

Norfolk Vanguard Offshore Wind Farm

Consultation Report

Appendix 14.8 Necton Substation

Workshop Presentations

Applicant: Norfolk Vanguard Limited
Document Reference: 5.1
Pursuant to APFP Regulation: 5(2)(q)

Date: June 2018
Revision: Version 1
Author: BECG

Photo: Kentish Flats Offshore Wind Farm



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SUBSTATIONS WORKSHOP

July 2017



INTRODUCTION



VATTENFALL

Dear Reader,

About the Norfolk Vanguard and Norfolk Boreas Projects

Over the past 18 months, Vattenfall have been consulting on our proposals to build two new 1.8 Gigawatt wind farms at least 50km off the coast of Norfolk. As of August 2017, we have held 20 public drop in exhibitions and meetings and during this informal consultation more than 1,850 members of the public have participated and shared their knowledge to help shape our proposals. The feedback provided by participants at these events can be found in our consultation reports which are published in full on both of our project websites norfolkvanguard.vattenfall.co.uk and norfolkboreas.vattenfall.co.uk

Once operational, Norfolk Vanguard and Norfolk Boreas together can generate 4% of the UK's electricity requirements, or half of the total energy needs (commercial, industrial and domestic) of the East of England region¹. The project will save five million tonnes of CO₂ each year². These are significant contributions to our future low carbon economy and electricity needs.

¹ https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/552059/Chapter_5_web.pdf

² <http://www.renewableuk.com/page/UKWEDExplained>

About this document

In July 2017, workshops were held in the areas where important onshore infrastructure – specifically the Cable Relay Stations and Substations to connect the project to the UK electricity network – might be placed. Those invited to the workshops included parish, district and county councillors, the local campaign group, local residents and property owners potentially most affected, and others active in the local community.

The following day, an open drop-in event was held at a local community venue to enable others to view the materials presented by Vattenfall, including a 3D model of the project options under discussion, to see the comments and questions of local participants and to contribute their perspective.

At these sessions, it was agreed that the visual information presented would be made available so that others could see the information.

A transcribed report of the views gathered at the evening and subsequent drop-in event is available on our website.

This digital book shows the materials presented at the event which focussed specifically on the siting of project Substations.

What are the visuals and maps – why are they important?

Vattenfall is considering both DC and AC transmission options for these offshore wind projects because:

- Technology is advancing rapidly, and it is not clear which of these options will offer the best solution for the projects when we come to build them (more than 5 years from now).
- Especially given the size and distance from shore of our projects, we need to be able to build the most affordable, efficient and reliable solution for the UK consumer. Making an early decision in favour of one particular technology could lock the project into a transmission solution that is not best.

The purpose of the meeting was to share and explore, with a very local focus, information relating to the siting of project Substations for Norfolk Vanguard and Norfolk Boreas offshore wind farms. We reviewed together, in brief, information from the Environmental Impact Assessment (EIA) work relevant to selecting a potential site, and heard the feedback of those most likely to be affected by the siting of project Substations in the options being considered.

The **maps** illustrate some of the primary constraints that have to be considered as part of the regulated EIA process. Identification of appropriate sites includes consideration of technical and commercial feasibility, environmental impact and stakeholder concerns.

Photomontages are also shown. Visual impact is a major consideration in the EIA process and viewpoint assessments are made in order to seek to site infrastructure where it has the least impact and/or where the opportunities to mitigate against impacts are greatest. The viewpoint assessment is illustrated by a range of visualisations, including photographs and photomontages and a digital model. These were displayed to help people envisage the Substation in situ in two of the proposed siting options being considered.

Example viewpoints illustrated by the digital model showing the potential for screening through planting schemes will be issued in supplementary digital books shortly.

The site selection process is applied at many different levels for projects of this scale and nature. This process is ongoing and iterative in nature.

This material has been issued on 10th August, 2017.

The next phase of consultation will take place in the autumn. Events organised then, as part of our Statutory Consultation, will be widely advertised. Feedback provided then will inform the final Norfolk Vanguard proposals we submit to the Planning Inspectorate in the summer of 2018.

If you have feedback to share in the meantime, please send to info@norfolkvanguard.vattenfall.co.uk

Thank you for your interest.

Best wishes,

Ruari Lean & Graham Davey

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PURPOSE OF THE WORKSHOP

To reflect together on:

- The need to discuss the siting of the project substations
- How we have arrived at the refined project Substation Search Areas, guided by the Environmental Impact Assessment process and local feedback, and where we are in the process
- Looking at substation siting options



