Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects

Environmental Statement

Volume 3

Appendix 21.4 - Annex 21.4.2: Onshore Substation Setting Assessment Figures

August 2022
Document Reference: 6.3.21.4.2
APFP Regulation: 5(2)(a)

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Title: **Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects Environmental Statement (Volume 2)** **Annex 21.4.2: Onshore Infrastructure Setting Assessment Figures**	
PINS Document No.: 6.3.21.4.2	
Document No.: C282-RH-Z-GA-00151	
Date: **August 2022**	Classification **Final**
Prepared by: **Royal HaskoningDHV**	
Approved by: **Sarah Chandler, Equinor**	Date: August 2022

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Sheringham Shoal and Dudgeon Extension Projects

Title:

Figure 21.4.1 Onshore Infrastructure - Setting Assessment of Designated Heritage Assets

Document:

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Appendix 21.4 - Annex 4.2 Onshore Substation Setting Assessment Figures

Application Doc. no.: 6.3.21.4 2

Legend:

- Order Limits
- Proposed Substation Site
- 5km Buffer of Substation Site
- Listed Building
- Scheduled Monument
- Registered Park and Garden
- Conservation Area

Coordinate Reference System: British National Grid
Transformation WGS84: OSGB_1936_To_WGS_1984_7

0 500 1,000 1,500 2,000 Metres
0 500 1,000 1,500 2,000 2,500 Yards

Scale: 1:40,000 Scale at size: A3

Equinor Doc. no.: C282-RH-Z-GA-00151
RHDHV Doc. no.: PB8164_RHD_ZZ_ON_DR_Z_0154

REV	DATE	STATUS	DRW	CHK	APR
A	31/03/2022	First Issue	AZ	GSP	FM

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LDĀDESIGN

Camera Location (OS Grid Reference):	622706 E 303571 N
Ground Level (mAOD):	6.5m
Direction of View: bearing from North (0°):	207°
Distance to Substation:	1.8km

Horizontal Field of View:	90° (Cylindrical projection)
Paper Size:	841mm x 297mm (Half A1)
Enlargement Factor:	96%
Visualisation Type:	Type 3

Photo Date / Time:	18/02/2021 09:28
Camera Model and Sensor Format:	Canon EOS 6D Mark II, FFS
Lens Make, Model and Focal Length:	Sigma 50mm f1.4
Height of Camera Lens above Ground (mAOD):	1.5m

NOTES.
The 3D substation wireline model (blue and red lines) is indicative and 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. Solid lines show potential development areas that would be visible. Dashed lines show potential development areas that would be screened by intervening vegetation and / or development. The wireline does not show the parts of the development that would be obscured by landform. **At this viewpoint, the substation is partially screened by landform** The wireline model is based on LiDAR 2m digital terrain data, which does not precisely model small scale changes in landform or sharp breaks in slope.

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Viewpoint 10 - Venta Icenorum
EQUINOR DOC. NO.: C282-RH-Z-GA-00151
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LDĀDESIGN

Camera Location (OS Grid Reference):	620777 E 302227 N	Horizontal Field of View:	90° (Cylindrical projection)	Photo Date / Time:	17/02/2021 14:42		
Ground Level (mAOD):	37.2m	Paper Size:	841mm x 297mm (Half A1)	Camera Model and Sensor Format:	Canon EOS 6D Mark II, FFS		
Direction of View: bearing from North (0°):	108°	Enlargement Factor:	96%	Lens Make, Model and Focal Length:	Sigma 50mm f1.4		
Distance to Substation:	1.0km	Visualisation Type:	Type 3	Height of Camera Lens above Ground (mAOD):	1.5m		

NOTES.
The 3D substation wireline model (blue and red lines) is indicative and 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. Solid lines show potential development areas that would be visible. Dashed lines show potential development areas that would be screened by intervening vegetation and / or development. The wireline does not show the parts of the development that would be obscured by landform. The wireline model is based on LiDAR 2m digital terrain data, which does not precisely model small scale changes in landform or sharp breaks in slope.

