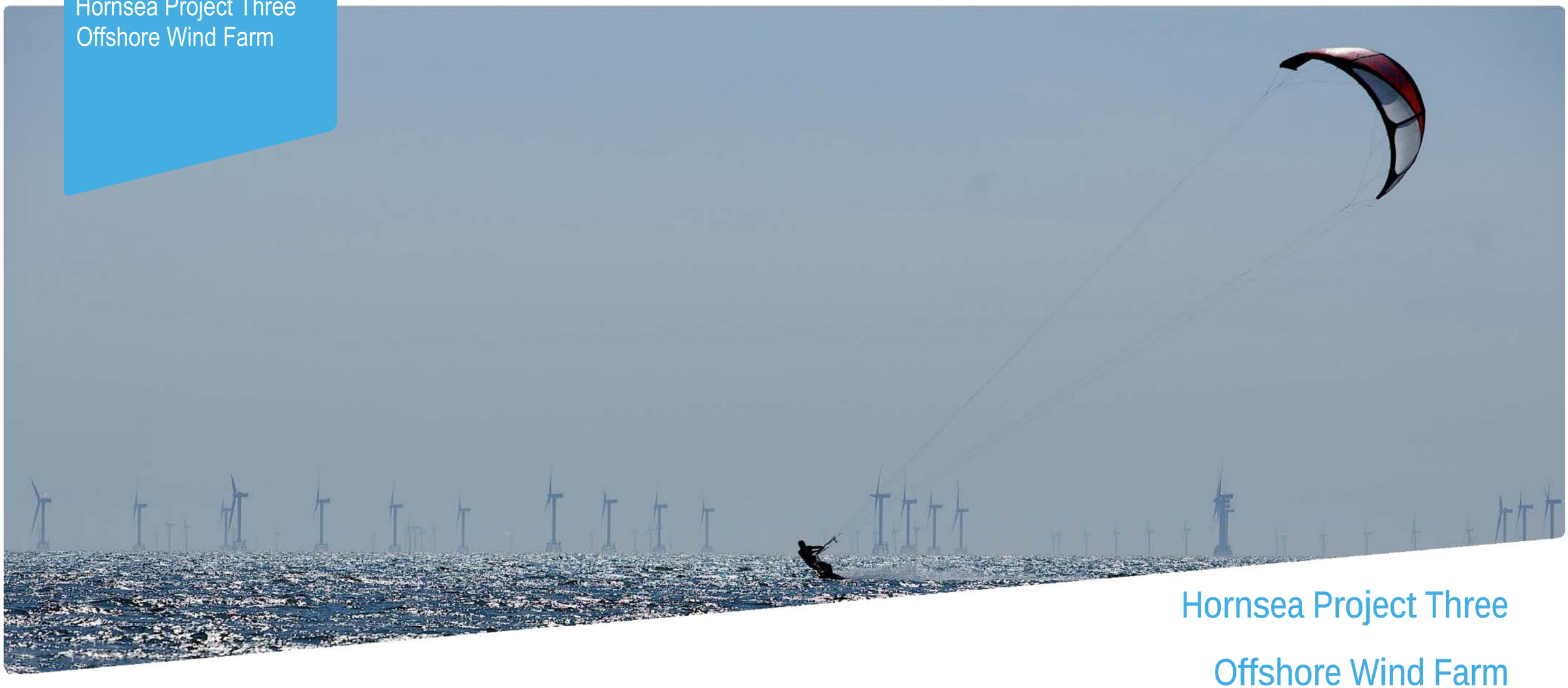
Hornsea Project Three
Offshore Wind Farm



Hornsea Project Three

Offshore Wind Farm

Environmental Statement:
Volume 6, Annex 4.5 - Photograph Panels, Wirelines and Photomontages

PINS Document Reference: A6.6.4.5
APFP Regulation 5(2)(a)

Date: May 2018

Hornsea 3
Offshore Wind Farm

Ørsted

Environmental Impact Assessment

Environmental Statement

Volume 6

Annex 4.5 - Photograph Panels, Wirelines and Photomontages

Liability

This report has been prepared by LDA Design, with all reasonable skill, care and diligence within the terms of their contracts with Orsted.

Report Number: A6.6.4.5

Version: Final

Date: May 2018

Ørsted

5 Howick Place,

London, SW1P 1WG

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

Prepared by: LDA Design

Checked by: SARCR

Accepted by: STLIV

Approved by: STLIV

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Glossary

Term	Definition
Illustrative viewpoint	Viewpoint chosen specifically to demonstrate a particular effect or specific issue. These are illustrated with photograph panels.
Photograph panel	A sheet containing photography, either stitched panoramas or single frame images, used to illustrate a particular view, effect or specific issue.
Photomontage	The superimposition of an image onto a photograph for the purpose of creating a representation of potential changes to a view. Development models used to generate these are indicative and do not represent an accurate or finalised design.
Representative viewpoint	Viewpoints selected to represent the experience of different types of visual receptor – for example, a viewpoint may be chosen to represent the views of users of a particular group of footpaths or views from a particular settlement. These are illustrated with wirelines and/or photomontages.
Viewpoint height	The height above ordnance datum (AOD) of the viewpoint location. Photographs used in visualisations are taken from a tripod with the camera mounted 1.5 m above ground level.
Visualisation	A computer simulation, photomontage or other technique illustrating the predicted appearance of a development.
Wireline	Line diagram illustrating the extent of the maximum design scenario. Development models used to generate these are indicative and do not represent an accurate or finalised design.

1. Onshore Cable Corridor

1.1.1.1 This section contains a series of photograph panels from illustrative viewpoints located along the Hornsea Three onshore cable corridor. The viewpoint locations are shown in chapter 6, volume 3, chapter 4: Landscape and Visual Resources, Figure 4.1 and in overview in Figure 1.1 of this annex.

1.1.1.2 Photographs are presented to best illustrate a particular view, effect, or issue and include both panoramic and single frame images.

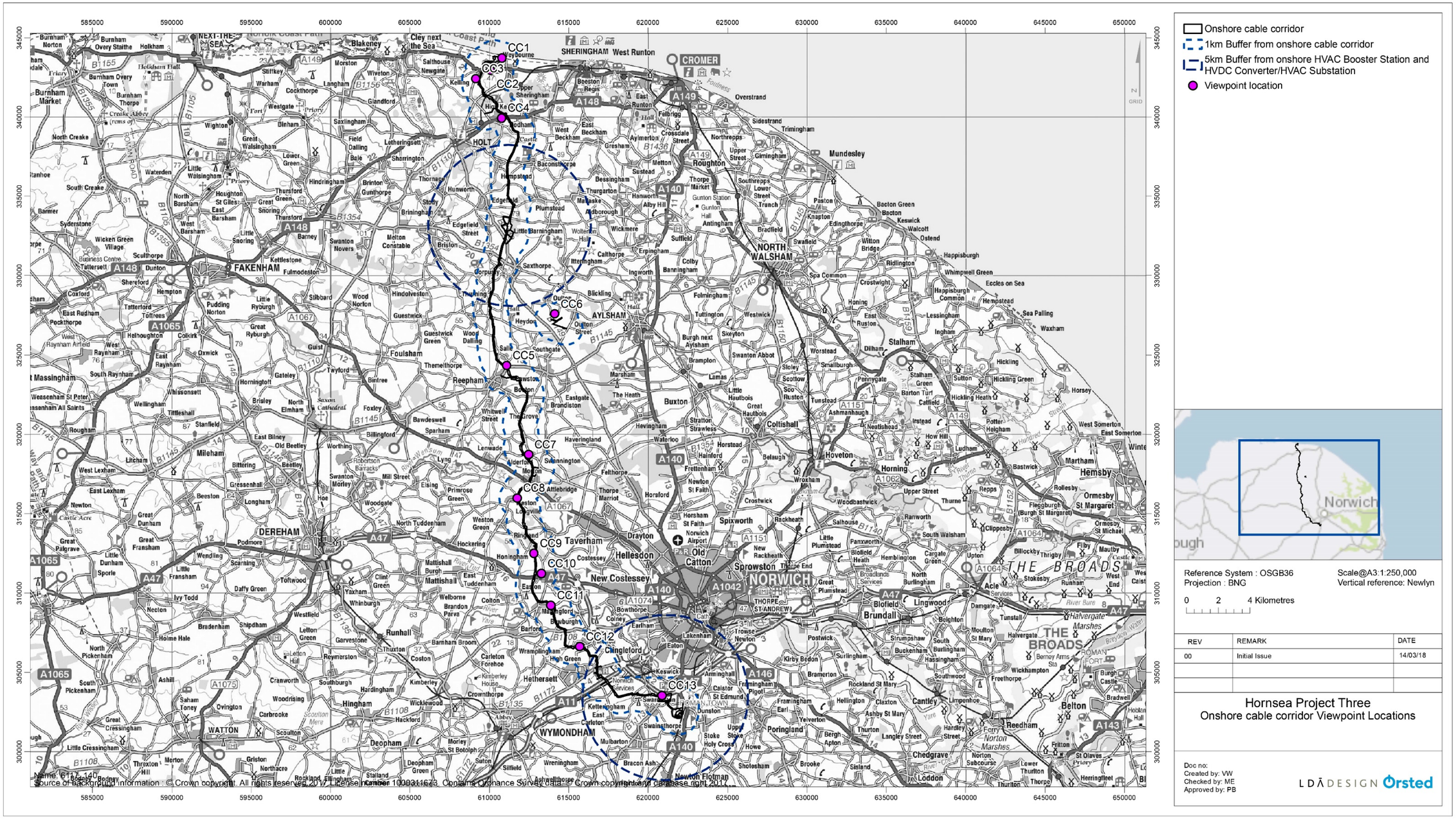


Figure 1.1: Onshore cable corridor illustrative viewpoint locations.

Left of view

Right of view

LDĀDESIGN Ørsted	Hornsea Project Three	Distance to onshore cable corridor: 0.0km OS reference: 610808, 343711	Bearing to onshore cable corridor: N/A Viewpoint height: 3m AOD	Horizontal field of view: Approx. N/A Viewing distance: N/A	Hornsea Three onshore cable corridor: Viewpoint CC1 - Norfolk Coast Path

Ref: 6117_CC_VP_01

Left of view

Right of view

Ref: 6117_CC_VP_02

LDĀDESIGN Ørsted Hornsea Project Three	Distance to onshore cable corridor: 0.3km OS reference: 610092, 342925	Bearing to onshore cable corridor: N/A Viewpoint height: 68m AOD	Horizontal field of view: Approx. N/A Viewing distance: N/A	Hornsea Three onshore cable corridor: Viewpoint CC2 - Muckleburgh Hill

LDĀDESIGN Ørsted Hornsea Project Three	Distance to onshore cable corridor: 0.1km OS reference: 609160, 342402	Bearing to onshore cable corridor: N/A Viewpoint height: 24m AOD	Horizontal field of view: Approx. N/A Viewing distance: N/A	Hornsea Three onshore cable corridor: Viewpoint CC3 - Kelling

Ref: 6117_CC_VP_03

Left of view

Right of view

Ref: 6117_CC_VP_04

LDĀDESIGN Ørsted Hornsea Project Three	Distance to onshore cable corridor: 0.3km OS reference: 610785, 339919	Bearing to onshore cable corridor: N/A Viewpoint height: 66m AOD	Horizontal field of view: Approx. N/A Viewing distance: N/A	Hornsea Three onshore cable corridor: Viewpoint CC4 - High Kelling

Left of view

Right of view

Ref: 6117_CC_VP_05

LDĀDESIGN Ørsted Hornsea Project Three	Distance to onshore cable corridor: 0.0km OS reference: 611107, 324326	Bearing to onshore cable corridor: N/A Viewpoint height: 43m AOD	Horizontal field of view: Approx. N/A Viewing distance: N/A	Hornsea Three onshore cable corridor: Viewpoint CC5 - Salle Park

Ref: 6117_CC_VP_06

LDĀDESIGN Ørsted Hornsea Project Three	Distance to onshore cable corridor: 0.4km OS reference: 614129, 327575	Bearing to onshore cable corridor: N/A Viewpoint height: 45m AOD	Horizontal field of view: Approx. N/A Viewing distance: N/A	Hornsea Three onshore cable corridor: Viewpoint CC6 - Shepherds Lane (Oulton Airfield)

Left of view

Right of view

Ref: 6117_CC_VP_07

LDĀDESIGN Ørsted Hornsea Project Three	Distance to onshore cable corridor: 0.0km OS reference: 612482, 318705	Bearing to onshore cable corridor: N/A Viewpoint height: 17m AOD	Horizontal field of view: Approx. N/A Viewing distance: N/A	Hornsea Three onshore cable corridor: Viewpoint CC7 - Alderford

Left of view

Right of view

Ref: 6117_CC_VP_08

LDĀDESIGN Ørsted Hornsea Project Three	Distance to onshore cable corridor: 0.0km OS reference: 611752, 315965	Bearing to onshore cable corridor: N/A Viewpoint height: 41m AOD	Horizontal field of view: Approx. N/A Viewing distance: N/A	Hornsea Three onshore cable corridor: Viewpoint CC8 - Weston Longville