EXPLORING KEY CONSIDERATIONS OF SITING PROJECT SUBSTATIONS

July 2017



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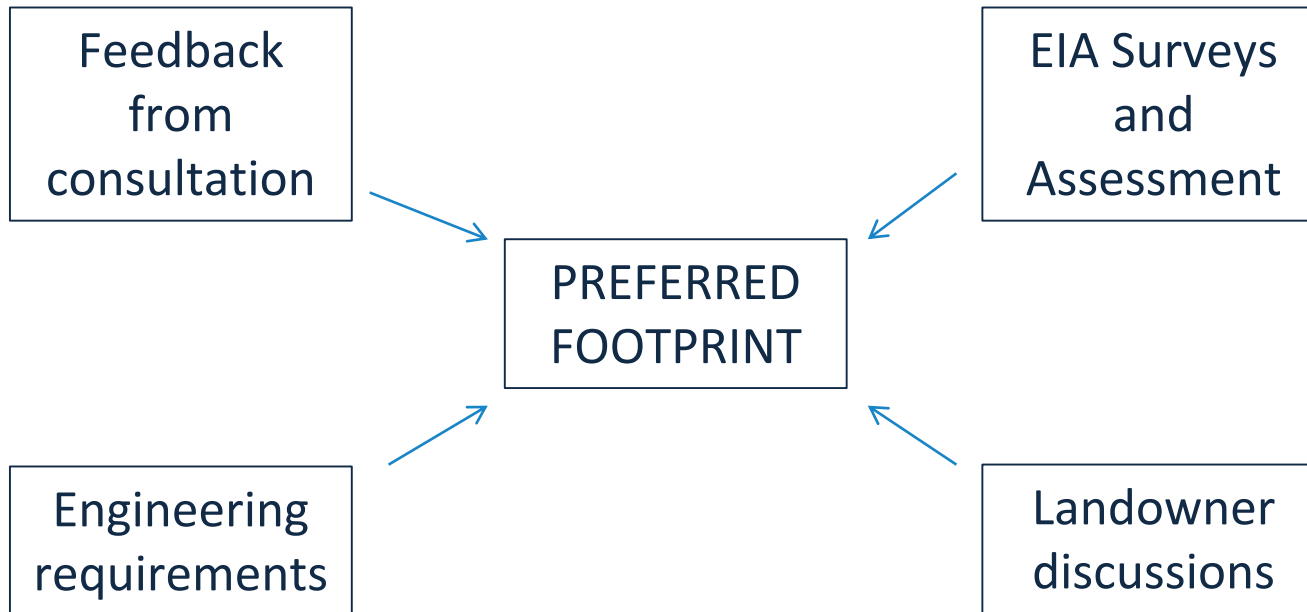
WHAT HAPPENS NEXT

Main topics to be discussed:

- Pros and Cons of each footprint
- How might issues be overcome:
 - Landscape
 - Noise
 - Access



NEXT STEPS: SITE SELECTION



HOW CAN I STAY INVOLVED?

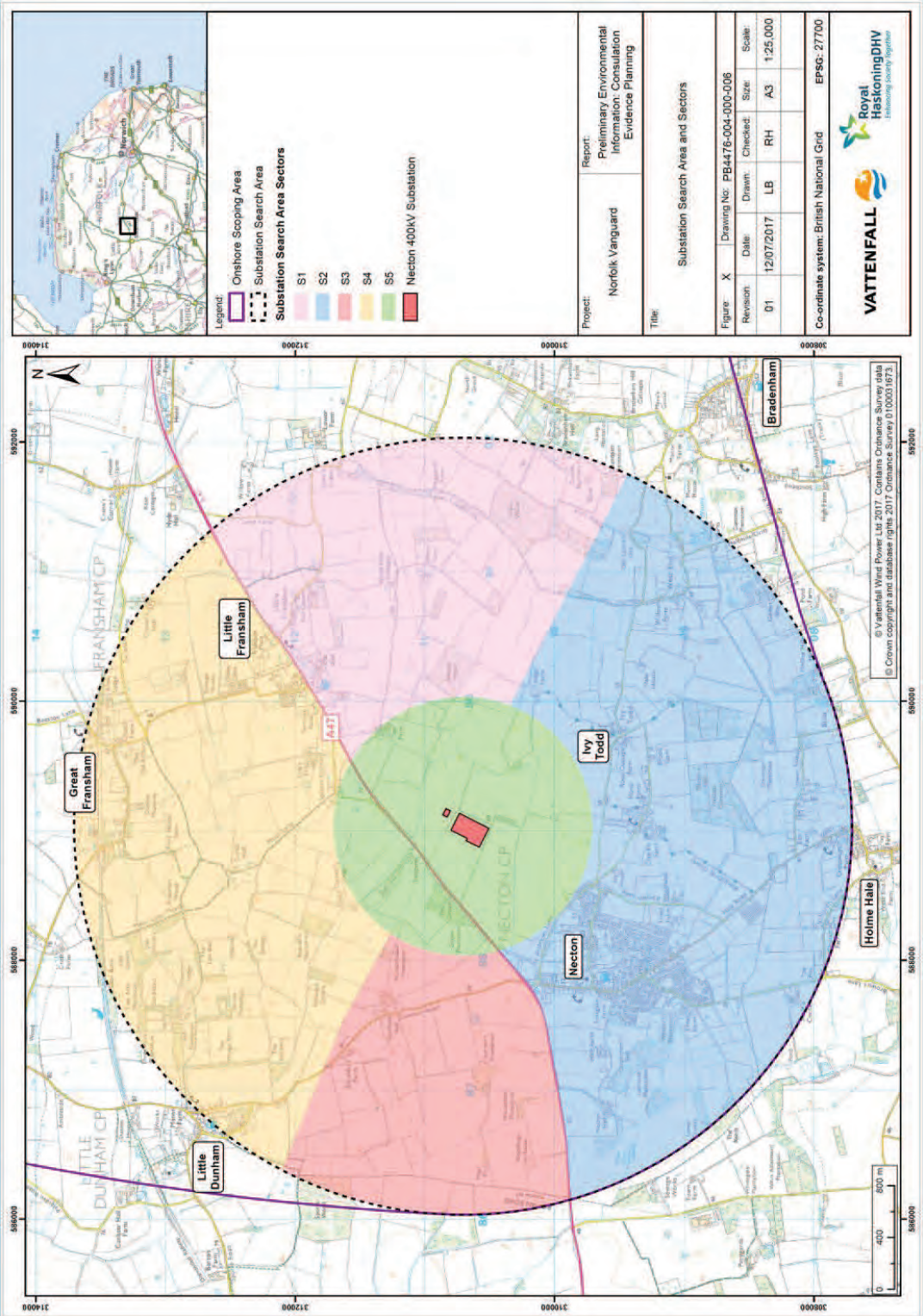
Step	Provisional Timeline	How you can have your say
PEIR Submission and Consultation	October – November 2017	Your chance to feed into the project before DCO submission
DCO Submission	June 2018	The formal application for development consent to the Planning Inspectorate (PI)
DCO Acceptance	July 2018	28 days for the PI to decide if the application meets set standards
Pre-examination	August – October 2018	You can register with the PI and provide a summary of your views in writing
Examination	November 2018 – April 2019	The PI will carry out an examination. Those who have registered will be invited to provide more details of your views in writing and at hearings
Decision	May – October 2019	The PI will advise the Secretary of State who will make a decision as to whether to grant or refuse development consent
Post decision	November 2019	A six week period when the decision can be legally challenged