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Figure 21.4.3 Sheet 1 of 1
Viewpoint 7 - South of Gowthorpe Manor
EQUINOR DOC. NO.: C282-RH-Z-GA-00151
RHDHV DOC. NO.: PB8164_LDA_ZZ_ON_DR_Z_0067
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LDĀDESIGN

Camera Location (OS Grid Reference):	620777 E 302227 N	Horizontal Field of View:	90° (Cylindrical projection)	Photo Date / Time:	17/02/2021 14:42	NOTES. The 3D substation photomontage is indicative and not based on an accurate design. The photomontage allows for screening effects of existing landform, vegetation and development, in addition to proposed mitigation planting. The mitigation planting design is set out in document '9.18. Outline Landscape Management Plan'. The photomontage is based on LiDAR 2m digital terrain data, which does not precisely model small scale changes in landform or sharp breaks in slope.	COPYRIGHT Ordnance Survey material by permission of Ordnance Survey on behalf of the Controller of Her Majesty's Stationery Office © Crown Copyright, All rights reserved. 2020 Reference number 0100031673.
Ground Level (mAOD):	37.2m	Paper Size:	841mm x 297mm (Half A1)	Camera Model and Sensor Format:	Canon EOS 6D Mark II, FFS		
Direction of View: bearing from North (0°):	108°	Enlargement Factor:	96%	Lens Make, Model and Focal Length:	Sigma 50mm f1.4		
Distance to Substation:	1.0km	Visualisation Type:	Type 3	Height of Camera Lens above Ground (mAOD):	1.5m		

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Viewpoint 7 - South of Gowthorpe Manor

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RHDHV DOC. NO.: PB8164_LDA_ZZ_ON_DR_Z_0067

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Camera Location (OS Grid Reference):	620777 E 302227 N
Ground Level (mAOD):	37.2m
Direction of View: bearing from North (0°):	108°
Distance to Substation:	1.0km

Horizontal Field of View:	90° (Cylindrical projection)
Paper Size:	841mm x 297mm (Half A1)
Enlargement Factor:	96%
Visualisation Type:	Type 3

Photo Date / Time:	17/02/2021 14:42
Camera Model and Sensor Format:	Canon EOS 6D Mark II, FFS
Lens Make, Model and Focal Length:	Sigma 50mm f1.4
Height of Camera Lens above Ground (mAOD):	1.5m

NOTES.
The 3D substation photomontage is indicative and not based on an accurate design. The photomontage allows for screening effects of existing landform, vegetation and development, in addition to proposed mitigation planting. The mitigation planting design is set out in document '9.18. Outline Landscape Management Plan'. The photomontage is based on LiDAR 2m digital terrain data, which does not precisely model small scale changes in landform or sharp breaks in slope.

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LEGEND

External equipment modelled at 30m high above max. potential ground level.

External equipment visible in view

External equipment screened by intervening vegeta ion and / or development

Buildings modelled at 15m high above max. poten ial ground level.

Buildings visible in view

Buildings screened by intervening vegetation and / or development

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Camera Location (OS Grid Reference):	620905 E 302219 N
Ground Level (mAOD):	37.5m
Direction of View: bearing from North (0°):	110°
Distance to Substation:	0.9km

Horizontal Field of View:	90° (Cylindrical projection)
Paper Size:	841mm x 297mm (Half A1)
Enlargement Factor:	96%
Visualisation Type:	Type 3

Photo Date / Time:	17/02/2021 14:30
Camera Model and Sensor Format:	Canon EOS 6D Mark II, FFS
Lens Make, Model and Focal Length:	Sigma 50mm f1.4
Height of Camera Lens above Ground (mAOD):	1.5m

NOTES.
The 3D substation wireline model (blue and red lines) is indicative and 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. Solid lines show potential development areas that would be visible. Dashed lines show potential development areas that would be screened by intervening vegetation and / or development. The wireline does not show the parts of the development that would be obscured by landform. The wireline model is based on LiDAR 2m digital terrain data, which does not precisely model small scale changes in landform or sharp breaks in slope.

