

Hornsea Project Three  
Offshore Wind Farm



## Hornsea Project Three Offshore Wind Farm

Environmental Statement:  
Volume 6, Annex 5.7 – Historic Environment Visualisations

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Date: May 2018

  
**Hornsea 3**  
Offshore Wind Farm

 **Orsted**

Environmental Impact Assessment

Environmental Statement

Volume 6

Annex 5.7 – Historic Environment Visualisations

Liability

This report has been prepared by RPS, with all reasonable skill, care and diligence within the terms of their contracts Orsted Power (UK) Ltd.

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This report is also downloadable from the Hornsea Project Three offshore wind farm website at:

[www.hornseaproject3.co.uk](http://www.hornseaproject3.co.uk)

Ørsted,  
5 Howick Place,  
London, SW1P 1WG

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Front cover picture: Kite surfer near a UK offshore wind farm © Orsted Hornsea Project Three (UK) Ltd., 2018.

Prepared by: RPS

Checked by: Sarah Drjaca

Accepted by: Sophie Banham

Approved by: Sophie Banham

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## Acronyms

Unit	Description
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current

## 1. Historic Environment Visualisations

### 1.1 Introduction

- 1.1.1.1 This annex contains the figures showing the visualisations (wirelines and/or photomontages as appropriate) relating to the onshore HVAC booster station and the HVDC converter/HVAC substation, which support volume 3, chapter 5: Historic Environment.
- 1.1.1.2 Viewpoints have been identified based on consultation, in particular with Historic England (see volume 3, chapter 5: Historic Environment, Table 5.4). Figure 1.1 shows the viewpoint locations for the onshore HVDC converter/HVAC substation, and Figure 1.2 shows the viewpoint locations for the onshore HVAC booster station. Following the production of viewpoint photography, wireframes were developed and reviewed. On this basis photomontages have been developed for those viewpoints with a relatively clear view of the onshore HVAC booster station or HVDC converter/HVAC substation. This approach is proportionate to the importance of the heritage assets and no more than is sufficient to understand the potential impact of the proposal on the significance of the heritage asset and follows guidance contained within NPS EN1 and Historic England guidance, in particular Historic Environment Good Practice Advice in Planning Note 3 (Second Edition) (Historic England, 2017).
- 1.1.1.3 The method for production of wirelines and photomontages is consistent with that outlined in volume 6, annex 4.1: Landscape and Visual Impact Assessment Methodology, Appendix A.

### 1.2 Visualisation Descriptions

#### 1.2.1 Onshore HVDC converter/HVAC substation – heritage viewpoint locations

##### *Trowse Newton*

- 1.2.1.1 This view is taken from the western end of Bracondale Road looking south west across a collection of fields lined by tree and hedgerows. The foreground the view is partially blocked by mature trees. The horizon is formed by the A145 flyover which slopes east to west, and mature trees which line the road. The proposed onshore HVDC converter/HVAC substation would be located behind the A145 and vegetation and would be almost entirely screened from this viewpoint.

##### *Old Lakenham*

- 1.2.1.2 This view is taken from Stoke Road, south east of where it crosses the rail line. The view looks to the south west. The view is partially obscured by mature and young trees in the foreground; beyond the trees fields continue into the middle distance. In the distance there is a low hill which forms the horizon and blocks further views. The proposed onshore HVDC converter/HVAC substation would not be visible from this viewpoint.

##### *Eaton*

- 1.2.1.3 This view is taken from Eaton Street where it bridges the River Yare. The view looks south east towards the onshore HDC converter/HVAC substation. The view is blocked in the middle distance by mature trees lining the bank of the river. Beyond it is possible to see a number of houses. The onshore HVDC converter/HVAC substation would not be visible from this viewpoint, nor in practice is it likely to be from most other locations within the Eaton Conservation Area.

##### *Keswick Mill*

- 1.2.1.4 This view is taken from Mill Lane approximately 20 m south of the complex of buildings, of which Keswick Mill is one. The view looks due south and consists of Mill Lane lined by hedges, which include mature trees. Views beyond the lane are obscured by these trees. The onshore HVDC converter/HVAC substation would not be visible from this viewpoint, nor in practice from most other locations within the Conservation Area.