Left of view

Right of view

Ref: 6117_CC_VP_09

LDĀDESIGN Ørsted Hornsea Project Three	Distance to onshore cable corridor: 0.0km OS reference: 612809, 312476	Bearing to onshore cable corridor: N/A Viewpoint height: 51m AOD	Horizontal field of view: Approx. N/A Viewing distance: N/A	Hornsea Three onshore cable corridor: Viewpoint CC9 - Weston Road

LDĀDESIGN Ørsted Hornsea Project Three	Distance to onshore cable corridor: 0.1km OS reference: 613289, 311215	Bearing to onshore cable corridor: N/A Viewpoint height: 27m AOD	Horizontal field of view: Approx. N/A Viewing distance: N/A	Hornsea Three onshore cable corridor: Viewpoint CC10 - Easton

Ref: 6117_CC_VP_10

Ref: 6117_CC_VP_11

LDĀDESIGN Ørsted Hornsea Project Three	Distance to onshore cable corridor: 0.0km OS reference: 613884, 309201	Bearing to onshore cable corridor: N/A Viewpoint height: 20m AOD	Horizontal field of view: Approx. N/A Viewing distance: N/A	Hornsea Three onshore cable corridor: Viewpoint CC11 - Bawburgh Road

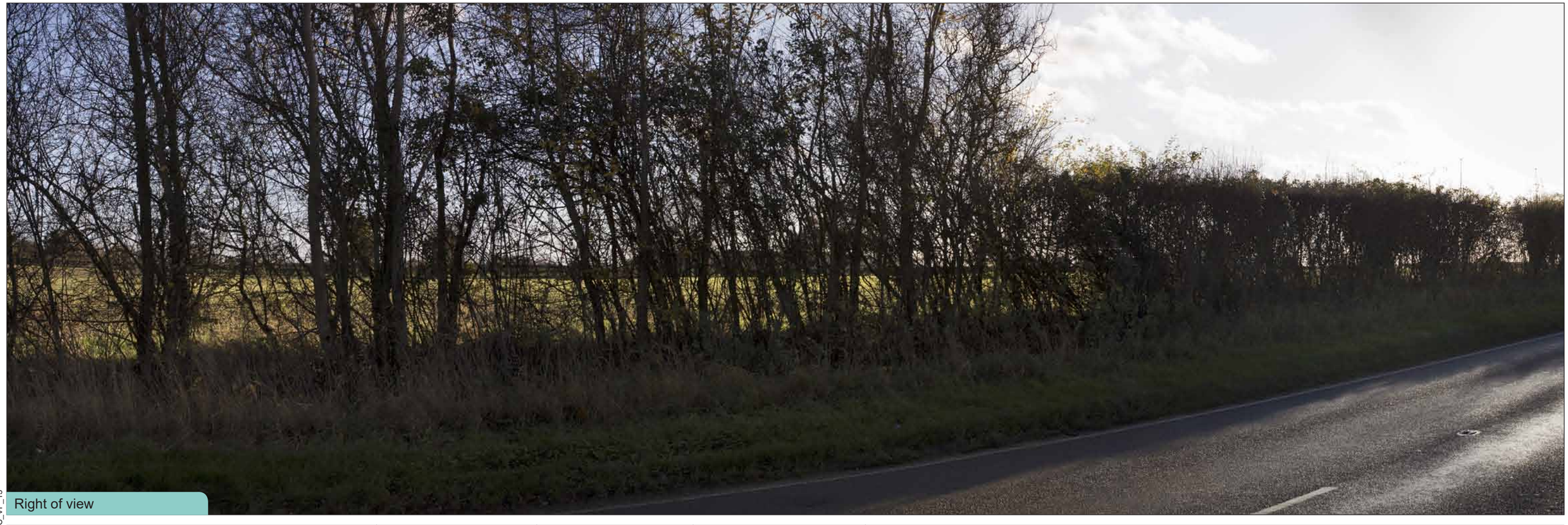
Left of view

Right of view

Ref: 6117_CC_VP_12

LDĀDESIGN Ørsted Hornsea Project Three	Distance to onshore cable corridor: 0.0km OS reference: 615704, 306596	Bearing to onshore cable corridor: N/A Viewpoint height: 40m AOD	Horizontal field of view: Approx. N/A Viewing distance: N/A	Hornsea Three onshore cable corridor: Viewpoint CC12 - Little Melton

Left of view



Right of view

Ref: 6117_CC_VP_13

LDĀDESIGN Ørsted

Hornsea Project Three

Distance to onshore cable corridor: 0.0km
OS reference: 615704, 306596

Bearing to onshore cable corridor: N/A
Viewpoint height: 28m AOD

Horizontal field of view: Approx. N/A
Viewing distance: N/A

Hornsea Three onshore cable corridor:
Viewpoint CC13 - B1113

2. Onshore HVAC Booster Station

2.1.1.1 This section contains a series of visualisations illustrating the Hornsea Three onshore HVAC booster station including:

- Baseline photographs;
- Wirelines illustrating the maximum design scenario;
- Photomontages of an illustrative design for the onshore HVAC booster station at year 1, illustrating views upon completion; and
- Photomontages of an illustrative design for the onshore HVAC booster station at year 15, illustrating views as proposed mitigation planting begins to mature.

2.1.1.2 Viewpoint locations are shown on Figure 2.1.

2.1.1.3 All viewpoints are illustrated as wirelines and selected viewpoints are also illustrated as photomontages. Where wirelines indicate that views of the onshore HVAC booster station would be very limited photomontages have not been produced. This approach was consulted on and agreed with South Norfolk District Council (SNDC) and Norfolk County Council (NCC) as noted in Table 4.4 of volume 3, chapter 4: Landscape and Visual Resources. North Norfolk District Council (NNDC) and Broadland District Council (BDC) were also consulted but at the time of finalisation of this report had not responded.

2.1.1.4 Table 2.1 shows which viewpoints are also illustrated as photomontages.

Table 2.1: Viewpoints illustrated as photomontages.

VP	Name	Photomontage
BS1	Sweetbriar Lane	No
BS2	Holt-Mannington Walk, Barningham Green	No
BS3	Holt-Mannington Walk, Watery Lane	No
BS4	Public Footpath (Corpusty FP14)	Yes
BS5	B1149	Yes

2.1.1.5 The photomontages illustrate proposed planting at the heights listed in Table 2.2.

Table 2.2: Planting sizes and growth rates assumed in photomontages.

VP	Height at year 1	Height at year 15	Assumed annual growth rate
Woodland and woodland edge planting	0.4 m	4.9 m	0.3 m
Individual trees in hedgerows	3.5 m	6.5 m	0.2 m

2.1.1.6 Viewpoint descriptions and assessments of scale of impact are included at section 2.2 and should be read in conjunction with the relevant visualisations.

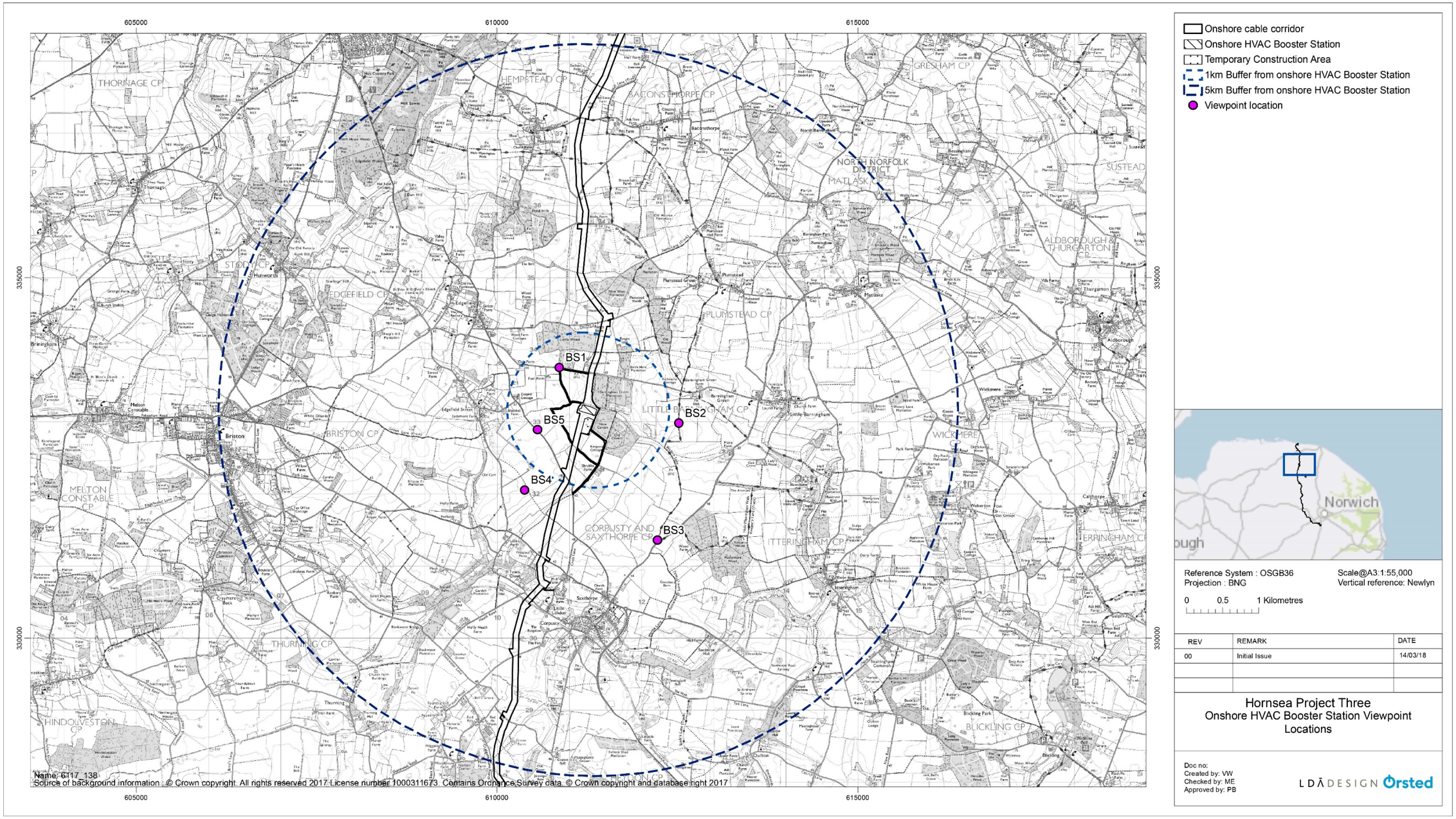


Figure 2.1: Onshore HVAC booster station representative viewpoint locations.

2.2 Viewpoint Descriptions

2.2.1 Viewpoint BS1 - Sweetbriar Lane

2.2.1.1 This view is taken from the verge on the northern side of Sweetbriar Lane, looking towards the south east through an existing field entrance. Sweetbriar Lane is lined by tall hedgerows with mature hedgerow trees. It looks out across a sloping field that rises in the foreground before dropping away towards an area of woodland, Barningham Green Plantation and New Covert, which forms part of the horizon. The proposed onshore HVAC booster station would be located over the brow of the hill and in front of the woodland, it would largely be screened by the intervening landform although some of the tallest elements such as lighting protection may be seen back clothed against the woodland beyond. Upon completion of construction of the onshore HVAC booster station the scale of impact on this glimpsed view would be negligible.

2.2.1.2 Proposed planting to the perimeter of the onshore HVAC booster station site would all sit below the crest of the hill in the foreground and as it matures it would remain so. There would be no change to the view as a result of the proposed planting and long-term effects would also be negligible.

2.2.2 Viewpoint BS2 - Holt–Mannington Walk

2.2.2.1 This view is taken from the bridleway and long distance footpath between Sweetbriar Lane and Watery Lane as it runs approximately 1.1 km to the east of the onshore HVAC booster station site near Barningham Green Farm. The view looks west across undulating fields, towards woodland which obscures views beyond. Electricity lines on poles can be seen in the middle distance running in front and rising just above the woodland. The proposed onshore HVAC booster station would be located beyond the woodland which would almost entirely screen the development although the tops of some equipment may be visible through the small gap in the woodland to the centre of view. The scale of impact would be negligible upon completion of construction of the onshore HVAC booster station; it is unlikely proposed planting would make a notable change to this view as it matures and the long-term effect would also be negligible.

2.2.3 Viewpoint BS3 – Watery Lane

2.2.3.1 This view is taken from the southern end of Watery Lane, on the Holt-Mannington Walk, just north of Matlaske Road. The view looks north west towards the onshore HVAC booster station, across relatively flat arable fields enclosed by hedgerows with frequent hedgerow trees. To the right of view woodland in the mid distance prevents views beyond while to the left the landscape is more open with more distant views possible, although the layering effect of vegetation in the landscape eventually obscures these. The proposed onshore HVAC booster station would be entirely screened from view by the woodland in the mid distance although some parts of the temporary construction compound, associated with construction of the booster station, may just be visible just to the left of this. It is unlikely that the construction compound would be clearly distinguishable from the existing organic waste processing activities seen in the foreground at Shrubbs Farm. Effects on this view, both upon completion and in the long term, would be no change.