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Viewpoint 8 - South of Gowthorpe Manor
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Camera Location (OS Grid Reference):	620905 E 302219 N	Horizontal Field of View:	90° (Cylindrical projection)	Photo Date / Time:	17/02/2021 14:30		
Ground Level (mAOD):	37.5m	Paper Size:	841mm x 297mm (Half A1)	Camera Model and Sensor Format:	Canon EOS 6D Mark II, FFS		
Direction of View: bearing from North (0°):	110°	Enlargement Factor:	96%	Lens Make, Model and Focal Length:	Sigma 50mm f1.4		
Distance to Substation:	0.9km	Visualisation Type:	Type 3	Height of Camera Lens above Ground (mAOD):	1.5m		

NOTES.
The 3D substation photomontage is indicative and not based on an accurate design. The photomontage allows for screening effects of existing landform, vegetation and development, in addition to proposed mitigation planting. The mitigation planting design is set out in document '9.18. Outline Landscape Management Plan'. The photomontage is based on LiDAR 2m digital terrain data, which does not precisely model small scale changes in landform or sharp breaks in slope.

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Camera Location (OS Grid Reference):	620905 E 302219 N	Horizontal Field of View:	90° (Cylindrical projection)	Photo Date / Time:	17/02/2021 14:30	NOTES. The 3D substation photomontage is indicative and not based on an accurate design. The photomontage allows for screening effects of existing landform, vegetation and development, in addition to proposed mitigation planting. The mitigation planting design is set out in document '9.18. Outline Landscape Management Plan'. The photomontage is based on LiDAR 2m digital terrain data, which does not precisely model small scale changes in landform or sharp breaks in slope.	
Ground Level (mAOD):	37.5m	Paper Size:	841mm x 297mm (Half A1)	Camera Model and Sensor Format:	Canon EOS 6D Mark II, FFS		
Direction of View: bearing from North (0°):	110°	Enlargement Factor:	96%	Lens Make, Model and Focal Length:	Sigma 50mm f1.4		
Distance to Substation:	0.9km	Visualisation Type:	Type 3	Height of Camera Lens above Ground (mAOD):	1.5m		

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Viewpoint 8 - South of Gowthorpe Manor

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RHDHV DOC. NO.: PB8164_LDA_ZZ_ON_DR_Z_0068

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Camera Location (OS Grid Reference):	620746 E 302355 N	Enlargement Factor:	TBC
Ground Level (mAOD):	35m	Visualisation Type:	Type 1
Direction of View: bearing from North (0°):	125°	Photo Date / Time:	07/10/2020 16:00
Distance to Substation:	1100m	Camera Model and Sensor Format:	ArcGIS Survey123
Horizontal Field of View:	84° (Cylindrical projection)	Lens Make, Model and Focal Length:	Google Pixel 3 Rear Camera
Paper Size:	420mm x 297mm (A3)	Height of Camera Lens above Ground (mAOD):	1.5m

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NOTES.
Baseline photograph image provided by Royal HaskoningDHV

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View from Gowthorpe Manor towards substation locations
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RHDHV DOC. NO.: PB8164_LDA_ZZ_ON_DR_Z_0070
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Camera Location (OS Grid Reference):	621383 E 302956 N	Horizontal Field of View:	90° (Cylindrical projection)	Photo Date / Time:	18/02/2021 16:28		
Ground Level (mAOD):	38.6m	Paper Size:	841mm x 297mm (Half A1)	Camera Model and Sensor Format:	Canon EOS 6D Mark II, FFS		
Direction of View: bearing from North (0°):	156°	Enlargement Factor:	96%	Lens Make, Model and Focal Length:	Sigma 50mm f1.4		
Distance to Substation:	1.0km	Visualisation Type:	Type 3	Height of Camera Lens above Ground (mAOD):	1.5m		

NOTES.
The 3D substation wireline model (blue and red lines) is indicative and 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. Solid lines show potential development areas that would be visible. Dashed lines show potential development areas that would be screened by intervening vegetation and / or development. The wireline does not show the parts of the development that would be obscured by landform. The wireline model is based on LiDAR 2m digital terrain data, which does not precisely model small scale changes in landform or sharp breaks in slope.