##### *Venta Icenorum*

- 1.2.1.5 This view is taken from the north east corner of Venta Icenorum site, close to Stoke Road. The view looks west over the site. The foreground is made up of a grassed field which continues into the distance. The horizon is made up of a low hill, which is covered by a number of fields lined by hedges. These hedges also feature some mature trees and there is also an area of woodland in the south of the view. The view is traversed north east to south west by overhead power lines. The proposed view would include glimpses of the upper part of the onshore HVDC converter/HVAC substation, seen through the prism of modern infrastructure, principally existing electricity cables.

##### *Mulbarton*

- 1.2.1.6 This view is taken from the southern boundary of Mulbarton Village Common. The view extends to the north east across The Common, which is an open expanse of groomed grassland used for recreational activities, such as sports, as evident by goal posts in far north east of the view. The grassland appears to be surrounded on all sides by mature trees. The trees in the far north east of the view, just beyond the goal posts, obscures houses and St Mary Magdalene Church, the top of which can be seen protruding from the trees. The onshore HVDC converter/HVAC substation would not be visible from this viewpoint, nor in practice is it likely to be from most other locations within the Conservation Area.

##### *Shotesham*

- 1.2.1.7 This view is taken from Norwich Road, approximately 100 m north of the turning to Eastell's Lane. The view looks to the north west, though it is partially obscured by a roadside hedgerow, beyond which lies an arable grass field. The landscape gently slopes downwards to a copse of mature trees and small number of houses, then gently rises to form the horizon. Along the horizon, a row of pylons are visible running northwards. The onshore HVDC converter/HVAC substation would not be visible from this viewpoint, nor in practice is it likely to be from most other locations within the Conservation Area.

### *Intwood Hall*

- 1.2.1.8 This view is taken from Intwood Lane, approximately 50 m south west of All Saints Church. A hedge and singular mature tree dominate the foreground of the view, which looks to the east-south-east. Arable grass land beyond the hedge gently rises to a low hill on the horizon, upon which a few copses arise. The grass land is divided by rows of mature and young trees running roughly parallel to the stretch of Intwood lane from which this view is taken. Protruding from behind the low hill which forms the horizon, two pylons can be seen to the east. The onshore HVDC converter/HVAC substation would be almost entirely screened by landform and woodland. In addition, views from the Church of All Saints would be screened by vegetation.

### *Keswick Hall*

- 1.2.1.9 This view is taken from within a field, approximately 200 m east-north-east of Keswick Riding Stables on Bridle Lane. The view looks south-south-east across rough grass parkland towards the A47 - B1113 junction, which is obscured by young and mature trees. These trees largely block any view beyond them, though sections of fields and a pylon to the south can be seen. Proposed views show the buildings of the proposed HVDC converter/HVAC substation. From within the parkland these are partly screened by trees, although the proposed HVDC converter/HVAC substation would be visible from Low Road. This view would not contain the designated asset.

### *Mangreen Hall*

- 1.2.1.10 This view is taken from an unnamed lane which runs northwards as an offshoot of Mangreen Lane, close to but outside the western edge of the area of informal parkland to the north of the listed building. The view looks to the north west, though the more northerly portion of the view is obscured by vegetation in the foreground. Beyond a grass ditch in the immediate foreground lies an arable grass field, stretching to a hedgerow with scattered young and mature trees which make up the horizon. Three pylons are seen traversing the horizon from the south west to north east. The designated assets lie within the ZTV of the onshore HVDC converter/HVAC substation. Both Mangreen Hall and Mangreen Lodge to its east will benefit from a degree of screening provided by adjacent modern buildings and vegetation, as will the Barn at Hall Farm to a greater extent, while Wattle Cottage to the north west of the other structures will be screened to a degree by vegetation.