2.2.4 Viewpoint BS4 – Public Footpath (Corpusty FP19)

2.2.4.1 This view is taken from the public footpath which runs between Ramsgate Street and the B1149 through several large fields. The view looks north east towards the onshore HVAC booster station, across open fields defined by hedgerows and frequent hedgerow trees with views terminated by woodland beyond. Large farm buildings can be seen beyond the foreground field to the left of view and more distant farm buildings and organic waste processing activities at Shrubbs Farm can be seen to the far right. The landform rises in the foreground before falling in the middle distance and rising again to meet the blocks of woodland.

2.2.4.2 The proposed onshore HVAC booster station would be visible in the centre of view, nestled down in front of the woodland and partially screened by intervening vegetation. It would be less prominent than the closer farm buildings. The temporary construction compound, associated with construction of the booster station, would be visible in front of the onshore HVAC booster station site. On completion the effects would be small scale. As proposed vegetation to the perimeter of the onshore HVAC booster station site matures it would provide further screening such that only the tallest elements, such as upper parts of buildings and lightning protection, remain visible. As such long-term effects would reduce to negligible scale.

2.2.5 Viewpoint BS5 – B1149

2.2.5.1 This view is taken from a gap in the hedgerow beside the B1149 which runs in a north-south direction to the west of the onshore HVAC booster station, between Edgefield and Saxthorpe. This road is lined for the majority of its route by hedgerows on both sides, obscuring views towards the onshore HVAC booster station. The view looks across the gently undulating fields which are enclosed by hedgerows and mature hedgerow trees towards woodland in the mid distance that prevents views beyond.

2.2.5.2 The proposed onshore HVAC booster station would be seen in the centre of view set against the backdrop of the woodland and partially screened by hedgerow trees to the far side of the foreground field. The woodland would provide a backdrop to the onshore HVAC booster station. The temporary construction compound associated with the HVAC booster station, would also be seen in open view, with a wooded backdrop. During construction and on completion the effects would be medium scale, albeit from a briefly glimpsed view. As proposed planting matures it would provide some additional screening of the onshore HVAC booster station although it would not completely obscure it. Long-term effects would reduce to small scale.

2.2.6 Summary

2.2.6.1 A summary is provided in Table 2.3.

Table 2.3: 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

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_VP_01

LDĀDESIGN Ørsted Hornsea Project Three	Distance to Onshore HVAC booster station: 0.6km OS reference: 610865, 333750	Bearing to Onshore HVAC booster station: 146˚ Viewpoint height: 64m 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 HVAC booster station wireline: Viewpoint BS1 - Sweetbriar Lane

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_VP_02

LDĀDESIGN Ørsted Hornsea Project Three	Distance to Onshore HVAC booster station: 1.2km OS reference: 612523, 332981	Bearing to Onshore HVAC booster station: 278˚ Viewpoint height: 50m 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 HVAC booster station wireline: Viewpoint BS2 - Holt-Mannington Walk, Barningham

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.

LDĀDESIGN Ørsted Hornsea Project Three	Distance to Onshore HVAC booster station: 1.9km OS reference: 612221, 331356	Bearing to Onshore HVAC booster station: 332˚ Viewpoint height: 47m 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 HVAC booster station wireline: Viewpoint BS3 - Holt-Mannington Walk, Watery Lane

Ref: 6117_BS_VP_03

Existing view

Proposed wireline

Ref: 6117_BS_VP_04

LDĀDESIGN Ørsted Hornsea Project Three	Distance to Onshore HVAC booster station: 1.3km OS reference: 610386, 332050	Bearing to Onshore HVAC booster station: 38˚ Viewpoint height: 51m 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 HVAC booster station wireline: Viewpoint BS4 - Public Footpath (Corpusty FP14)

Photomontage view year 1

Photomontage view year 15

Ref: 6117_BS_VP_04

LDĀDESIGN Ørsted Hornsea Project Three	Distance to Onshore HVAC booster station: 1.3km OS reference: 610386, 332050	Bearing to Onshore HVAC booster station: 38˚ Viewpoint height: 51m AOD	Horizontal field of view: Approx. 75˚ Viewing distance: 300mm @ A3	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.	Onshore HVAC booster station photomontage: Viewpoint BS4 - Public Footpath (Corpusty FP14)

Existing view

Proposed wireline

Ref: 6117_BS_VP_05

LDĀDESIGN Ørsted Hornsea Project Three	Distance to Onshore HVAC booster station: 0.6km OS reference: 610563, 332886	Bearing to Onshore HVAC booster station: 59˚ Viewpoint height: 62m 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 HVAC booster station wireline: Viewpoint BS5 - B1149

Photomontage view year 1

Photomontage view year 15

Ref: 6117_BS_VP_05

LDĀDESIGN Ørsted Hornsea Project Three	Distance to Onshore HVAC booster station: 0.6km OS reference: 610563, 332886	Bearing to Onshore HVAC booster station: 59˚ Viewpoint height: 62m AOD	Horizontal field of view: Approx. 75˚ Viewing distance: 300mm @ A3	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.	Onshore HVAC booster station photomontage: Viewpoint BS5 - B1149

3. Onshore HVDC Converter/HVAC Substation

3.1.1.1 This section contains a series of visualisations illustrating the Hornsea Three onshore HVDC converter/HVAC substation including:

- Baseline photographs;
- Wirelines illustrating the maximum design scenario;
- Photomontages of an illustrative design for the onshore HVDC converter/HVAC substation at year 1, illustrating views upon completion; and
- Photomontages of an illustrative design for the onshore HVDC converter/HVAC substation at year 15, illustrating views as proposed mitigation planting begins to mature.

3.1.1.2 Viewpoint locations are shown on Figure 3.1.

3.1.1.3 All viewpoints are illustrated as wirelines and selected viewpoints are also illustrated as photomontages. Where wirelines indicate that views of the onshore HVDC converter/HVAC substation would be very limited photomontages have not been produced. This approach was consulted on and agreed with SNDC and NCC as noted in Table 4.4 of volume 3, chapter 4: Landscape and Visual Resources. NNDC and BDC were also consulted but at the time of finalisation of this report had not responded.

3.1.1.4 Table 3.1 shows which viewpoints are also illustrated as photomontages.

Table 3.1: Viewpoints illustrated as photomontages.

VP	Name	Photomontage
SS1	Venta Icenorum	Yes
SS2	Bridleway (Swardeston BR12)	Yes
SS3	Bridleway (Keswick BR3)	Yes
SS4	Marston Marshes	No
SS5	Boudicca Way	Yes
SS6	Low Road	Yes
SS7	Tas Valley Way	No
SS8	Swardeston Common	No
SS9	Mangreen Lane	Yes

3.1.1.5 The photomontages illustrate proposed planting at the heights listed in Table 3.2.

Table 3.2: Planting sizes and growth rates assumed in photomontages.

VP	Height at year 1	Height at year 15	Assumed annual growth rate
Woodland and woodland edge planting	0.4 m	4.9 m	0.3 m
Individual trees in hedgerows	3.5 m	6.5 m	0.2 m

3.1.1.6 Viewpoint descriptions and assessments of scale of impact are included at section 3.2 and should be read in conjunction with the relevant visualisations.

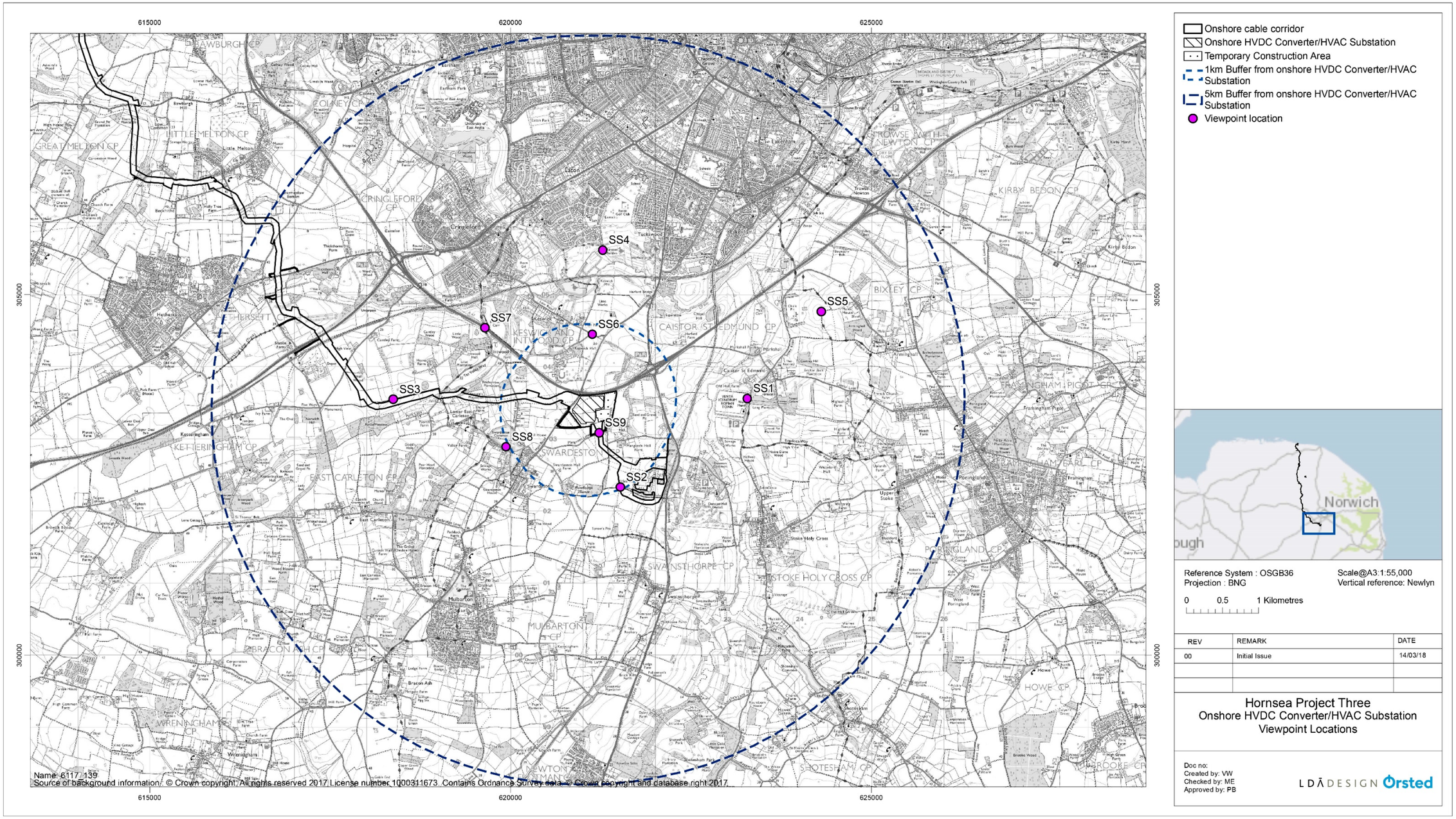


Figure 3.1: Onshore HVDC converter/HVAC substation representative viewpoint locations.

3.2 Viewpoint Descriptions

3.2.1 Viewpoint SS1 – Venta Icenorum

3.2.1.1 This view is from an informal path along the top of the eastern embankment at the historic Roman settlement site. The view looks across the River Tas valley, towards elevated land west of the valley, beyond which lies the onshore HVDC converter/HVAC substation site. The valley primarily comprises large fields bounded by hedgerows. On the far side of the valley a railway, running on an embankment, can be seen beneath a double row of pylons which span the view. Traffic and street lights on the A47 can be seen running along the elevated ground to the right of view against a back drop of woodland. Through the central part of the view, traffic on the A140 is also visible running along high ground in front of woodland.

3.2.1.2 The proposed onshore HVDC converter/HVAC substation would be seen to the far side of the valley appearing above the distant woodland, which would largely screen the development, and below the existing power lines. Only the tops of buildings and lightning protection elements would potentially be visible; these would be relatively distant and would be set in the context of the existing pylons and transport infrastructure. The onshore HVDC converter/HVAC substation would only result in a slight change in the existing view and the new elements would be subordinate to existing infrastructure; the scale of impact on completion of construction would be negligible.

3.2.1.3 Proposed woodland planting to the perimeter of the onshore HVDC converter/HVAC substation is unlikely to be seen beyond existing woodland from this location, even after it matures, and long-term effects would also be negligible.

3.2.2 Viewpoint SS2 – Bridleway (BR2) Swardeston

3.2.2.1 This view is from the bridleway running between Dunston and Gowthorpe Manor, located approximately 200m west of Norwich Main substation. The view looks north across an arable field bounded by hedgerows and mature trees which limit views out. A double row of pylons and cables crosses the view as they head to Norwich Main substation, lying just out of the photograph to the right (but visible from this viewpoint). A section of hedgerow, to the right of centre, would be removed for construction of the underground interconnection with Norwich Main substation and be reinstated following construction. Following construction the hedgerow removal would be visible although is unlikely to be notable in the wider context of the view and in the long-term, as reinstatement planting matures, it is unlikely to be discernible from other vegetation.