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Viewpoint 3 - Mangreen Hall
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Camera Location (OS Grid Reference):	621383 E 302956 N
Ground Level (mAOD):	38.6m
Direction of View: bearing from North (0°):	156°
Distance to Substation:	1.0km

Horizontal Field of View:	90° (Cylindrical projection)
Paper Size:	841mm x 297mm (Half A1)
Enlargement Factor:	96%
Visualisation Type:	Type 3

Photo Date / Time:	18/02/2021 16:28
Camera Model and Sensor Format:	Canon EOS 6D Mark II, FFS
Lens Make, Model and Focal Length:	Sigma 50mm f1.4
Height of Camera Lens above Ground (mAOD):	1.5m

NOTES.
The 3D substation photomontage is indicative and not based on an accurate design. The photomontage allows for screening effects of existing landform, vegetation and development, in addition to proposed mitigation planting. The mitigation planting design is set out in document '9.18. Outline Landscape Management Plan'. The photomontage is based on LiDAR 2m digital terrain data, which does not precisely model small scale changes in landform or sharp breaks in slope.

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Viewpoint 3 - Mangreen Hall
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Camera Location (OS Grid Reference):	621383 E 302956 N	Horizontal Field of View:	90° (Cylindrical projection)	Photo Date / Time:	18/02/2021 16:28
Ground Level (mAOD):	38.6m	Paper Size:	841mm x 297mm (Half A1)	Camera Model and Sensor Format:	Canon EOS 6D Mark II, FFS
Direction of View: bearing from North (0°):	156°	Enlargement Factor:	96%	Lens Make, Model and Focal Length:	Sigma 50mm f1.4
Distance to Substation:	1.0km	Visualisation Type:	Type 3	Height of Camera Lens above Ground (mAOD):	1.5m

NOTES.
The 3D substation photomontage is indicative and not based on an accurate design. The photomontage allows for screening effects of existing landform, vegetation and development, in addition to proposed mitigation planting. The mitigation planting design is set out in document '9.18. Outline Landscape Management Plan'. The photomontage is based on LiDAR 2m digital terrain data, which does not precisely model small scale changes in landform or sharp breaks in slope.

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Viewpoint 3 - Mangreen Hall
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LEGEND

External equipment modelled at 30m high above max. potential ground level.

External equipment visible in view

External equipment screened by intervening vegeta ion and / or development

Buildings modelled at 15m high above max. poten ial ground level.

Buildings visible in view

Buildings screened by intervening vegetation and / or development

LDĀDESIGN

Camera Location (OS Grid Reference):	619433 E 303987 N	Horizontal Field of View:	90° (Cylindrical projection)	Photo Date / Time:	23/02/2021 15:07
Ground Level (mAOD):	22.6m	Paper Size:	841mm x 297mm (Half A1)	Camera Model and Sensor Format:	Canon EOS 6D Mark II, FFS
Direction of View: bearing from North (0°):	131°	Enlargement Factor:	96%	Lens Make, Model and Focal Length:	Sigma 50mm f1.4
Distance to Substation:	3.1km	Visualisation Type:	Type 3	Height of Camera Lens above Ground (mAOD):	1.5m

NOTES.
The 3D substation wireline model (blue and red lines) is indicative and 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. Solid lines show potential development areas that would be visible. Dashed lines show potential development areas that would be screened by intervening vegetation and / or development. The wireline does not show the parts of the development that would be obscured by landform. **At this viewpoint, the substation is partially screened by landform** The wireline model is based on LiDAR 2m digital terrain data, which does not precisely model small scale changes in landform or sharp breaks in slope.

