptor. As an example, all effects on a given visual receptor, such as people using public rights of way (e.g., construction dust and noise and increased traffic), may interact to produce a different, or greater effect on this receptor than when the effects are considered in isolation. Receptor-led effects might be short term, temporary or transient effects, or incorporate longer term effects.

4.17.1.2 A description of the likely inter-related effects arising from Hornsea Three on landscape and visual resources is provided in volume 3, chapter 11: Inter-Related Effects (Onshore).

## 4.18 Conclusion and Summary

4.18.1.1 This chapter of the Environmental Statement has presented the results of the EIA for the potential impacts which may arise as a result of the onshore components of Hornsea Three on landscape and visual receptors.

4.18.1.2 A series of desk based and field surveys of the Hornsea Three onshore cable corridor, onshore HVAC booster station area and onshore HVDC converter/HVAC substation area were undertaken in 2017 and 2018. This information has been collated to create an accurate picture of baseline conditions, from which the assessment of impacts and effects can be made.

4.18.1.3 The methods used to assess the magnitude of impact of the proposed change and significance of effects on landscape and visual receptors have regard to national standards and guidance.

4.18.1.4 During the construction phase the onshore cable corridor would result in temporary short-term landscape and visual impacts which would not be significant. Effects on landscape character would range from **minor adverse** to **negligible**. Effects on visual receptors would range from **moderate adverse** to **negligible**, which would not be significant. During the operation phase the onshore cable corridor would be buried and not result in any landscape or visual impacts.

4.18.1.5 Impacts due to the onshore HVAC booster station and onshore HVDC converter/HVAC substation would be greatest during the operation phase. During the construction and decommissioning phases the impacts would be short to medium term and temporary, and would therefore not be as great.

4.18.1.6 During the operation phase impacts on landscape character due to the onshore HVAC booster station would be **major adverse** within the site itself, which is significant. Overall effects on the two local landscape character areas which would be affected by the onshore HVAC booster station would be of **minor adverse** or lower, which would not be significant. Visual effects due to the onshore HVAC booster station would range from **minor adverse** to **neutral**, which would not be significant.

4.18.1.7 During the operation phase impacts on landscape character due to the onshore HVDC converter/HVAC substation would be **major adverse** within the site itself, which is significant. Overall effects on the two local landscape character areas which would be affected by the onshore HVDC converter/HVAC substation would be of **minor adverse**, which would not be significant. Visual effects due to the onshore HVDC converter/HVAC substation would range from **major-moderate adverse** to **neutral**. The only significant visual effects would occur to users of local PRoW south of the site on completion of development, but these would reduce and not be significant as proposed planting matures.

4.18.1.8 Hornsea Three would not result in any significant effects on designated landscapes.

4.18.1.9 Hornsea Three would affect landscape protected by SNDC Policy DM4.6.

4.18.1.10 Cumulative impacts from projects screened into the assessment have been assessed using a tiered approach. No cumulative impacts due to Hornsea Three have been identified.

4.18.1.11 No residential properties would be affected to the extent that Hornsea Three would be sufficiently “oppressive” or “overbearing” that the property would be rendered an unattractive place in which to live.

4.18.1.12 Offshore components of Hornsea Three would not cause any significant landscape or visual effects on land based receptors.

4.18.1.13 Screening of potential transboundary impacts (as presented in volume 4, annex 5.4: Transboundary Impacts Screening Note) has identified that there was no potential for significant transboundary effects with regard to landscape and visual receptors.

4.18.1.14 A summary of the findings of the landscape and visual resources EIA are presented in Table 4.17.

Table 4.17: Summary of potential environment effects, mitigation and monitoring.

| Description of impact | Measures adopted as part of the project | Receptor | Magnitude of impact | Sensitivity of receptor | Significance of effect | Additional measures | Residual effect | Proposed monitoring |
|---|---|---|---|---|---|---|---|---|
| *Construction Phase* | | | | | | | | |
| Onshore Cable Corridor – landscape<br>The temporary impact of the construction works along the onshore cable corridor may affect designated and non-designated landscape and seascape receptors | The Outline LMP (document reference A8.7) and Outline CoCP (document reference A8.5) provides methods to minimise impacts. | Landscape character | Negligible | Sensitivity of landscape receptors ranges between Medium and Low | Significance of effects upon landscape receptors would range between **Minor Adverse** and **Negligible**, which is not significant | None | n/a | None |
| Onshore Cable Corridor – visual<br>The temporary impact of the construction works along the onshore cable corridor may affect visual receptors | The Outline LMP (document reference A8.7) and Outline CoCP (document reference A8.5) provides methods to minimise impacts. | Settlements | Minor to no change | High | **Moderate Adverse** to **Negligible**, which is not significant | None | n/a | None |
| | | Key routes | Minor | Very High (users of the England Coast Path) to negligible (users of major A-roads) | England Coast Path **Moderate Adverse**<br>Other long distance paths **Moderate-Minor Adverse**<br>Rail users **Minor Adverse**<br>Key road routes **Negligible**<br>These effects are not significant | None | n/a | None |
| | | Accessible and Recreational Landscapes | Minor to Negligible | High | Up to **Moderate-Minor Adverse**, which is not significant | None | n/a | None |
| | | Local Routes (Roads and Public Rights of Way) | Minor to Negligible | High (PRoW) to Medium (local roads) | PRoW **Moderate-Minor Adverse**<br>Local roads **Minor Adverse**<br>These effects are not significant | None | n/a | None |
| *Operation and Maintenance Phase* | | | | | | | | |
| Onshore HVAC Booster Station - landscape<br>The permanent onshore HVAC booster station may affect landscape receptors | The Outline LMP (document reference A8.7) provides methods to minimise impacts | LCA TF3 Hempstead, Bodham, Aylmerton and Wickmere Area | Within the site Major<br>The LCA overall Negligible | Medium | Within the site **Major Adverse**, which is significant<br>The LCA overall **Minor Adverse**, which is not significant | None | n/a | None |
| | | LCA WP5 Plumstead and Barningham | Within the site Major<br>The LCA overall Negligible | Medium | Within the site **Major Adverse**, which is significant<br>The LCA overall **Minor-Negligible Adverse**, which is not significant | None | n/a | None |