3.2.2.2 The proposed onshore HVDC converter/HVAC substation would be seen through and above vegetation to the far side of the field, with much of it entirely screened, and set below the existing power lines. Some parts of the main buildings are likely to be visible through vegetation with the taller lightning protection structures also visible. The existing pylons and substation, just out of shot to the right, would remain the most prominent infrastructure visible from this location. The scale of impact on completion of construction of the proposed onshore HVDC converter/HVAC substation would be small.

3.2.2.3 Proposed woodland planting to the south of the proposed onshore HVDC converter/HVAC substation is unlikely to be seen beyond existing woodland after 15 years from this location, and long-term effects would also be small scale.

3.2.3 Viewpoint SS3 – Bridleway (BR3) Keswick

3.2.3.1 This view is from a bridleway between Intwood Lane and Cantley Lane. The view looks east across a shallow valley, covered by fields bounded by hedgerows and mature trees, with a small number of houses within the valley visible at Lower East Carleton. In the distance a double row of pylons can be seen running across the horizon with two masts at Poringland visible beyond. The layering effect vegetation, combining to give a heavily vegetated appearance to the landscape, is evident from this viewpoint. The proposed onshore HVDC converter/HVAC substation would be seen, relatively distant below the power lines, partially screened by trees in the intervening landscape. The main buildings are likely to be partially screened by intervening vegetation with lightning protection visible above, although lightning protection may be difficult to discern at this distance. The onshore HVDC converter/HVAC substation would be less prominent than existing pylons and overhead wires. Proposed planting surrounding the onshore HVDC converter/HVAC substation is unlikely to be distinguishable from other vegetation within the view and is unlikely to provide further notable screening as it matures. Effects both on completion and in the long-term would be small-negligible scale.

3.2.4 Viewpoint SS4 – Marston Marshes

3.2.4.1 This view is taken from within Marston Marshes nature reserve on the southern edge of Norwich. It looks out across a flat area of marshland, punctuated with occasional small trees. In the middle distance, as the ground starts to rise, the tree cover becomes more extensive and prevents views beyond although some pylons can be seen above trees in the distance. The proposed onshore HVDC converter/HVAC substation would be almost entirely screened from view, lying beyond the trees. Lightning protection elements might be glimpsed through branches or small gaps, mainly in winter when trees are bare, although they would be barely perceptible amongst the branches. Effects here, both on completion and long-term, would be negligible scale.

3.2.5 Viewpoint SS5 – Boudicca Way

3.2.5.1 This viewpoint is located on the Boudicca Way as it passes along elevated land at the eastern edge of Caistor St. Edmund Quarry. The view is dominated by the quarry in the foreground beyond. Beyond the quarry the view looks out across the shallow, wooded Tas valley that is crossed by the A47 to the right of view; to the far side of the valley, trees, woodland and lines of pylons are the main elements on the skyline. Pylons are a notable feature of the view with several transmission lines visible across a range of distances, including one line traversing the valley. The proposed onshore HVDC converter/HVAC substation would be seen set amongst woodland to the far side of the valley, with pylon lines passing both in front and behind. Lower elements of the onshore HVDC converter/HVAC substation would be screened by trees with taller elements and lightning protection extending above, set amongst the existing transmission infrastructure, although lightning protection may be difficult to discern at this distance. The proposed onshore HVDC converter/HVAC substation would be a new feature within the view although would not change the character established by existing pylons and other infrastructure. Proposed planting would have little effect on the view after 15 years. The scale of impacts on completion and long-term would be small.

3.2.6 Viewpoint SS6 – Low Road

3.2.6.1 This view is from Low Road, on the north eastern edge of the grounds of Keswick Hall, the parkland landscape of which occupies the foreground. The landform rises in the foreground to a band of mature trees that prevent distant views although a gap in the vegetation to the centre of view allows a single pylon to be seen in the distance. The proposed onshore HVDC converter/HVAC substation would be partly screened by landform and vegetation although would be seen in the gap in the trees. This would include taller elements of equipment and lightning protection which would appear at a similar height to the existing pylon, albeit at closer proximity. Proposed woodland planting around the proposed onshore HVDC converter/HVAC substation would be unlikely to be seen, and effects on completion and long-term would be medium scale.

3.2.7 Viewpoint SS7 – Intwood Road

3.2.7.1 This view is taken from a bridge crossing the A47 and looks down along the A47 towards the onshore HVDC converter/HVAC substation site, looking perpendicular to the direction of travel on Intwood Road. The A47 is lined to either side with dense vegetation above which rows of pylons are visible running on both sides of the dual carriageway. To the right and centre of view, the roadside vegetation lies on embankment and prevents views out beyond the road corridor. To the left of view some roadside fields can be seen although field boundary vegetation also constrains views out. The proposed onshore HVDC converter/HVAC substation would be seen directly along the A47, extending above the road between the pylons. Distant vegetation would screen lower elements within the onshore HVDC converter/HVAC substation site although the lighting protection and some taller elements would be visible. The proposed onshore HVDC converter/HVAC substation would be noticeable, in part due to the alignment of the road drawing the eye, although notably less prominent than the double row of pylons that flank the road. Proposed woodland would be unlikely to provide additional screening of the onshore HVDC converter/HVAC substation site from here, even once matured, and effects on completion and long-term would be small scale.

3.2.8 Viewpoint SS8 – Swardeston Common

3.2.8.1 This view is taken from Swardeston Common, to the north of the village. It looks across the common towards dense trees and scrub on the far side that obscures views beyond. To the right of view, power cables on wooden poles can be seen crossing the common and in the distance, above the trees, power lines on pylons can be seen crossing the view. The vegetation would almost totally screen the proposed onshore HVDC converter/HVAC substation with only small parts of the lightning protection and potentially other tall elements seen between gaps in vegetation, below existing power lines. Effects here, on completion and long-term, would be negligible scale.

3.2.9 Viewpoint SS9 – Mangreen Lane

3.2.9.1 This view is taken from a field entrance off Mangreen Lane, looking north towards the onshore HVDC converter/HVAC substation site across a field of arable crops, looking perpendicular to the direction of travel on Mangreen Lane. To the far side of the foreground field power lines on wooden poles can be seen running in front of a hedgerow and line of mature trees that run along the south eastern boundary of the onshore HVDC converter/HVAC substation site; pylons can also be seen to the left of view, beyond the trees. The proposed onshore HVDC converter/HVAC substation would be seen in close proximity, just beyond the existing trees, occupying the almost the full width of the view and multiple elements within would appear taller than the trees. On completion, the scale of impacts would be large.

3.2.9.2 Proposed woodland planting would be located between the existing trees and the proposed onshore HVDC converter/HVAC substation. As it matures it would provide additional screening to lower elements of buildings and equipment although, it would be unlikely to ever achieve a height where it could substantially screen the onshore HVDC converter/HVAC substation site. It would however change the nature of the view, screening lower elements, helping break up the mass of the proposed onshore HVDC converter/HVAC substation, and helping to integrate it into the landscape. Long-term effects would remain large scale.

3.2.10 Summary

3.2.10.1 A summary is provided in Table 3.3.

Table 3.3: 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
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
SS8	Swardeston Common	1.0km, SW	Negligible	Negligible
SS9	Mangreen Lane	0.2km, S	Large	Large

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.

LDĀDESIGN Ørsted Hornsea Project Three	Distance to Onshore HVDC converter/HVAC substation: 2.0km OS reference: 623278, 303559	Bearing to Onshore HVDC converter/HVAC substation: 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: Viewpoint SS1 - Venta Icenorum

Ref: 6117_SS_VP_01

Photomontage view year 1

Photomontage view year 15

Ref: 6117_SS_VP_01

LDĀDESIGN Ørsted Hornsea Project Three	Distance to Onshore HVDC converter/HVAC substation: 2.0km OS reference: 623278, 303559	Bearing to Onshore HVDC converter/HVAC substation: 266˚ Viewpoint height: 17m AOD	Horizontal field of view: Approx. 75˚ Viewing distance: 300mm @ A3	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.	Onshore HVDC converter/HVAC substation photomontage: Viewpoint SS1 - Venta Icenorum

Existing view

Proposed wireline

Ref: 6117_SS_VP_02

LDĀDESIGN Ørsted Hornsea Project Three	Distance to Onshore HVDC converter/HVAC substation: 1.0km OS reference: 621517, 302328	Bearing to Onshore HVDC converter/HVAC substation: 338˚ Viewpoint height: 34m 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: Viewpoint SS2 - Bridleway (Swardeston BR12)

Photomontage view year 1

Photomontage view year 15

Ref: 6117_SS_VP_02

LDĀDESIGN Ørsted Hornsea Project Three	Distance to Onshore HVDC converter/HVAC substation: 1.0km OS reference: 621517, 302328	Bearing to Onshore HVDC converter/HVAC substation: 338˚ Viewpoint height: 34m AOD	Horizontal field of view: Approx. 75˚ Viewing distance: 300mm @ A3	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.	Onshore HVDC converter/HVAC substation photomontage: Viewpoint SS2 - Bridleway (Swardeston BR12)

Existing view

Proposed wireline

Ref: 6117_SS_VP_03

LDĀDESIGN Ørsted Hornsea Project Three	Distance to Onshore HVDC converter/HVAC substation: 2.5km OS reference: 618373, 303549	Bearing to Onshore HVDC converter/HVAC substation: 93˚ Viewpoint height: 33m 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: Viewpoint SS3 - Bridleway (Keswick BR3)

Photomontage view year 1

Photomontage view year 15

Ref: 6117_SS_VP_03

LDĀDESIGN Ørsted Hornsea Project Three	Distance to Onshore HVDC converter/HVAC substation: 2.5km OS reference: 618373, 303549	Bearing to Onshore HVDC converter/HVAC substation: 93˚ Viewpoint height: 33m AOD	Horizontal field of view: Approx. 75˚ Viewing distance: 300mm @ A3	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.	Onshore HVDC converter/HVAC substation photomontage: Viewpoint SS3 - Bridleway (Keswick BR3)

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.

LDĀDESIGN Ørsted Hornsea Project Three	Distance to Onshore HVDC converter/HVAC substation: 2.0km OS reference: 621276, 305617	Bearing to Onshore HVDC converter/HVAC substation: 185˚ Viewpoint height: 5m 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: Viewpoint SS4 - Marston Marshes

Ref: 6117_SS_VP_04

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.

LDĀDESIGN Ørsted Hornsea Project Three	Distance to Onshore HVDC converter/HVAC substation: 3.2km OS reference: 624302, 304766	Bearing to Onshore HVDC converter/HVAC substation: 247˚ Viewpoint height: 37m 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: Viewpoint SS5 - Boudicca Way

Ref: 6117_SS_VP_05

Photomontage view year 1

Photomontage view year 15

Ref: 6117_SS_VP_05

LDĀDESIGN Ørsted Hornsea Project Three	Distance to Onshore HVDC converter/HVAC substation: 3.2km OS reference: 624302, 304766	Bearing to Onshore HVDC converter/HVAC substation: 247˚ Viewpoint height: 37m AOD	Horizontal field of view: Approx. 75˚ Viewing distance: 300mm @ A3	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.	Onshore HVDC converter/HVAC substation photomontage: Viewpoint SS5 - Boudicca Way

Existing view

Proposed wireline

Ref: 6117_SS_VP_06

LDĀDESIGN Ørsted Hornsea Project Three	Distance to Onshore HVDC converter/HVAC substation: 0.9km OS reference: 621134, 304448	Bearing to Onshore HVDC converter/HVAC substation: 184° Viewpoint height: 18m 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: Viewpoint SS6 - Low Road

Photomontage view year 1

Photomontage view year 15

Ref: 6117_SS_VP_06

LDĀDESIGN Ørsted Hornsea Project Three	Distance to Onshore HVDC converter/HVAC substation: 0.9km OS reference: 621134, 304448	Bearing to Onshore HVDC converter/HVAC substation: 184˚ Viewpoint height: 18m AOD	Horizontal field of view: Approx. 75˚ Viewing distance: 300mm @ A3	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.	Onshore HVDC converter/HVAC substation photomontage: Viewpoint SS6 - Low Road

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.