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Figure 21.4.7 Sheet 1 of 1

Viewpoint 1 - Intwood Hall

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RHDHV DOC. NO.: PB8164_LDA_ZZ_ON_DR_Z_0061

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LDĀDESIGN

Camera Location (OS Grid Reference):	623612 E 299570 N
Ground Level (mAOD):	36.0m
Direction of View: bearing from North (0°):	323°
Distance to Substation:	2.7km

Horizontal Field of View:	90° (Cylindrical projection)
Paper Size:	841mm x 297mm (Half A1)
Enlargement Factor:	96%
Visualisation Type:	Type 3

Photo Date / Time:	18/02/2021 11:03
Camera Model and Sensor Format:	Canon EOS 6D Mark II, FFS
Lens Make, Model and Focal Length:	Sigma 50mm f1.4
Height of Camera Lens above Ground (mAOD):	1.5m

NOTES.
The 3D substation wireline model (blue and red lines) is indicative and 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. Solid lines show potential development areas that would be visible. Dashed lines show potential development areas that would be screened by intervening vegetation and / or development. The wireline does not show the parts of the development that would be obscured by landform. The wireline model is based on LiDAR 2m digital terrain data, which does not precisely model small scale changes in landform or sharp breaks in slope.

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Sheringham Shoal and Dudgeon Extension Projects
DOCUMENT: Environmental Statement (ES)
Appendix 21.4 – Annex 21.4.2: Onshore Substation Setting Assessment Figures
APPLICATION DOC. NO.: 6.3.21.4.2

Figure 21.4.8 Sheet 1 of 1
Viewpoint 5 - Shotesham CA
EQUINOR DOC. NO.: C282-RH-Z-GA-00151
RHDHV DOC. NO.: PB8164_LDA_ZZ_ON_DR_Z_0065
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LEGEND

External equipment modelled at 30m high above max. potential ground level.

- External equipment visible in view
- External equipment screened by intervening vegeta ion and / or development

Buildings modelled at 15m high above max. poten ial ground level.

- Buildings visible in view
- Buildings screened by intervening vegetation and / or development

LDĀDESIGN

Camera Location (OS Grid Reference):	623612 E 299570 N	Horizontal Field of View:	90° (Cylindrical projection)	Photo Date / Time:	18/02/2021 11:03		
Ground Level (mAOD):	36.0m	Paper Size:	841mm x 297mm (Half A1)	Camera Model and Sensor Format:	Canon EOS 6D Mark II, FFS		
Direction of View: bearing from North (0°):	323°	Enlargement Factor:	96%	Lens Make, Model and Focal Length:	Sigma 50mm f1.4		
Distance to Substation:	2.7km	Visualisation Type:	Type 3	Height of Camera Lens above Ground (mAOD):	1.5m		

NOTES.
The 3D substation photomontage is indicative and not based on an accurate design. The photomontage allows for screening effects of existing landform, vegetation and development, in addition to proposed mitigation planting. The mitigation planting design is set out in document '9.18. Outline Landscape Management Plan'. The photomontage is based on LiDAR 2m digital terrain data, which does not precisely model small scale changes in landform or sharp breaks in slope.

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APPLICATION DOC. NO.: 6.3.21.4.2

Figure 21.4.8 Sheet 1 of 1
Viewpoint 5 - Shotesham CA
EQUINOR DOC. NO.: C282-RH-Z-GA-00151
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LEGEND

External equipment modelled at 30m high above max. potential ground level.

- External equipment visible in view
- External equipment screened by intervening vegeta ion and / or development

Buildings modelled at 15m high above max. poten ial ground level.