HOW CAN I STAY INVOLVED?

<https://infrastructure.planninginspectorate.gov.uk/application-process/participating-in-the-process/>

CONSTRAINTS AND OPPORTUNITIES





- Legend:**
- Onshore Scoping Area
 - Substation Search Area
- Substation Search Area Sectors**
- S1
 - S2
 - S3
 - S4
 - S5
 - Necton 400kV Substation

Project: Norfolk Vanguard

Report: Preliminary Environmental Information Consultation Evidence Planning

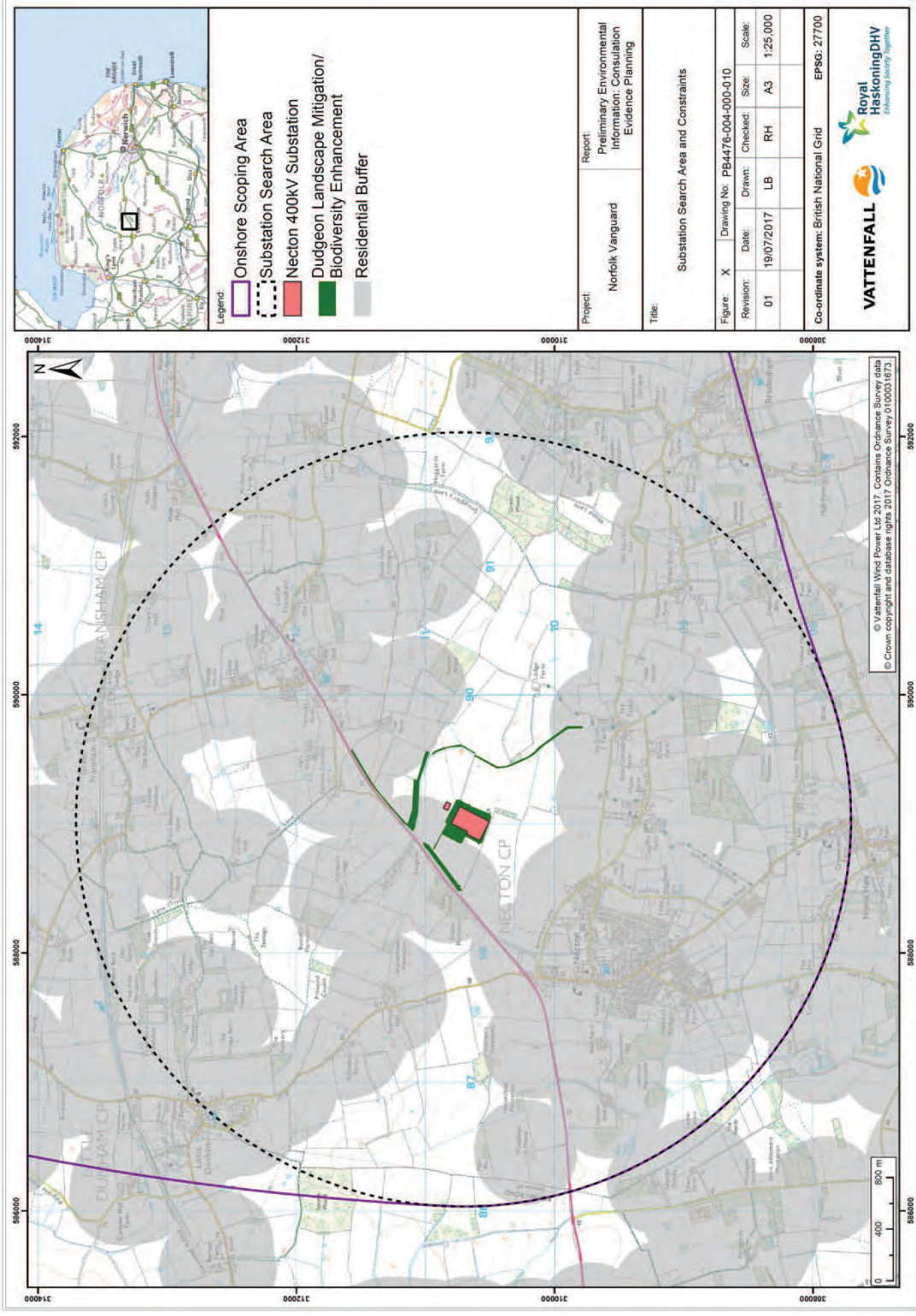
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Revision:	01	Date:	12/07/2017
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		Checked:	RH
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		Scale:	1:25,000