LDĀDESIGN Ørsted Hornsea Project Three	Distance to Onshore HVDC converter/HVAC substation: 1.6km OS reference: 619642, 304540	Bearing to Onshore HVDC converter/HVAC substation: 128˚ Viewpoint height: 23m 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: Viewpoint SS7 - Tas Valley Way

Ref: 6117_SS_VP_07

Photomontage view year 1

Photomontage view year 15

Ref: 6117_SS_VP_07

LDĀDESIGN Ørsted Hornsea Project Three	Distance to Onshore HVDC converter/HVAC substation: 1.6km OS reference: 619642, 304540	Bearing to Onshore HVDC converter/HVAC substation: 128˚ Viewpoint height: 23m AOD	Horizontal field of view: Approx. 75˚ Viewing distance: 300mm @ A3	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.	Onshore HVDC converter/HVAC substation photomontage: Viewpoint SS7 - Tas Valley Way

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_VP_08

LDĀDESIGN Ørsted Hornsea Project Three	Distance to Onshore HVDC converter/HVAC substation: 1.0km OS reference: 619937, 302886	Bearing to Onshore HVDC converter/HVAC substation: 65˚ 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: Viewpoint SS8 - Swardeston Common

Existing view

Proposed wireline

Ref: 6117_SS_VP_09

LDĀDESIGN Ørsted Hornsea Project Three	Distance to Onshore HVDC converter/HVAC substation: 0.2km OS reference: 621227, 303085	Bearing to Onshore HVDC converter/HVAC substation: 335˚ Viewpoint height: 40m 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: Viewpoint SS9 - Mangreen Lane

Photomontage view year 1

Photomontage view year 15

Ref: 6117_SS_VP_09

LDĀDESIGN Ørsted Hornsea Project Three	Distance to Onshore HVDC converter/HVAC substation: 0.2km OS reference: 621227, 303085	Bearing to Onshore HVDC converter/HVAC substation: 335˚ Viewpoint height: 40m AOD	Horizontal field of view: Approx. 75˚ Viewing distance: 300mm @ A3	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.	Onshore HVDC converter/HVAC substation photomontage: Viewpoint SS9 - Mangreen Lane

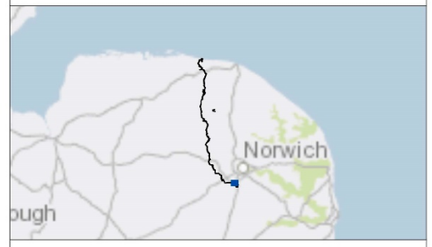
4. Views from the A47

4.1.1.1 This section contains a series of photographs travelling past the onshore HVDC converter/HVAC substation site in a car on the southern carriageway of the A47. Photographs taken from a moving car have been presented to illustrate views from the A47 as there are no nearby laybys or other publicly accessible locations adjacent to the road in the vicinity of the onshore HVDC converter/HVAC substation site. As such, the views only show a single frame looking sideways to the direction of travel and do not show the wider views that would be experienced including looking in the direction of travel which includes road infrastructure and moving vehicles. Due to being taken from a moving vehicle the photos exhibit some motion blur and may not be of the same quality as those taken from stationary locations.

4.1.1.2 These views were taken to help inform assessment of effects in relation to South Norfolk Local Plan Policy DM4.6 and the the Norwich Southern Bypass Landscape Protection Zone (NSBLPZ) which is discussed in chapter 6, volume 3, chapter 4: Landscape and Visual Resources.

Order limits
Onshore HVDC Converter/HVAC Substation
A47 photograph locations

Photograph views from these viewpoints are shown on sheets 1 – 5. The photographs show views looking approximately south-west from a car travelling in the southern lane of the A47.



Reference System : OSGB36
Projection : BNG

Scale@A3:1:5,000
Vertical reference: Newlyn

0 250 Meters

REV	REMARK	DATE
00	Initial Issue	27/02/18

Hornsea Project Three
Onshore HVDC Converter/HVAC Substation
A47 Photograph Locations

Doc no:
Created by: ME
Checked by: PB
Approved by: PB

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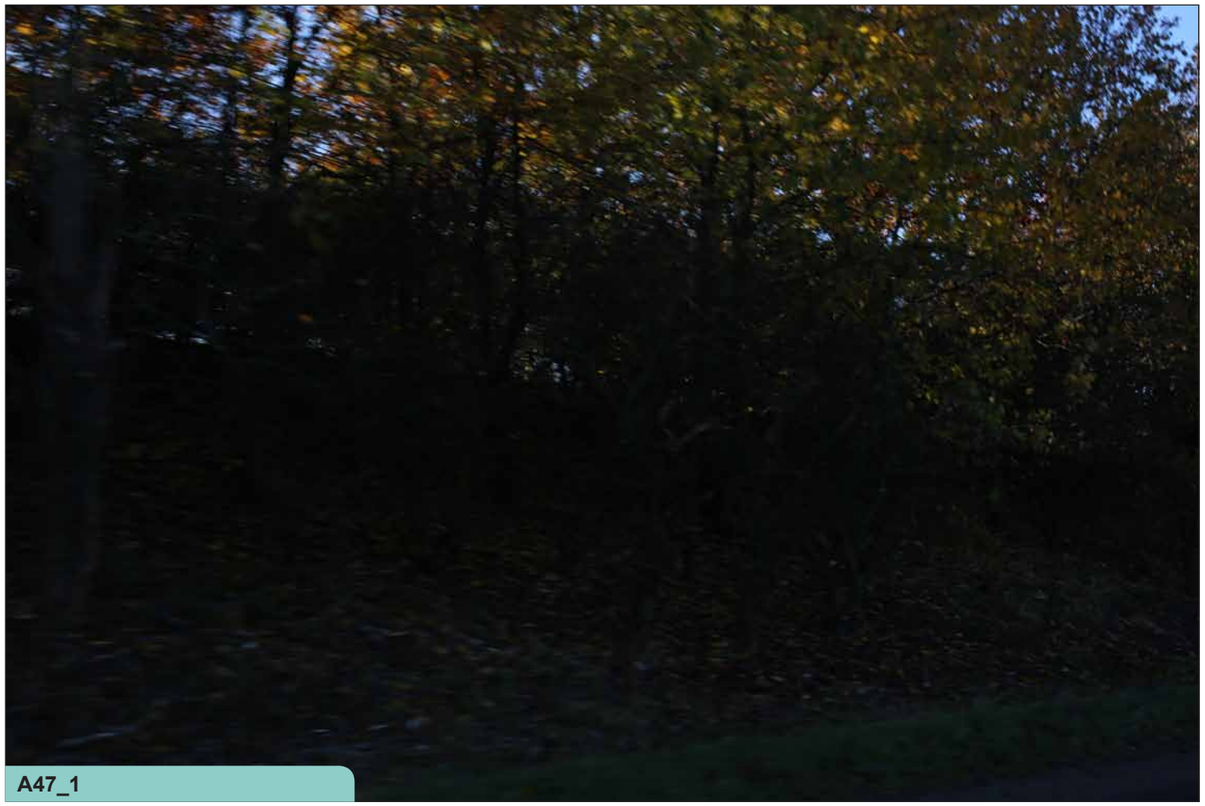
Figure 4.1: A47 photograph locations.



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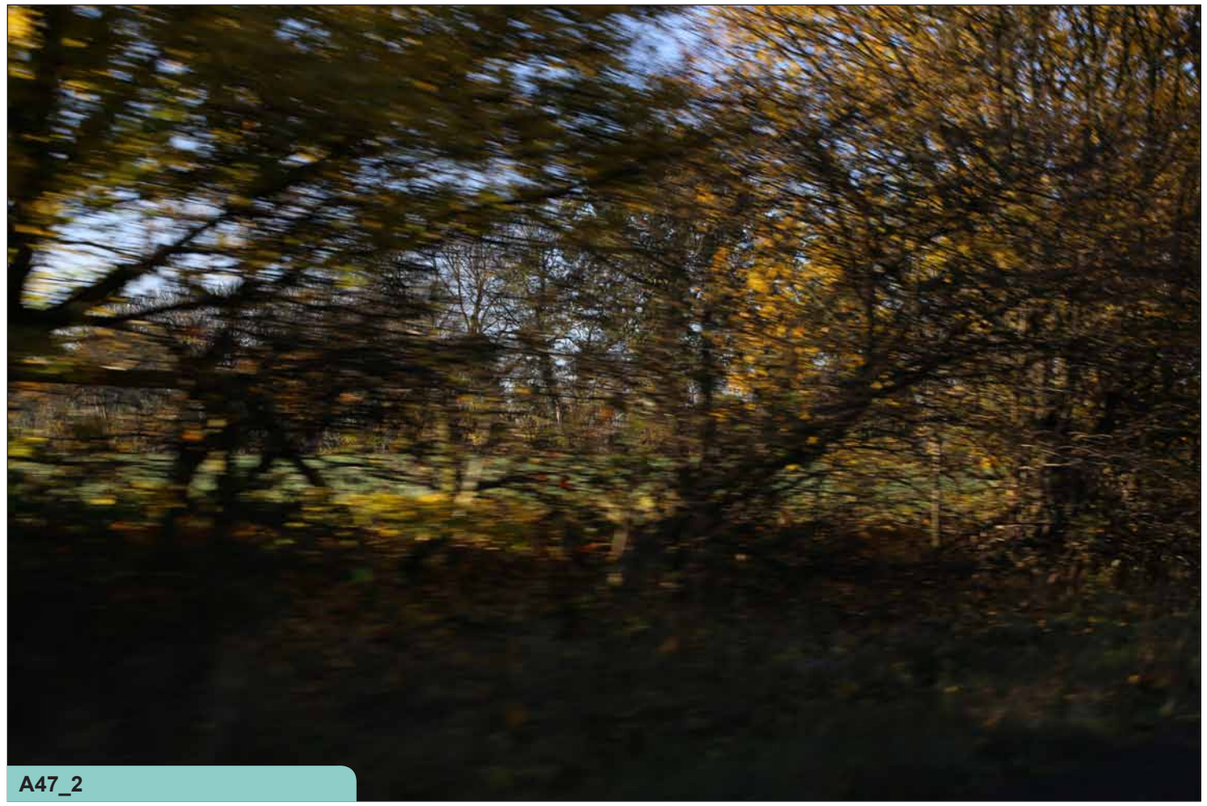

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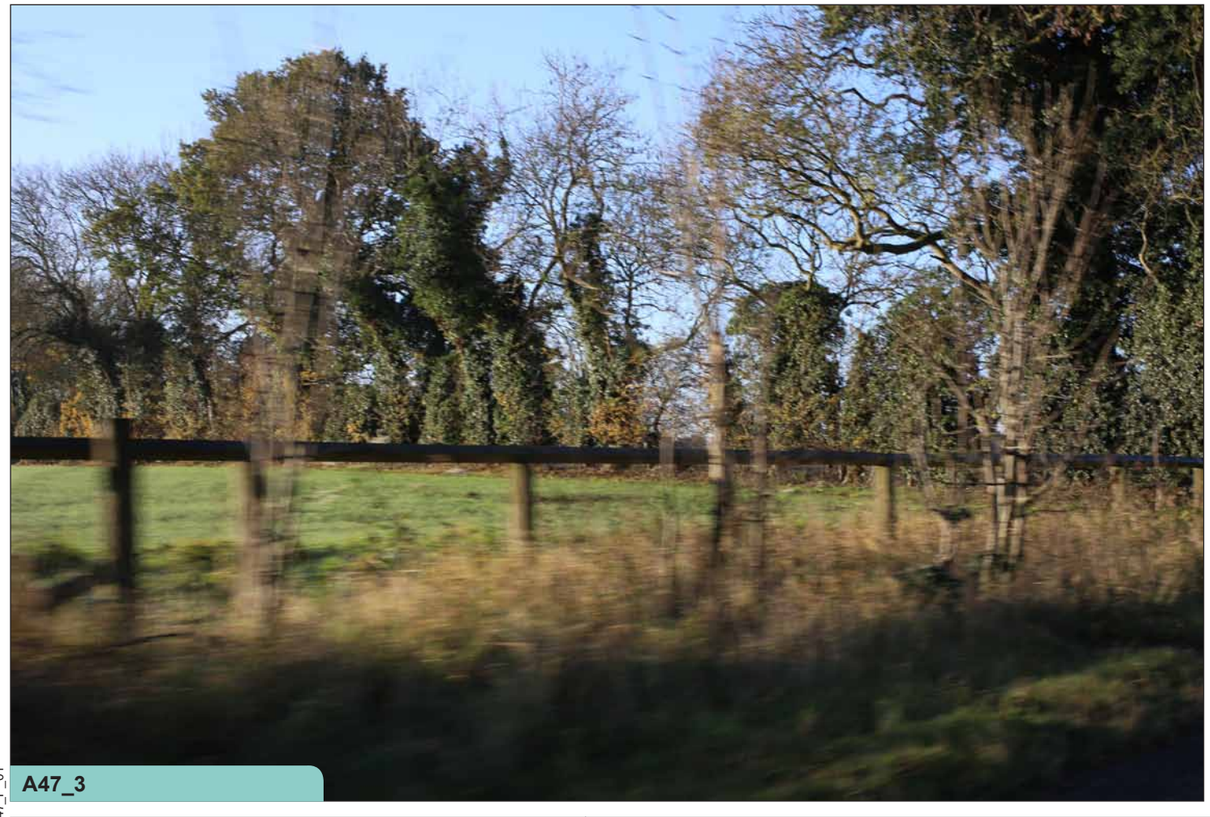