| Description of impact | Measures adopted as part of the project | Receptor | Magnitude of impact | Sensitivity of receptor | Significance of effect | Additional measures | Residual effect | Proposed monitoring |
|---|---|---|---|---|---|---|---|---|
| Onshore HVAC Booster Station - visual<br>The permanent onshore HVAC booster station may affect visual receptors | The Outline LMP (document reference A8.7) provides methods to minimise impacts | Settlement: Edgefield | Negligible | High | **Minor Neutral**, which is not significant | None | n/a | None |
| | | Local Routes within 1 km of the HVAC booster station | Minor | High (PRoW) to Medium (local roads) | PRoW **Minor Adverse**<br>Local roads **Minor Adverse**<br>These effects are not significant | None | n/a | None |
| | | Local Routes immediately north of Corpustry and Saxthorpe | Negligible | Minor-negligible | PRoW **Minor Adverse**<br>Local roads **Negligible**<br>These effects are not significant | None | n/a | None |
| | | Local Routes west and south west of Edgefield and Edgefield Street | No change | Negligible | **Negligible**, which is not significant | None | n/a | None |
| Onshore HVDC Converter/HVAC Substation - landscape<br>The permanent onshore HVDC converter/HVAC substation may affect landscape receptors | The Outline LMP (document reference A8.7) provides methods to minimise impacts | LCA B1 Tas Tributary Farmland | Within the site Major<br>The LCA overall Negligible | Low | Within the site **Major-Moderate Adverse**, which is significant<br>The LCA overall **Negligible**, which is not significant | None | n/a | None |
| | | LCA C1 Yare Tributary Farmland with Parkland | Within the site Major<br>The LCA overall Negligible | Medium-Low | Within the site **Major-Moderate Adverse**, which is significant<br>The LCA overall **Negligible**, which is not significant | None | n/a | None |
| Onshore HVDC Converter/HVAC Substation - visual<br>The permanent onshore HVAC booster station may affect visual receptors | The Outline LMP (document reference A8.7) provides methods to minimise impacts | Settlements: Swardeston, Swainsthorpe and Stoke Holy Cross | Negligible | High | **Minor Neutral**, which is not significant | None | n/a | None |
| | | Key Routes: A47 | Major-Moderate | Medium | **Moderate Adverse**, which is not significant | None | n/a | None |
| | | Key Routes: Tas Valley Way | Minor-Negligible | High | **Minor Adverse**, which is not significant | None | n/a | None |
| | | Key Routes: Boudicca Way | Minor | High | **Moderate-Minor Adverse**, which is not significant | None | n/a | None |
| | | Accessible and Recreational Landscapes: Mulbarton Common | No change | High | **Negligible**, which is not significant | None | n/a | None |
| | | Accessible and Recreational Landscapes: Shotesham Common | Negligible | High | **Minor Neutral**, which is not significant | None | n/a | None |

| Description of impact | Measures adopted as part of the project | Receptor | Magnitude of impact | Sensitivity of receptor | Significance of effect | Additional measures | Residual effect | Proposed monitoring |
|---|---|---|---|---|---|---|---|---|
| | | Local Routes to the north of the A47 | Moderate-Minor | High (PRoW) to Medium (local roads) | PRoW **Minor Adverse**<br>Local roads **Minor Adverse**<br>These effects are not significant | None | n/a | None |
| | | Local Routes between the B1113 and A140, north of Swainsthorpe | Moderate-Minor reducing to minor as planting matures (PRoW)<br>Large (local roads) | High (PRoW) to Medium (local roads) | PRoW: **Major-Moderate Adverse** on completion, which is significant. Reducing to **Moderate-Minor Adverse** as planting matures (Outline LMP (document reference A8.7)), which is not significant.<br>Local roads: **Moderate Adverse**, which is not significant | None | n/a | None |
| | | Local routes east of the Tas Valley | Minor | High (PRoW) to Medium (local roads) | PRoW **Moderate Adverse**<br>Local roads **Minor Adverse**<br>These effects are not significant | None | n/a | None |

## 4.19 References

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