Co-ordinate system: British National Grid EPSG: 27700



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- Legend:**
- Onshore Scoping Area
 - Substation Search Area
 - Necton 400kV Substation
 - Dudgeon Landscape Mitigation/ Biodiversity Enhancement
 - Residential Buffer

Project: Norfolk Vanguard

Report: Preliminary Environmental Information: Consultation Evidence Planning

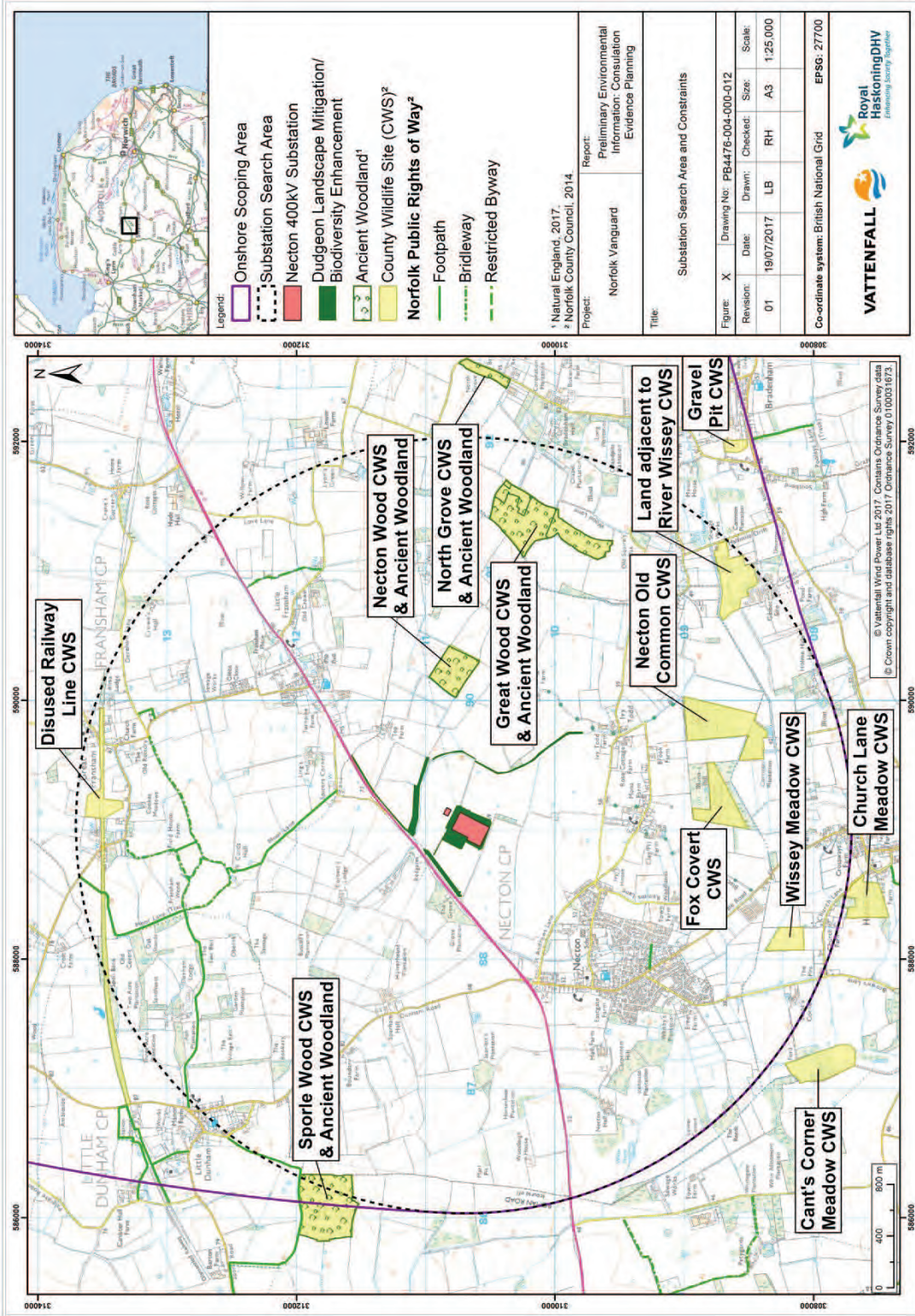
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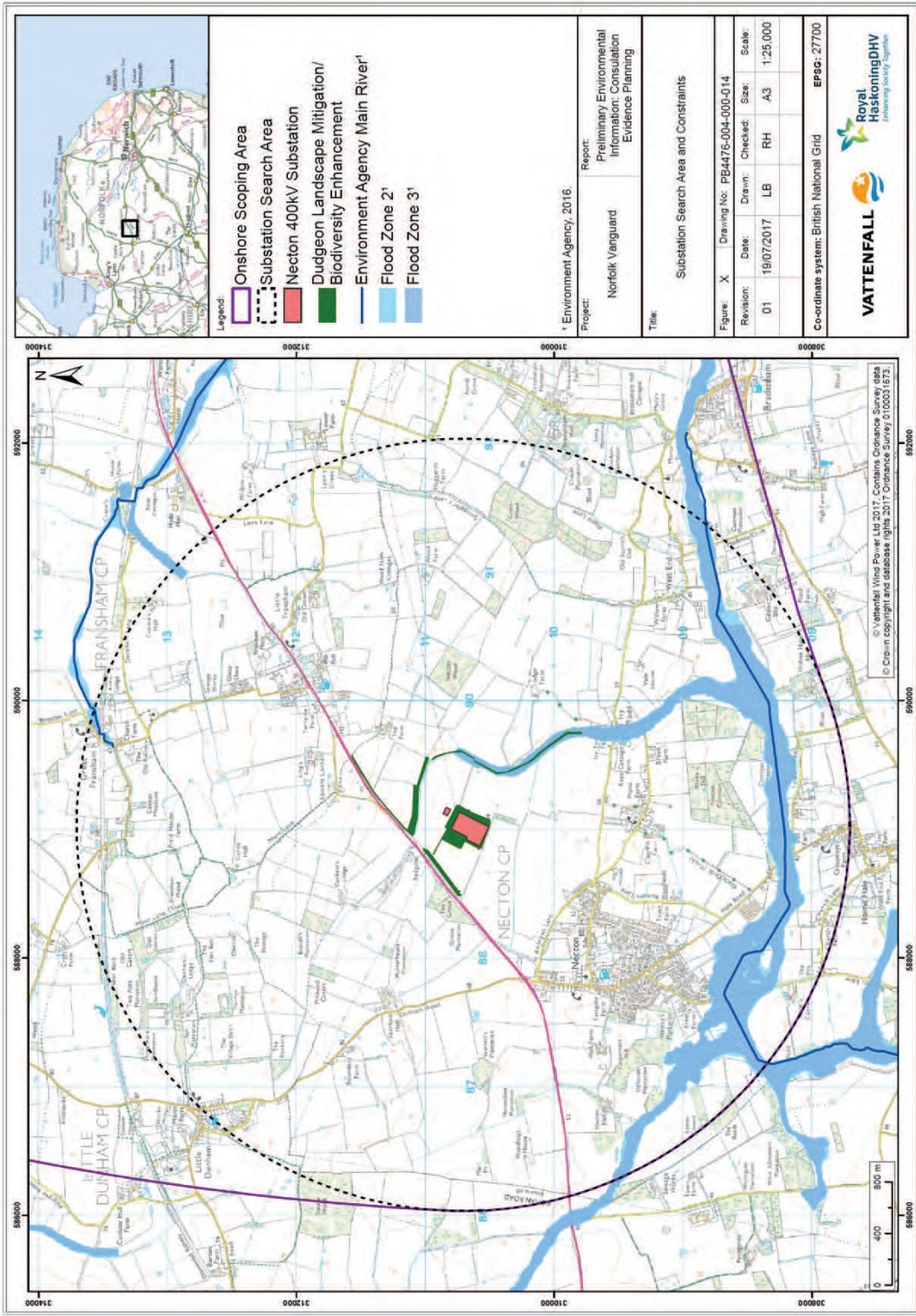
Co-ordinate system: British National Grid EPSc: 27700