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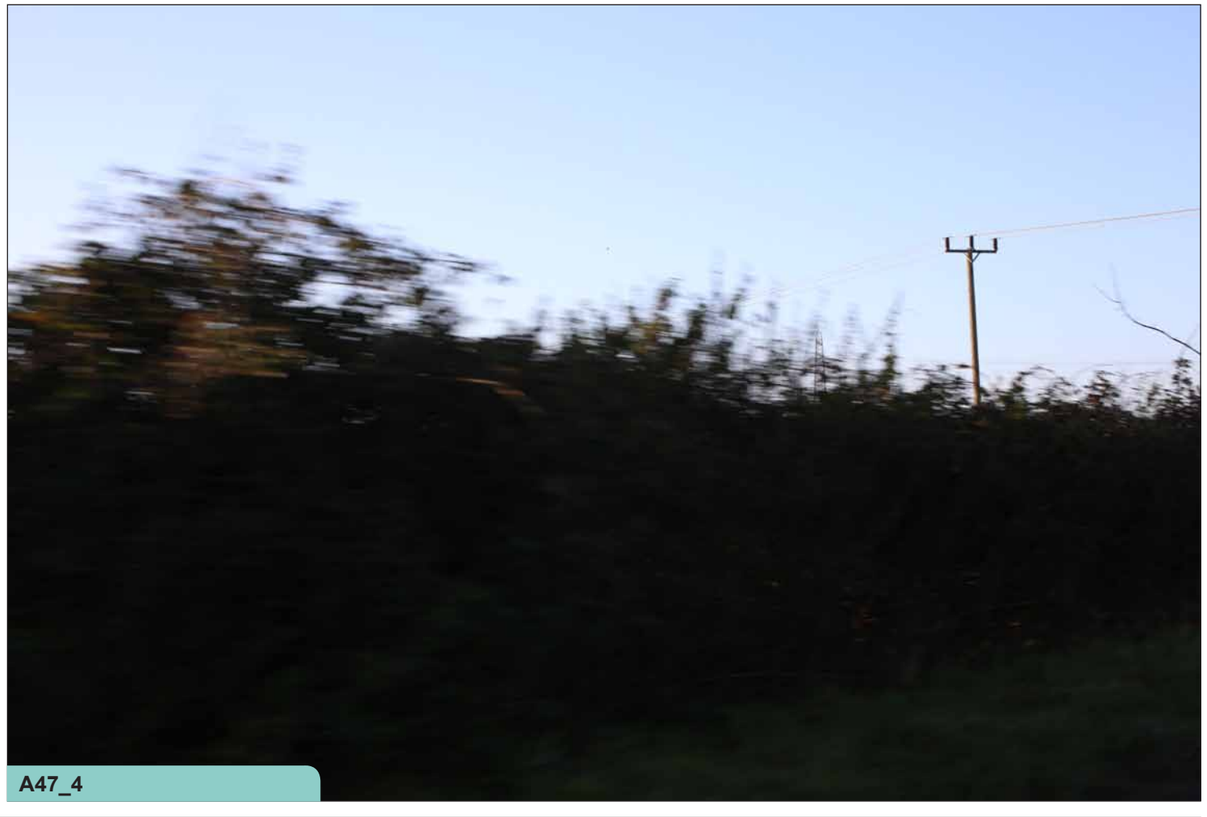

A47_4

Ref: 6117_A47_P_01

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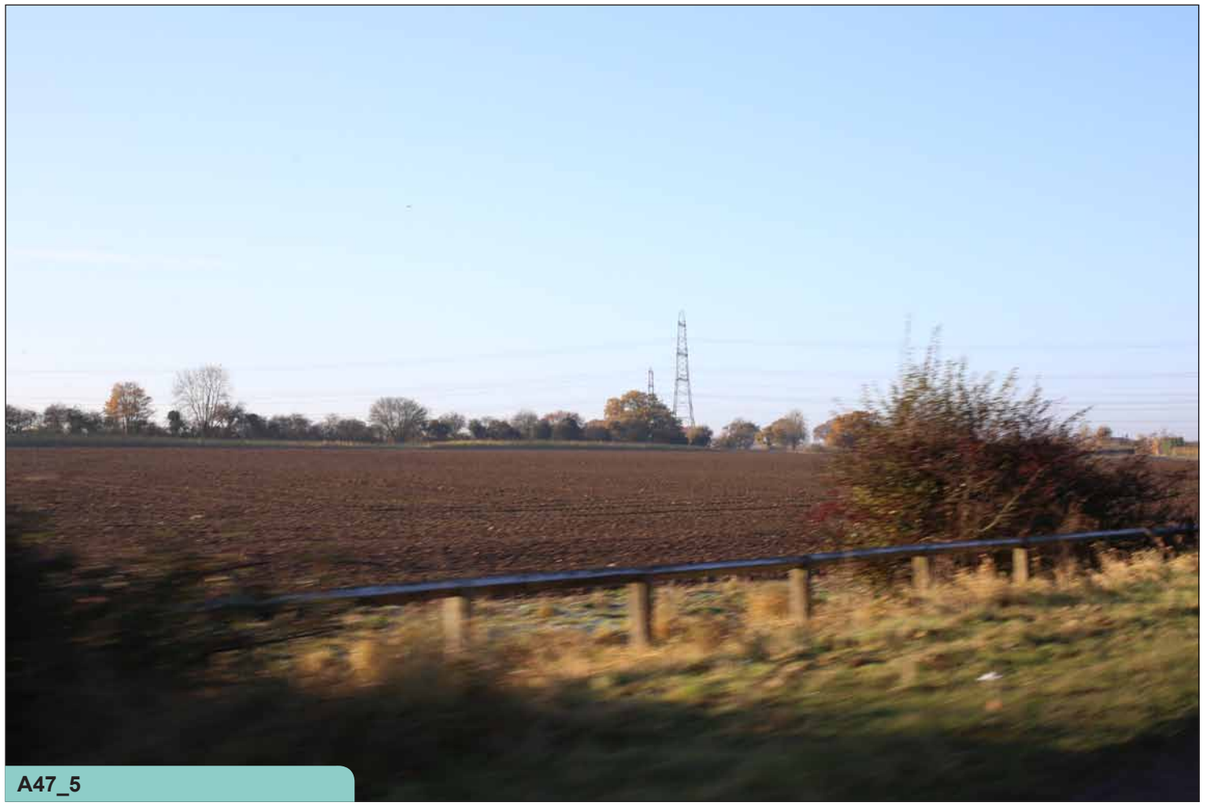
Hornsea Project Three

Hornsea Three onshore cable corridor:
A47 Photographs - Sheet 1 of 5



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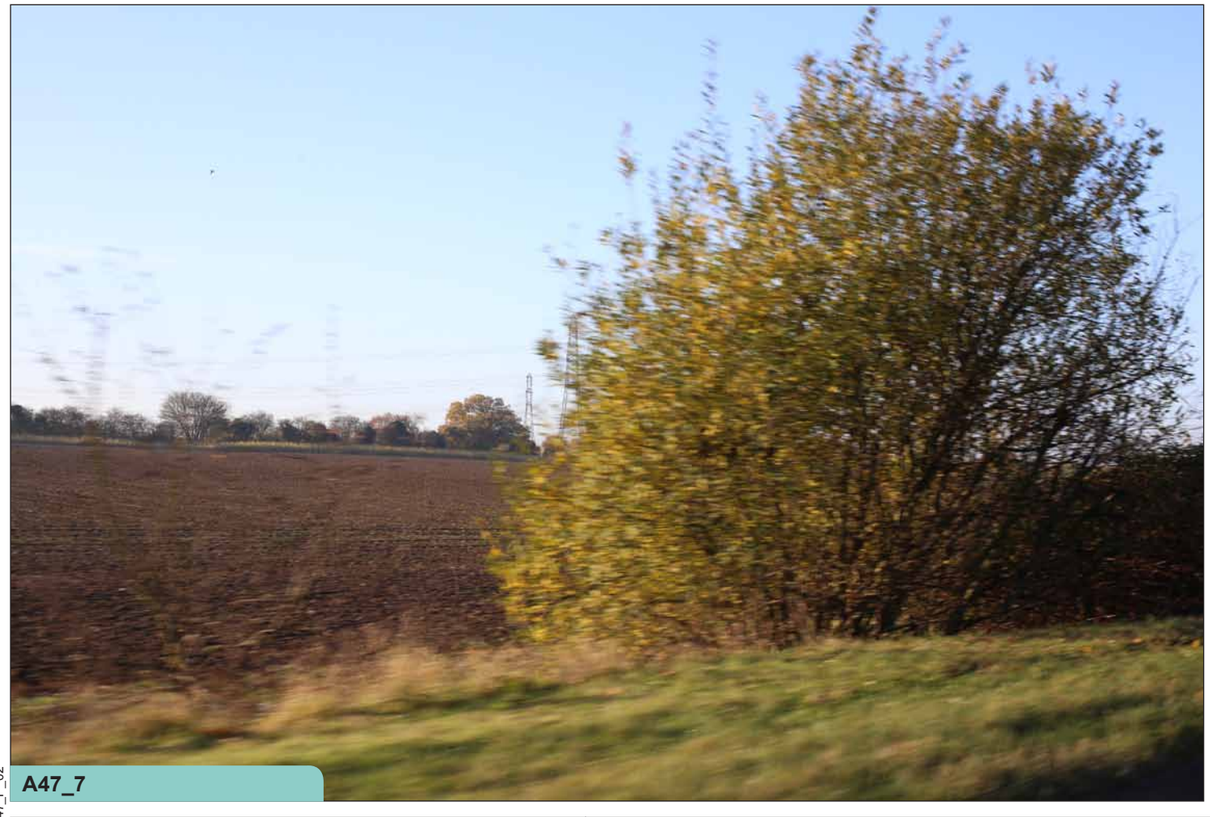
A47_6



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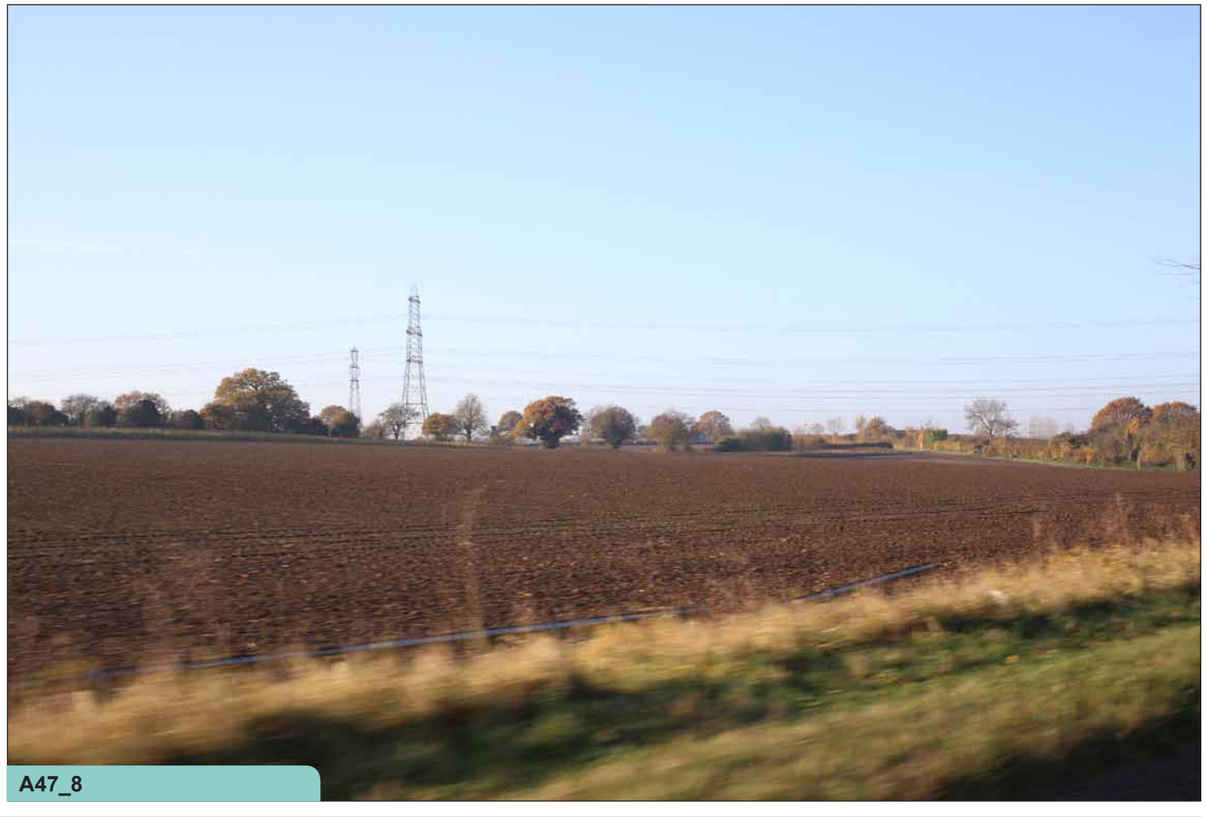