### *Gowthorpe Manor*

- 1.2.1.11 This view is taken from the grounds in the north of Gowthorpe Manor. The view looks to the north across groomed lawn to the garden boundary made of young and mature trees and a modern farm building to the north, both of which obscure the view to the arable field beyond. The field beyond the garden is also bordered by young and mature trees which form the horizon. The designated assets lie within the ZTV of the onshore HVDC converter/HVAC substation. The proposed view indicates that the onshore HVDC converter/HVAC substation would be largely hidden from view by landform and vegetation. Both Gowthorpe Manor House and the Barn 40 m to its west, each listed at Grade II\* will benefit from the degree of screening provided by adjacent modern buildings and vegetation.

## 1.2.2 Onshore HVAC booster station – heritage viewpoint locations

### *Barningham Hall*

- 1.2.2.1 This view is taken from the junction between Northfield Road, and an unnamed road runs around the western edge of Barningham Park. The view looks to the south west across an arable grass field to a hedgerow and row of telephone poles at the far end of the field. To the south-south-west there is a small copse on the horizon. As can be seen from the viewpoint and as stated in volume 6, annex 5.5: Screening Assessment – Onshore HVAC Booster Station, significant screening is provided by vegetation and buildings and there would be few if any views of the onshore HVAC booster station from Barningham Hall. Therefore, no further assessment is required.

### *Mannington Hall*

- 1.2.2.2 This view is taken from approximately 250 m west, along an unnamed road, of the western entrance to Mannington Gardens which surround Mannington Hall. The view looks out to the north west from the corner of an arable grass field. The northern and western edges of the view are obscured by the field boundaries of mature trees and hedge row, which can also be seen on the far side of the field. The horizon is marked by a low hill rising in the far distance. A telephone pole and wires can be seen traversing the far end of the field. As can be seen from the viewpoint and as stated in volume 6, annex 5.5: Screening Assessment – Onshore HVAC Booster Station, significant screening is provided by vegetation and buildings and there would be few if any views of the onshore HVAC booster station from Mannington Hall. Therefore, no further assessment is required.

### *Wolterton Hall*

- 1.2.2.3 This view is taken from an unnamed road 600 m west-south-west of Wolterton Hall. The view looks to the north west across an arable grass field. Copses are visible to the north and west of the horizon, the main stretch of which is dominated by 6 mature trees, planted along the hedgerow on the far side of the field. As can be seen from the viewpoint and as stated in volume 6, annex 5.5: Screening Assessment – Onshore HVAC Booster Station, significant screening is provided by vegetation and buildings and there would be few if any views of the onshore HVAC booster station the onshore HVAC booster station is not visible from Wolterton Hall. Therefore, no further assessment is required.