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- Legend**
- Onshore Scoping Area
 - Substation Search Area
 - Necton 400kV Substation
 - Dudgeon Landscape Mitigation/
Biodiversity Enhancement
 - Environment Agency Main River¹
 - Flood Zone 2¹
 - Flood Zone 3¹

Project:
Norfolk Vanguard

Report:
Preliminary Environmental
Information: Consultation
Evidence Planning

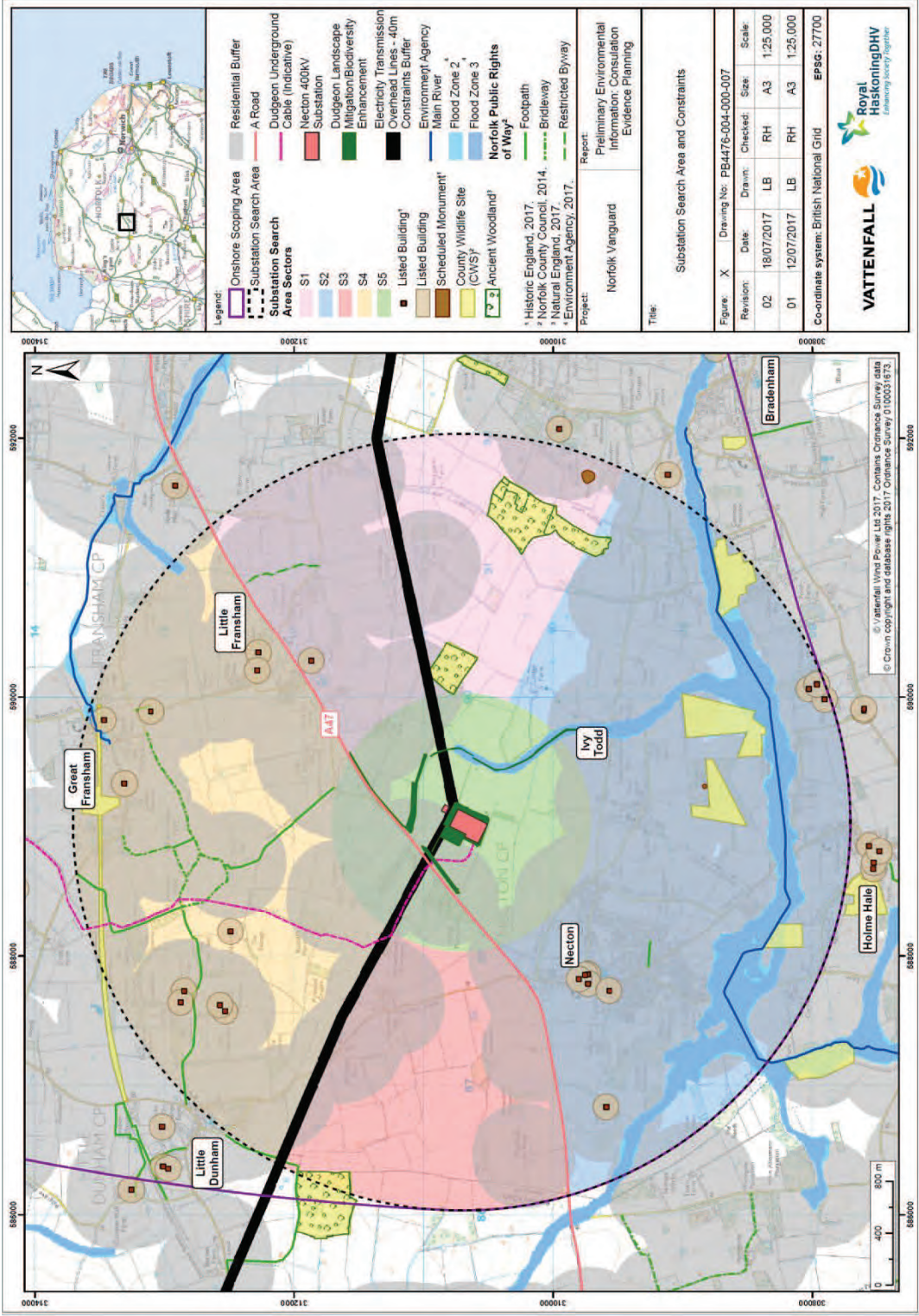
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Coordinate system: British National Grid EPSG: 27700