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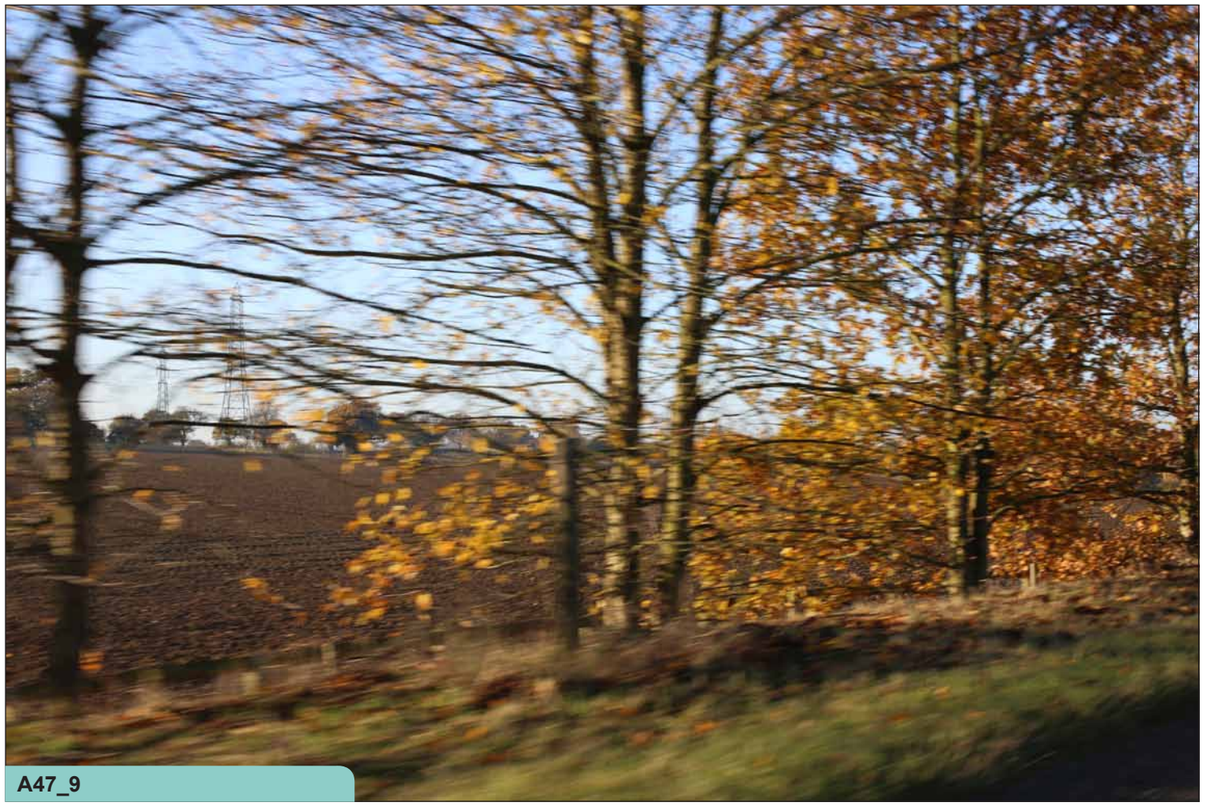
Hornsea Project Three

Hornsea Three onshore cable corridor:
A47 Photographs - Sheet 2 of 5



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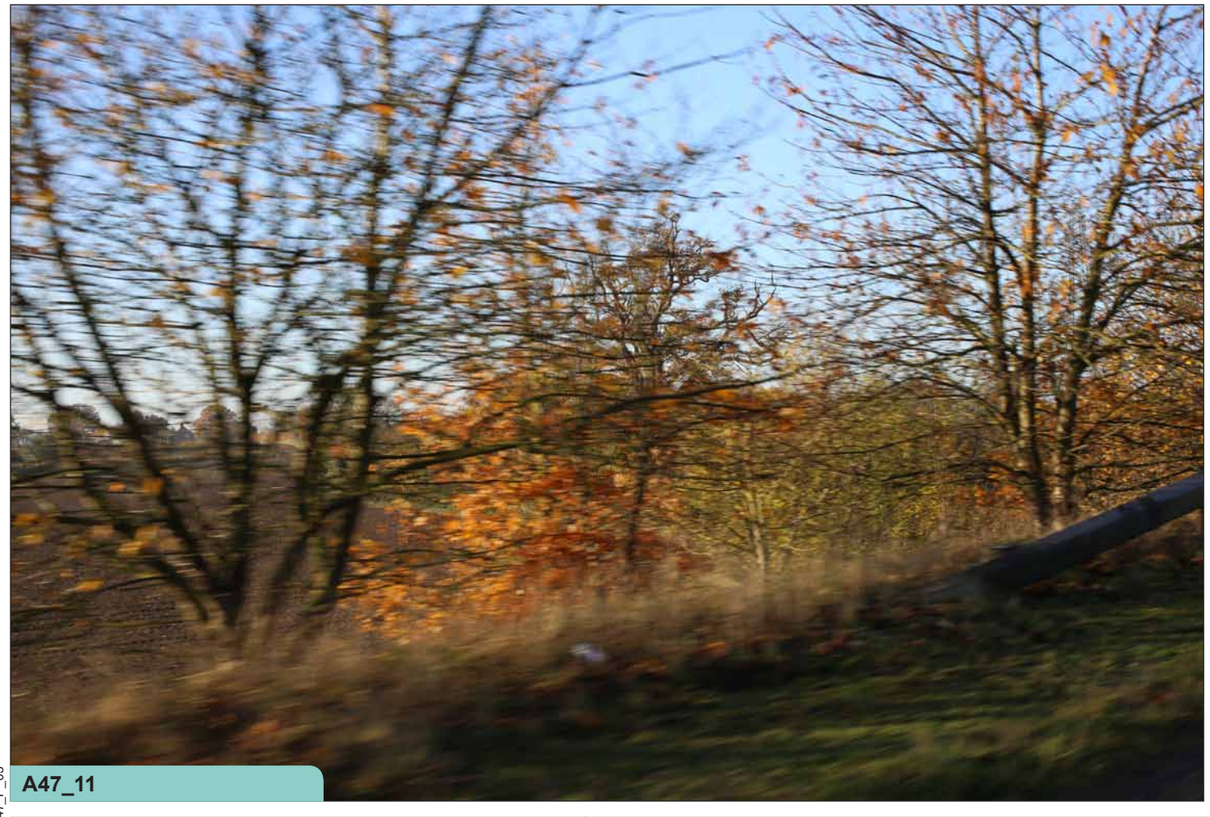
A47_10



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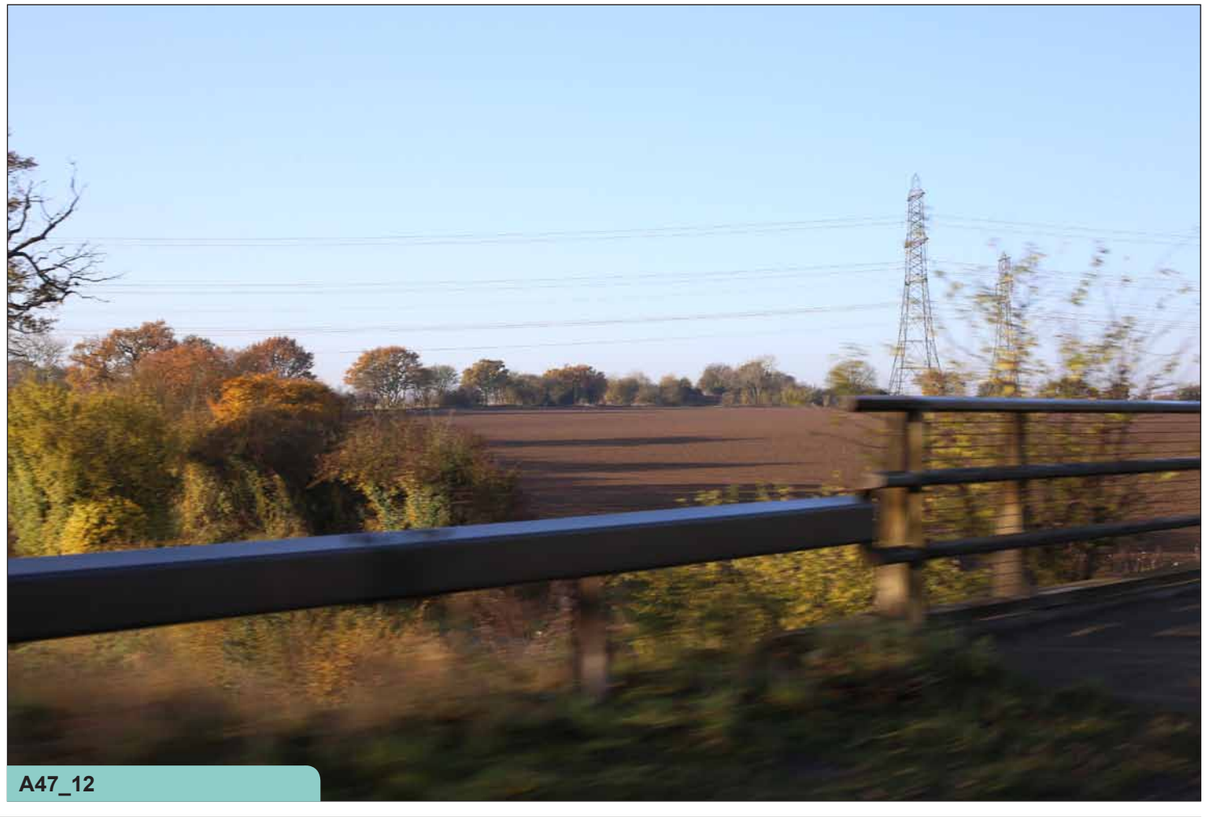

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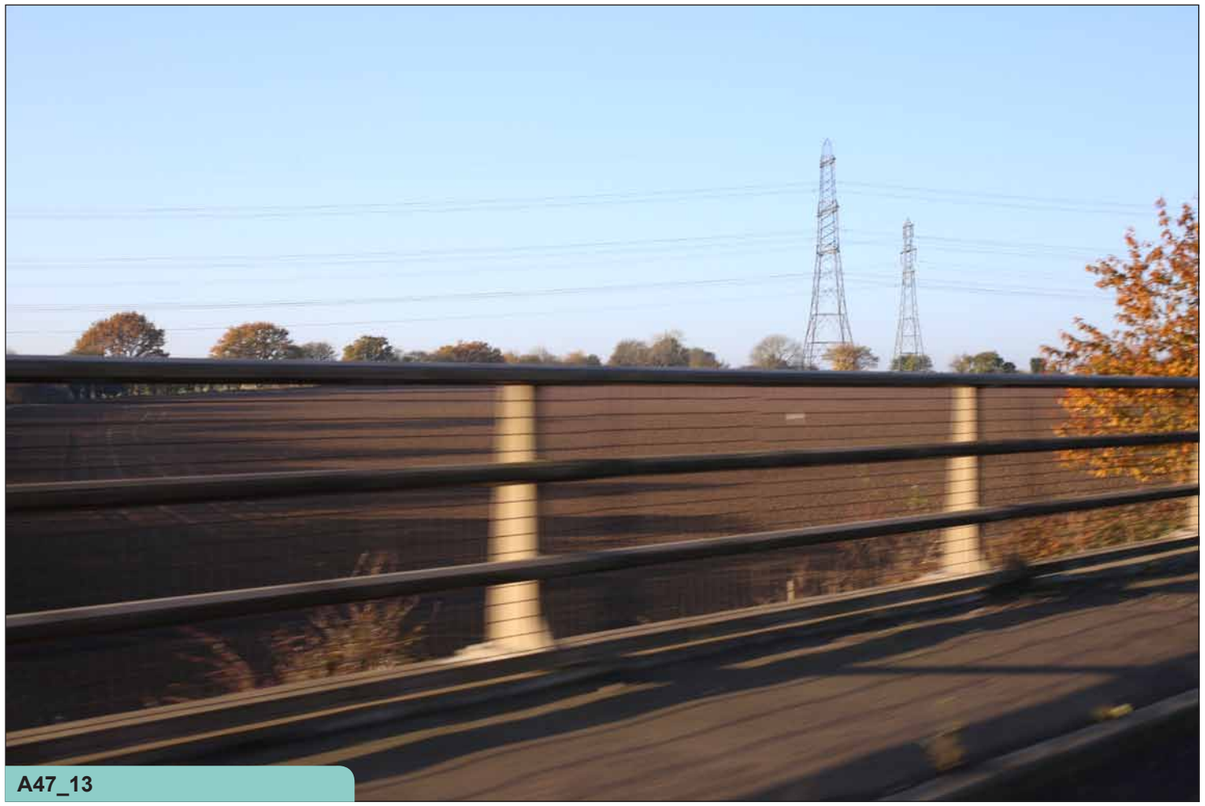
Hornsea Project Three