- Buildings visible in view
- Buildings screened by intervening vegetation and / or development

LDĀDESIGN

Camera Location (OS Grid Reference):	623612 E 299570 N
Ground Level (mAOD):	36.0m
Direction of View: bearing from North (0°):	323°
Distance to Substation:	2.7km

Horizontal Field of View:	90° (Cylindrical projection)
Paper Size:	841mm x 297mm (Half A1)
Enlargement Factor:	96%
Visualisation Type:	Type 3

Photo Date / Time:	18/02/2021 11:03
Camera Model and Sensor Format:	Canon EOS 6D Mark II, FFS
Lens Make, Model and Focal Length:	Sigma 50mm f1.4
Height of Camera Lens above Ground (mAOD):	1.5m

NOTES.
The 3D substation photomontage is indicative and not based on an accurate design. The photomontage allows for screening effects of existing landform, vegetation and development, in addition to proposed mitigation planting. The mitigation planting design is set out in document '9.18. Outline Landscape Management Plan'. The photomontage is based on LiDAR 2m digital terrain data, which does not precisely model small scale changes in landform or sharp breaks in slope.

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APPLICATION DOC. NO.: 6.3.21.4.2

Figure 21.4.8 Sheet 1 of 1
Viewpoint 5 - Shotesham CA
EQUINOR DOC. NO.: C282-RH-Z-GA-00151
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Camera Location (OS Grid Reference):	620797 E 304093 N
Ground Level (mAOD):	28.1m
Direction of View: bearing from North (0°):	155°
Distance to Substation:	2.3km

Horizontal Field of View:	90° (Cylindrical projection)
Paper Size:	841mm x 297mm (Half A1)
Enlargement Factor:	96%
Visualisation Type:	Type 3

Photo Date / Time:	23/02/2021 15:42
Camera Model and Sensor Format:	Canon EOS 6D Mark II, FFS
Lens Make, Model and Focal Length:	Sigma 50mm f1.4
Height of Camera Lens above Ground (mAOD):	1.5m

NOTES.
The 3D substation wireline model (blue and red lines) is indicative and 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. Solid lines show potential development areas that would be visible. Dashed lines show potential development areas that would be screened by intervening vegetation and / or development. The wireline does not show the parts of the development that would be obscured by landform. **At this viewpoint, the substation is partially screened by landform.** The wireline model is based on LiDAR 2m digital terrain data, which does not precisely model small scale changes in landform or sharp breaks in slope.

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APPLICATION DOC. NO.: 6.3.21.4.2

Figure 21.4.9 Sheet 1 of 1
Viewpoint 2 - Keswick Hall
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RHDHV DOC. NO.: PB8164_LDA_ZZ_ON_DR_Z_0062
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Camera Location (OS Grid Reference):	621170 E 305018 N
Ground Level (mAOD):	8.4m
Direction of View: bearing from North (0°):	168°
Distance to Substation:	3.1km

Horizontal Field of View:	90° (Cylindrical projection)
Paper Size:	841mm x 297mm (Half A1)
Enlargement Factor:	96%
Visualisation Type:	Type 1

Photo Date / Time:	17/02/2021 16:23
Camera Model and Sensor Format:	Canon EOS 6D Mark II, FFS
Lens Make, Model and Focal Length:	Sigma 50mm f1.4
Height of Camera Lens above Ground (mAOD):	1.5m

NOTES.
Baseline photograph

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APPLICATION DOC. NO.: 6.3.21.4.2

Figure 21.4.10 Sheet 1 of 1
Viewpoint 9 - Keswick CA
EQUINOR DOC. NO.: C282-RH-Z-GA-00151
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Camera Location (OS Grid Reference):	623303 E 301867 N	Horizontal Field of View:	90° (Cylindrical projection)	Photo Date / Time:	23/02/2021 09:50	NOTES.	
Ground Level (mAOD):	11.2m	Paper Size:	841mm x 297mm (Half A1)	Camera Model and Sensor Format:	Canon EOS 6D Mark II, FFS	Baseline photograph	
Direction of View: bearing from North (0°):	270°	Enlargement Factor:	96%	Lens Make, Model and Focal Length:	Sigma 50mm f1.4		
Distance to Substation:	1.3km	Visualisation Type:	Type 1	Height of Camera Lens above Ground (mAOD):	1.5m		

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Figure 21.4.11 Sheet 1 of 1
Viewpoint 4 - Stoke Holy Cross CA
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RHDHV DOC. NO.: PB8164_LDA_ZZ_ON_DR_Z_0064
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