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- Legend:**
- Onshore Scoping Area
 - Substation Search Area
 - Substation Search Area Sectors
 - S1
 - S2
 - S3
 - S4
 - S5
 - Listed Building*
 - Scheduled Monument†
 - County Wildlife Site (CWS)‡
 - Ancient Woodland†
 - Residential Buffer
 - A Road
 - Dudgeon Underground Cable (indicative)
 - Necton 400kV Substation
 - Dudgeon Landscape Mitigation/Biodiversity Enhancement
 - Electricity Transmission Overhead Lines - 40m Constraints Buffer
 - Environment Agency Main River
 - Flood Zone 2‡
 - Flood Zone 3‡
 - Norfolk Public Rights of Way*
 - Footpath
 - Bridleway
 - Restricted Byway
- * Historic England, 2017.
 † Norfolk County Council, 2014.
 ‡ Natural England, 2017.
 ‣ Environment Agency, 2017.
- Project:** Norfolk Vanguard
Report: Preliminary Environmental Information: Consultation Evidence Planning

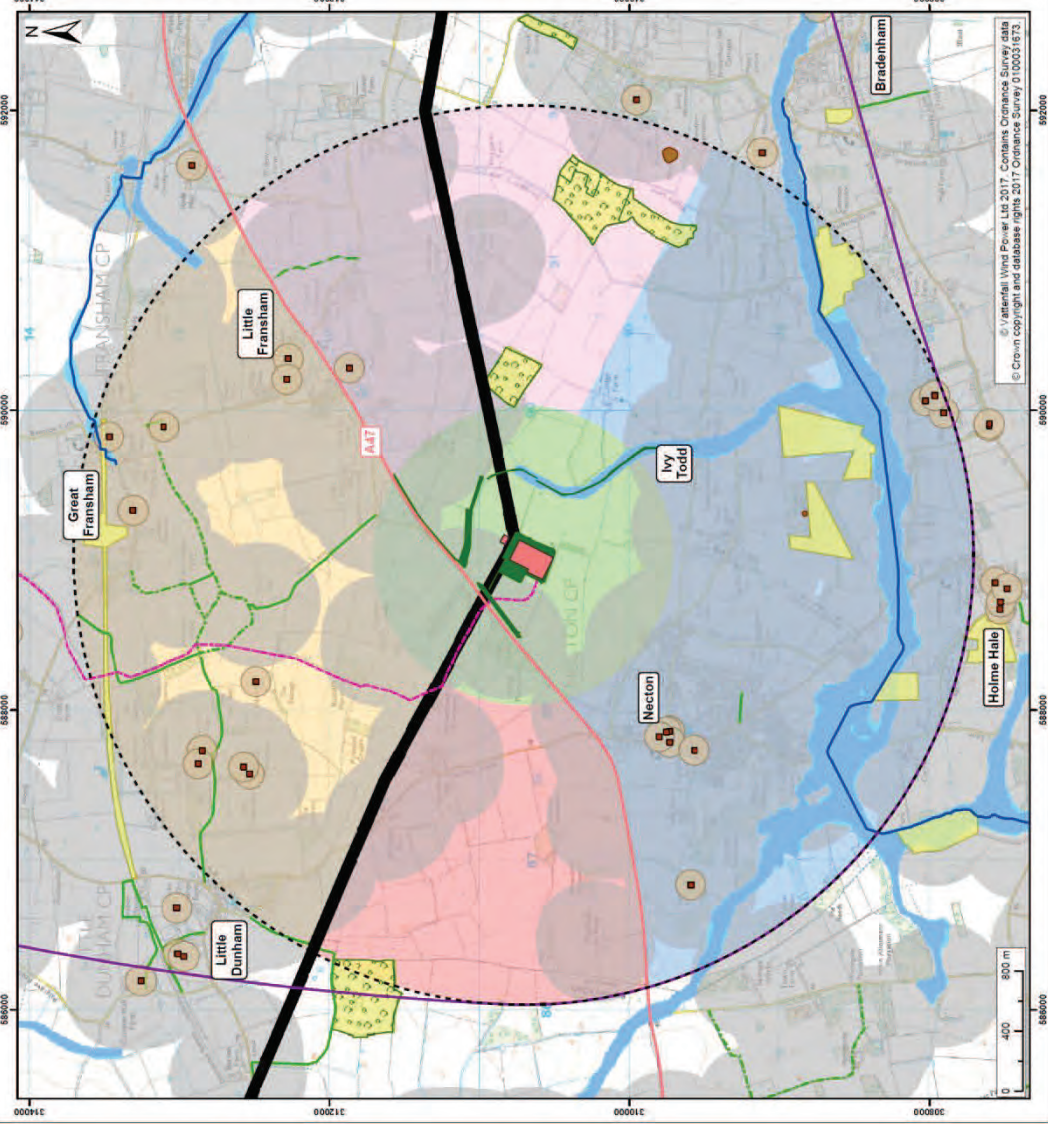
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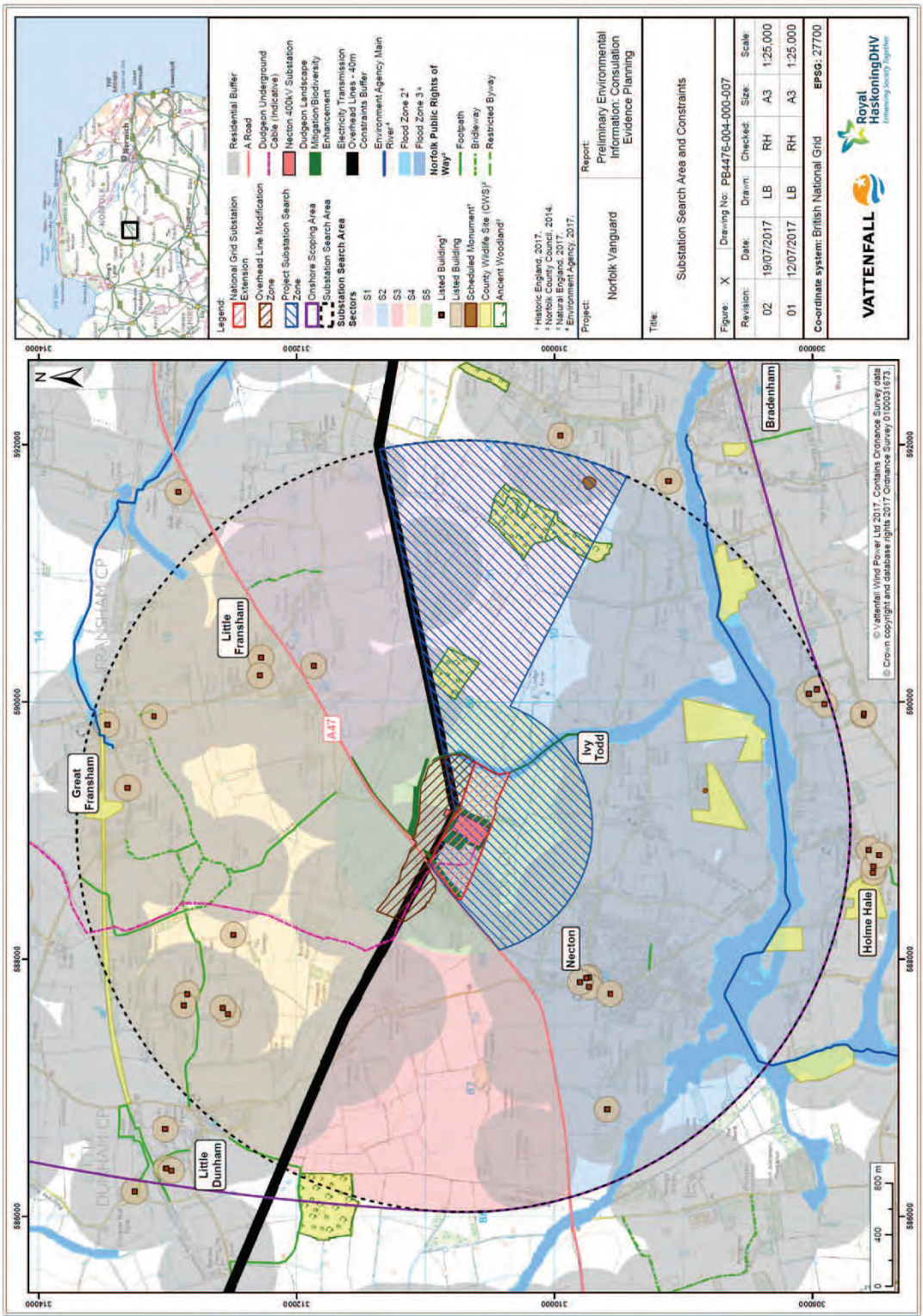
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01	12/07/2017	LB	RH	A3	1:25,000

Co-ordinate system: British National Grid
 EPSG: 27700

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- Legend**
- National Grid Substation
 - Extension
 - Overhead Line Modification
 - Zone
 - Project Substation Search Area
 - Zone
 - Onshore Scoping Area
 - Substation Search Area
 - Substation Search Area
 - Sectors
 - S1
 - S2
 - S3
 - S4
 - S5
 - Listed Building¹
 - Scheduled Monument²
 - County Wildlife Site (CWS)³
 - Ancient Woodland⁴
 - Residential Buffer
 - A Road
 - Dugdon Underground Cable (indicative)
 - Necton 100kV Substation
 - Dugdon Landscape Enhancement
 - Electricity Transmission Overhead Lines - 40m Constraints Buffer
 - Environment Agency Main River⁵
 - Flood Zone 2⁶
 - Flood Zone 3⁶
 - Norfolk Public Rights of Way⁷
 - Footpath
 - Bridleway
 - Restricted Byway

¹ Historic England, 2017.
² National Heritage List for England, 2014.
³ Natural England, 2017.
⁴ Environment Agency, 2017.