Hornsea Three onshore cable corridor:
A47 Photographs - Sheet 3 of 5



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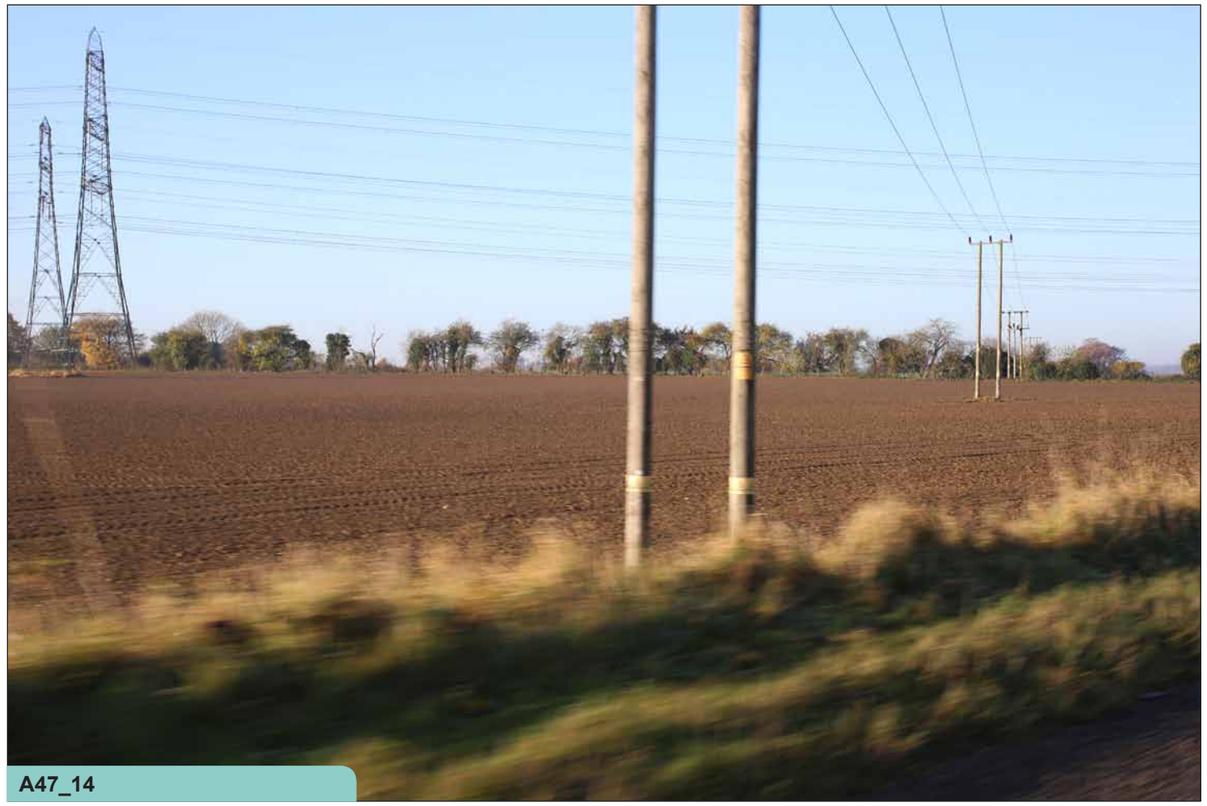

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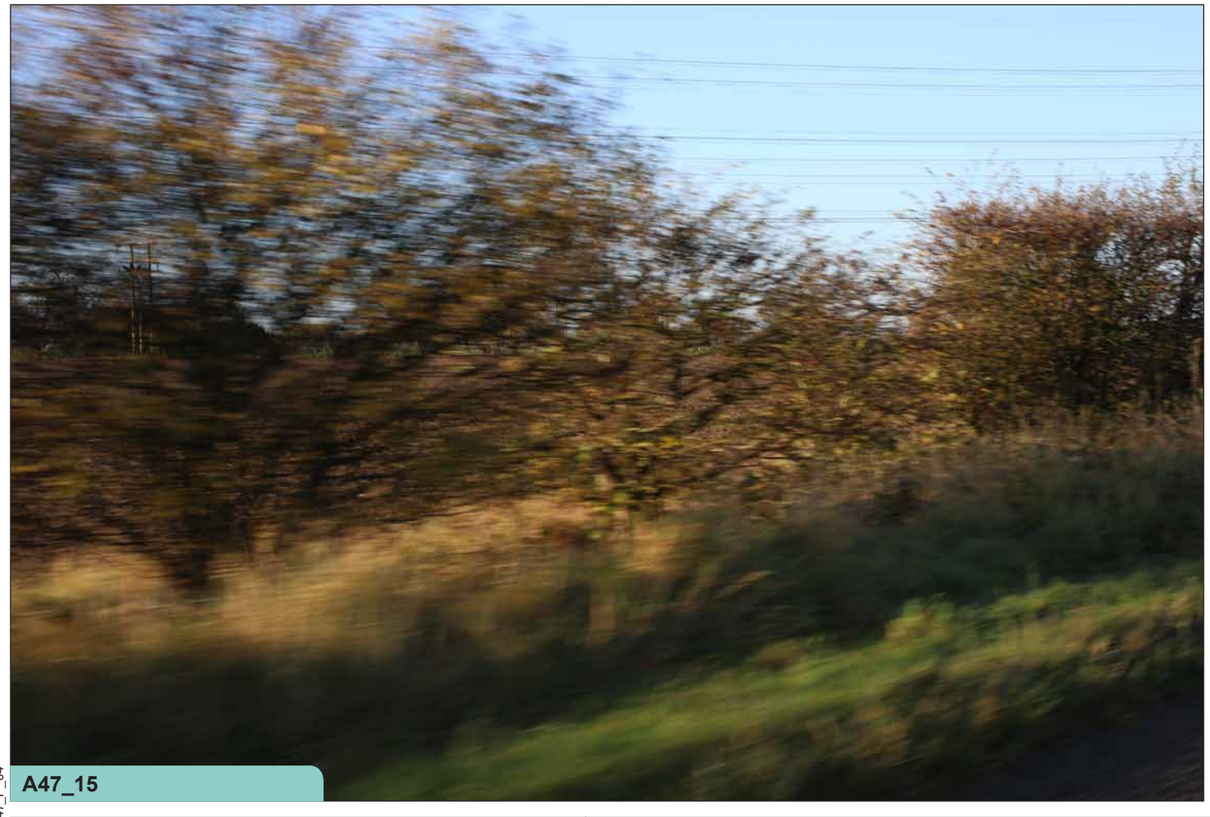

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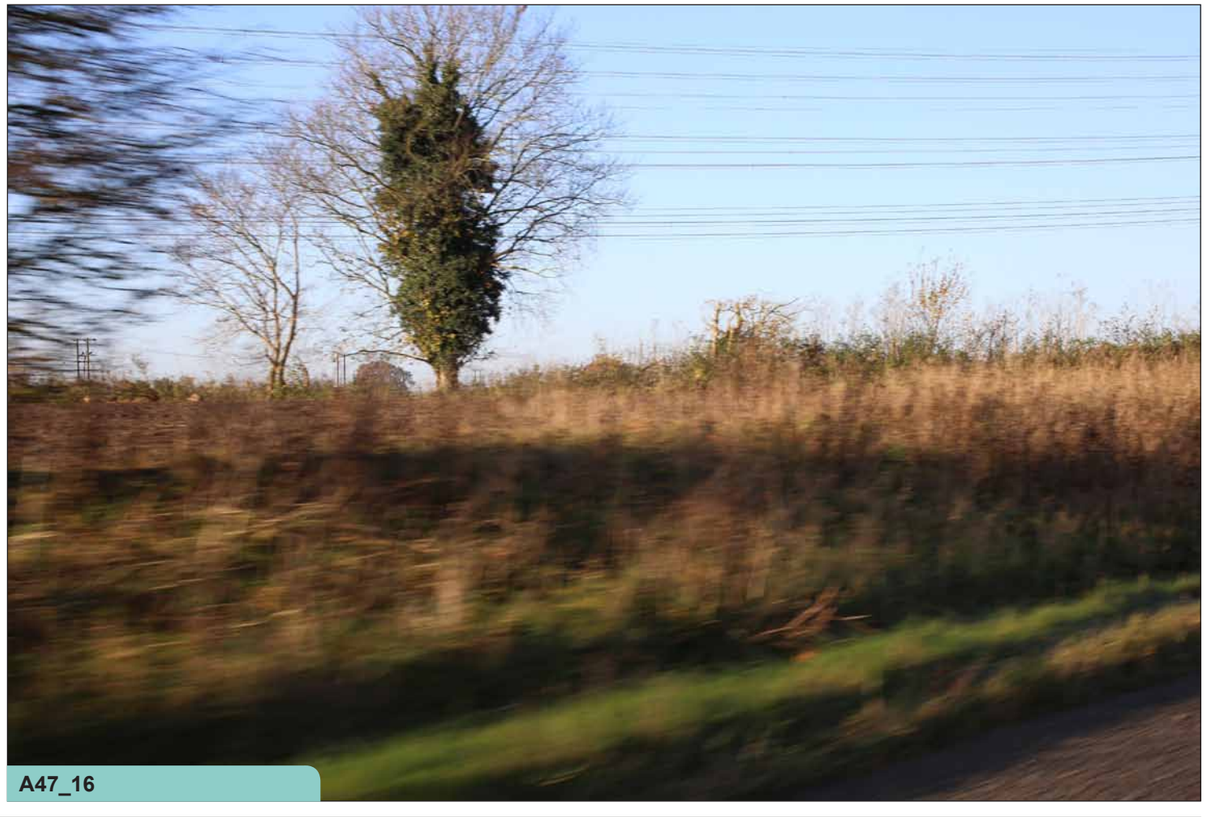

A47_16

Ref: 6117_A47_P_04

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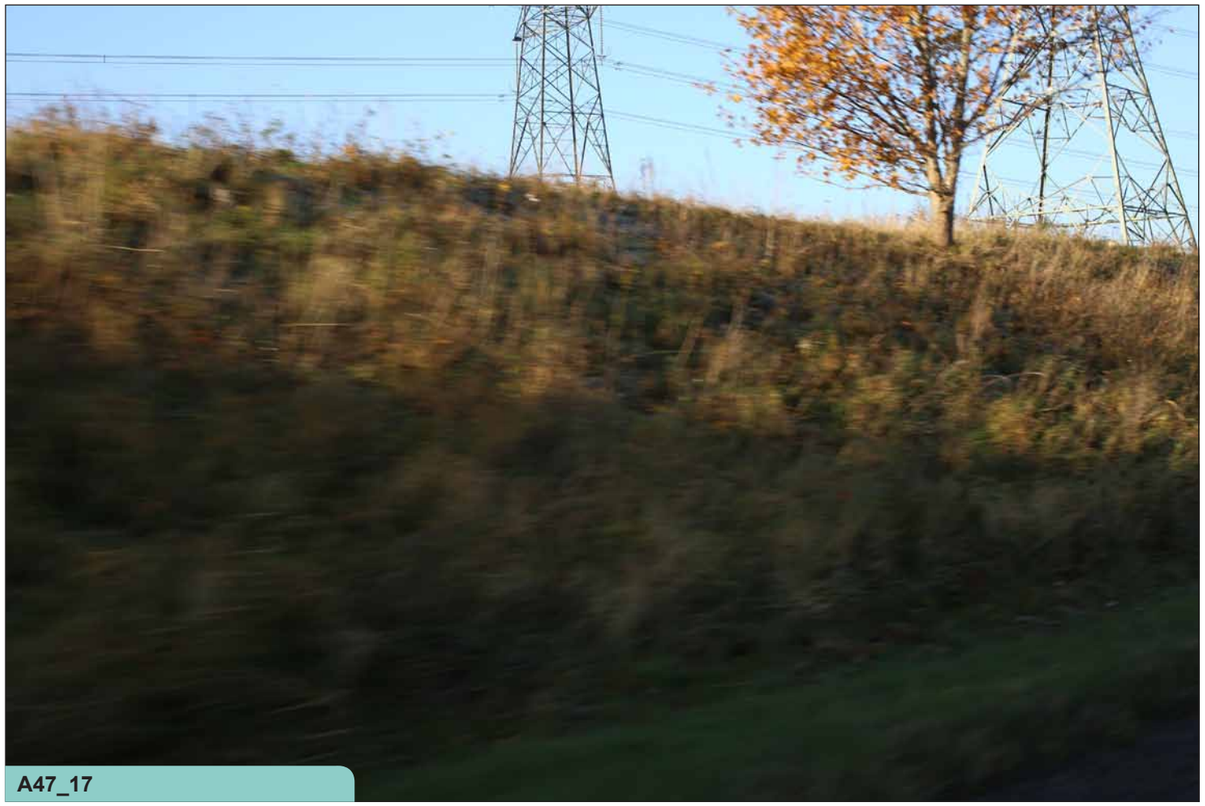
Hornsea Project Three

Hornsea Three onshore cable corridor:
A47 Photographs - Sheet 4 of 5



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