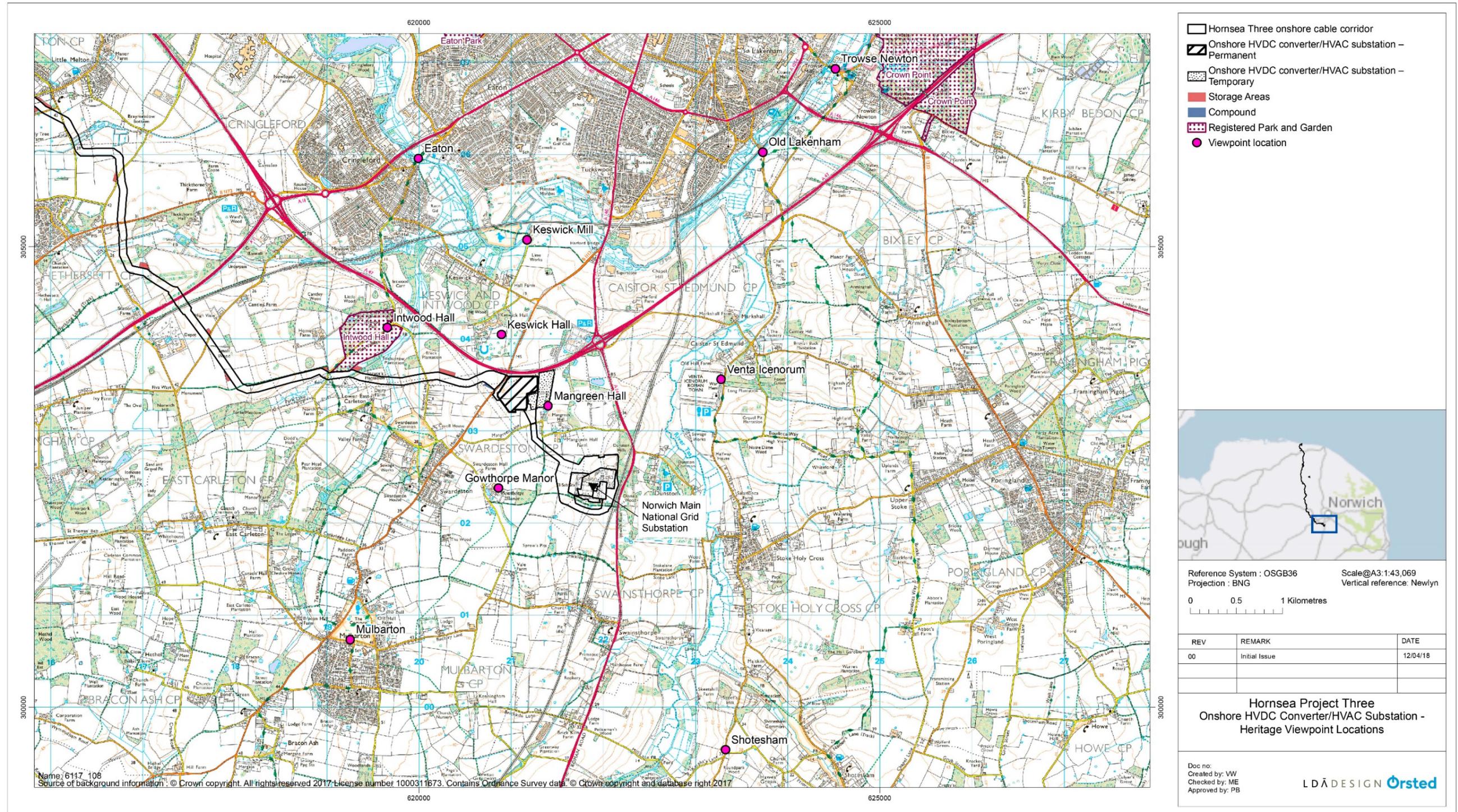


Figure 1.1: Onshore HVDC converter/HVAC substation – heritage viewpoint locations.



Existing view



Proposed wireline

- - - Lightning protection modelled at 30m high above max. potential ground level.  
 — Buildings modelled at 25m high above max. potential ground level.

Ref: 6117\_SS\_HVP\_TROWSE\_NEWTON



Existing view



Proposed wireline

--- Lightning protection modelled at 30m high above max. potential ground level.  
 --- Buildings modelled at 25m high above max. potential ground level.

Ref: 6117\_SS\_HVP\_OLD\_LAKENHAM



Existing view



Proposed wireline

--- Lightning protection modelled at 30m high above max. potential ground level.  
 --- Buildings modelled at 25m high above max. potential ground level.

Ref: 6117\_SS\_HVP\_EATON

<p>LD̂ DESIGN </p>	<p>Hornsea Project Three</p>	<p>Distance to site: 2.6km OS reference: 619994, 305957</p>	<p>Bearing to site: 157° Viewpoint height: 10m AOD</p>	<p>Horizontal field of view: Approx. 75° Viewing distance: 300mm @ A3</p>	<p>The wireline model does not allow for screening effects of vegetation or buildings. The three dimensional model of Hornsea Three is indicative and is not based on an accurate design, but shows the maximum design scenario. In reality development is likely to occupy a smaller area which will be determined at detailed design stage.</p>	<p>Onshore HVDC converter/HVAC substation wireline: Heritage Viewpoint Eaton</p>
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Existing view



Proposed wireline

- - - - Lightning protection modelled at 30m high above max. potential ground level.  
 ——— Buildings modelled at 25m high above max. potential ground level.

Ref: 6117\_SS\_HVP\_KESWICK\_MILL



Existing view



Proposed wireline

--- Lightning protection modelled at 30m high above max. potential ground level.  
--- Buildings modelled at 25m high above max. potential ground level.

Ref: 6117\_SS\_HVP\_VENTA\_ICENORUM

LDĀ DESIGN 	Hornsea Project Three	Distance to site: 2.0km OS reference: 623278, 303559	Bearing to site: 266° Viewpoint height: 17m AOD	Horizontal field of view: Approx. 75° Viewing distance: 300mm @ A3	The wireline model does not allow for screening effects of vegetation or buildings. The three dimensional model of Hornsea Three is indicative and is not based on an accurate design, but shows the maximum design scenario. In reality development is likely to occupy a smaller area which will be determined at detailed design stage.	Onshore HVDC converter/HVAC substation wireline: Heritage Viewpoint Venta Icenorum
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Photomontage view year 1



Photomontage view year 15

Ref: 6117\_SS\_HVP\_VENTA\_ICENORUM



Existing view



Proposed wireline

--- Lightning protection modelled at 30m high above max. potential ground level.  
--- Buildings modelled at 25m high above max. potential ground level.

Ref: 6117\_SS\_HVP\_MULBARTON



Existing view



Proposed wireline

--- Lightning protection modelled at 30m high above max. potential ground level.  
 --- Buildings modelled at 25m high above max. potential ground level.

Ref. 6117\_SS\_HVP\_SHOTESHAM



Existing view



Proposed wireline

- - - Lightning protection modelled at 30m high above max. potential ground level.  
 — Buildings modelled at 25m high above max. potential ground level.

Ref: 6117\_SS\_HVP\_INTWOOD\_HALL

<p>LDĀ DESIGN </p>	<p>Hornsea Project Three</p>	<p>Distance to site: 1.4km OS reference: 619656, 304120</p>	<p>Bearing to site: 116° Viewpoint height: 18m AOD</p>	<p>Horizontal field of view: Approx. 75° Viewing distance: 300mm @ A3</p>	<p>The wireline model does not allow for screening effects of vegetation or buildings. The three dimensional model of Hornsea Three is indicative and is not based on an accurate design, but shows the maximum design scenario. In reality development is likely to occupy a smaller area which will be determined at detailed design stage.</p>	<p>Onshore HVDC converter/HVAC substation wireline: Heritage Viewpoint Intwood Hall</p>
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Photomontage view year 1



Photomontage view year 15

Ref: 6117\_SS\_HVP\_INTWOOD\_HALL



Existing view



Proposed wireline

--- Lightning protection modelled at 30m high above max. potential ground level.  
--- Buildings modelled at 25m high above max. potential ground level.

Ref: 6117\_SS\_HVP\_KESWICK\_HALL

	Hornsea Project Three	Distance to site: 0.5km OS reference: 620895, 304043	Bearing to site: 165° Viewpoint height: 27m AOD	Horizontal field of view: Approx. 75° Viewing distance: 300mm @ A3	The wireline model does not allow for screening effects of vegetation or buildings. The three dimensional model of Hornsea Three is indicative and is not based on an accurate design, but shows the maximum design scenario. In reality development is likely to occupy a smaller area which will be determined at detailed design stage.	Onshore HVDC converter/HVAC substation wireline: Heritage Viewpoint Keswick Hall
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Photomontage view year 1



Photomontage view year 15

Ref: 6117\_SS\_HVP\_KESWICK\_HALL



Existing view



Proposed wireline

--- Lightning protection modelled at 30m high above max. potential ground level.  
 — Buildings modelled at 25m high above max. potential ground level.

Ref: 6117\_SS\_HVP\_MANGREEN\_HALL

<p>LD̂ DESIGN </p>	<p>Hornsea Project Three</p>	<p>Distance to site: 0.2km OS reference: 621402, 303270</p>	<p>Bearing to site: 294° Viewpoint height: 40m AOD</p>	<p>Horizontal field of view: Approx. 75° Viewing distance: 300mm @ A3</p>	<p>The wireline model does not allow for screening effects of vegetation or buildings. The three dimensional model of Hornsea Three is indicative and is not based on an accurate design, but shows the maximum design scenario. In reality development is likely to occupy a smaller area which will be determined at detailed design stage.</p>	<p>Onshore HVDC converter/HVAC substation wireline: Heritage Viewpoint Mangreen Hall</p>
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Photomontage view year 1



Photomontage view year 15

Ref: 6117\_SS\_HVP\_MANGREEN\_HALL

<p>LD DESIGN </p>	<p>Hornsea Project Three</p>	<p>Distance to site: 0.2km OS reference: 621402, 303270</p>	<p>Bearing to site: 294° Viewpoint height: 40m AOD</p>	<p>Horizontal field of view: Approx. 75° Viewing distance: 300mm @ A3</p>	<p>The Photomontage allows for screening effects of vegetation and buildings. The three dimensional model of Hornsea Three is indicative and is not based on an accurate design.</p>	<p>Onshore HVDC converter/HVAC substation photomontage: Heritage Viewpoint Mangreen Hall</p>
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Existing view



Proposed wireline

--- Lightning protection modelled at 30m high above max. potential ground level.  
 --- Buildings modelled at 25m high above max. potential ground level.

Ref: 6117\_SS\_HVP\_GOWTHORPE\_MANOR

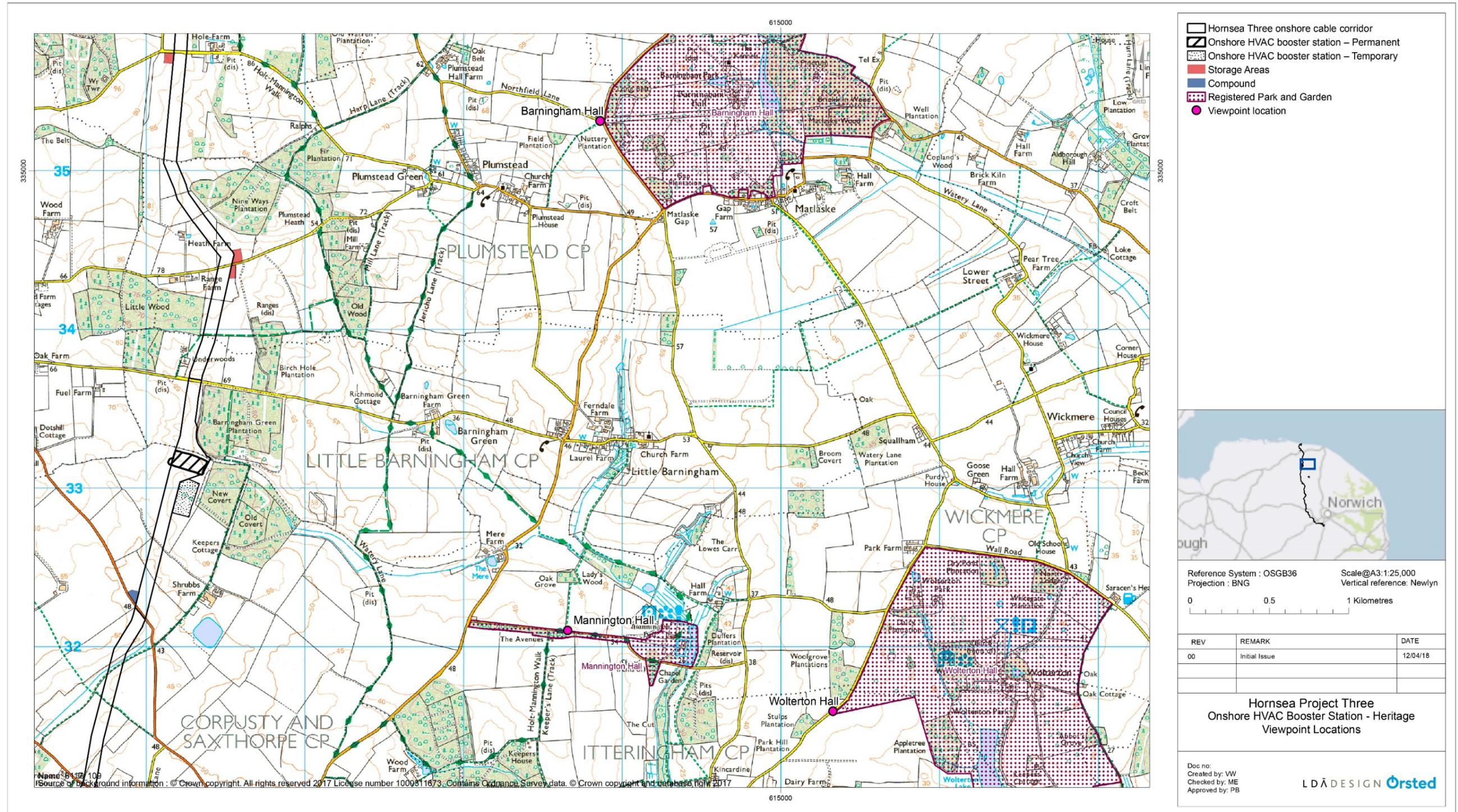


Figure 1.2: Onshore HVAC booster station – heritage viewpoint locations.



Existing view



Proposed wireline

--- Lightning protection modelled at 17.5m high above max. potential ground level.  
 --- Buildings modelled at 12.5m high above max. potential ground level.

Ref: 6117\_BS\_HVP\_BARNINGHAM\_HALL

<p>LD̂ DESIGN </p>	<p>Hornsea Project Three</p>	<p>Distance to site: 3.3km OS reference: 613861, 335312</p>	<p>Bearing to site: 230° Viewpoint height: 62m AOD</p>	<p>Horizontal field of view: Approx. 75° Viewing distance: 300mm @ A3</p>	<p>The wireline model does not allow for screening effects of vegetation or buildings. The three dimensional model of Hornsea Three is indicative and is not based on an accurate design, but shows the maximum design scenario. In reality development is likely to occupy a smaller area which will be determined at detailed design stage.</p>	<p>Onshore HVAC booster station wireline: Heritage Viewpoint Barningham Hall</p>
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Existing view



Proposed wireline

--- Lightning protection modelled at 17.5m high above max. potential ground level.  
 --- Buildings modelled at 12.5m high above max. potential ground level.

Ref: 6117\_BS\_HVP\_MANNINGTON\_HALL

<p>LD̂ DESIGN </p>	<p>Hornsea Project Three</p>	<p>Distance to site: 2.5km OS reference: 613657, 332103</p>	<p>Bearing to site: 294° Viewpoint height: 41m AOD</p>	<p>Horizontal field of view: Approx. 75° Viewing distance: 300mm @ A3</p>	<p>The wireline model does not allow for screening effects of vegetation or buildings. The three dimensional model of Hornsea Three is indicative and is not based on an accurate design, but shows the maximum design scenario. In reality development is likely to occupy a smaller area which will be determined at detailed design stage.</p>	<p>Onshore HVAC booster station wireline: Heritage Viewpoint Mannington Hall</p>
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Existing view



Proposed wireline

--- Lightning protection modelled at 17.5m high above max. potential ground level.  
 — Buildings modelled at 12.5m high above max. potential ground level.

Ref: 6117\_BS\_HVP\_WOLVERTON\_HALL

<p>LDĀ DESIGN </p>	<p>Hornsea Project Three</p>	<p>Distance to site: 4.2km OS reference: 615329, 331594</p>	<p>Bearing to site: 291° Viewpoint height: 64m AOD</p>	<p>Horizontal field of view: Approx. 75° Viewing distance: 300mm @ A3</p>	<p>The wireline model does not allow for screening effects of vegetation or buildings. The three dimensional model of Hornsea Three is indicative and is not based on an accurate design, but shows the maximum design scenario. In reality development is likely to occupy a smaller area which will be determined at detailed design stage.</p>	<p>Onshore HVAC booster station wireline: Heritage Viewpoint Wolterton Hall</p>
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