Project: Norfolk Vanguard
Report: Preliminary Environmental Information: Consultation Evidence Planning

Title: Substation Search Area and Constraints

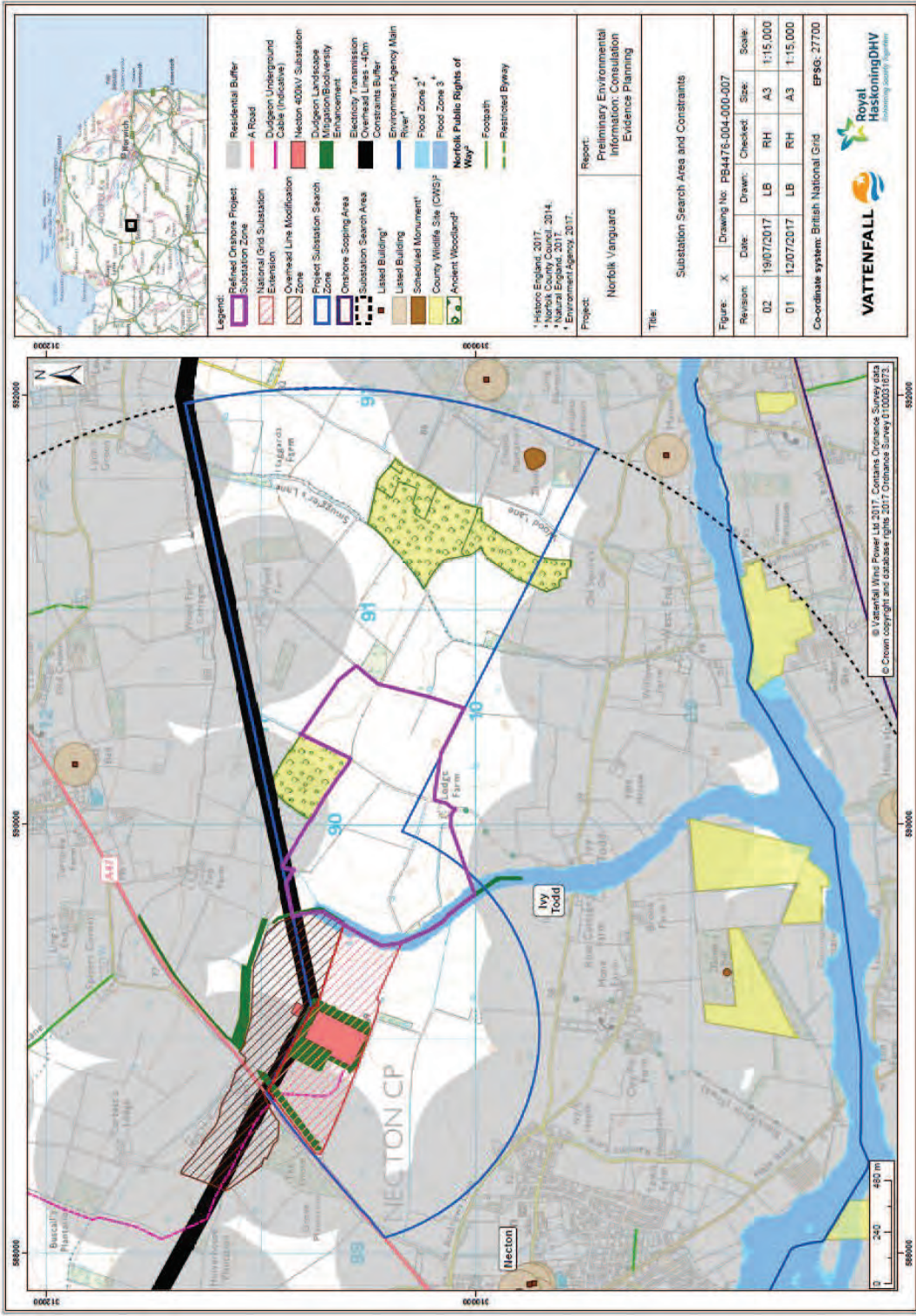
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Coordinate system: British National Grid **BFSG:** 27700



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- Legend:**
- Refined Onshore Project Substation Zone
 - National Grid Substation Extension
 - Overhead Line Modification Zone
 - Project Substation Search Zone
 - Onshore Scoping Area
 - Substation Search Area
 - Listed Building
 - Scheduled Monument
 - County Wildlife Site (CWS)
 - Ancient Woodland
 - Residential Buffer
 - A Road
 - Dudgess Underground Cable (Indicative)
 - Necton 400kV Substation
 - Dudgess Landrook Ringpoint/University Enhancement
 - Electricity Transmission Constraints Buffer
 - Environment Agency Main River
 - Flood Zone 2
 - Flood Zone 3
 - Norfolk Public Rights of Way
 - Footpath
 - Restricted Byway

* Historic England, 2017.
 * Norfolk County Council, 2014.
 * Norfolk County Council, 2014.
 * Environment Agency, 2017.

Project: Norfolk Vanguard
 Report: Preliminary Environmental Information: Consultation Evidence Planning

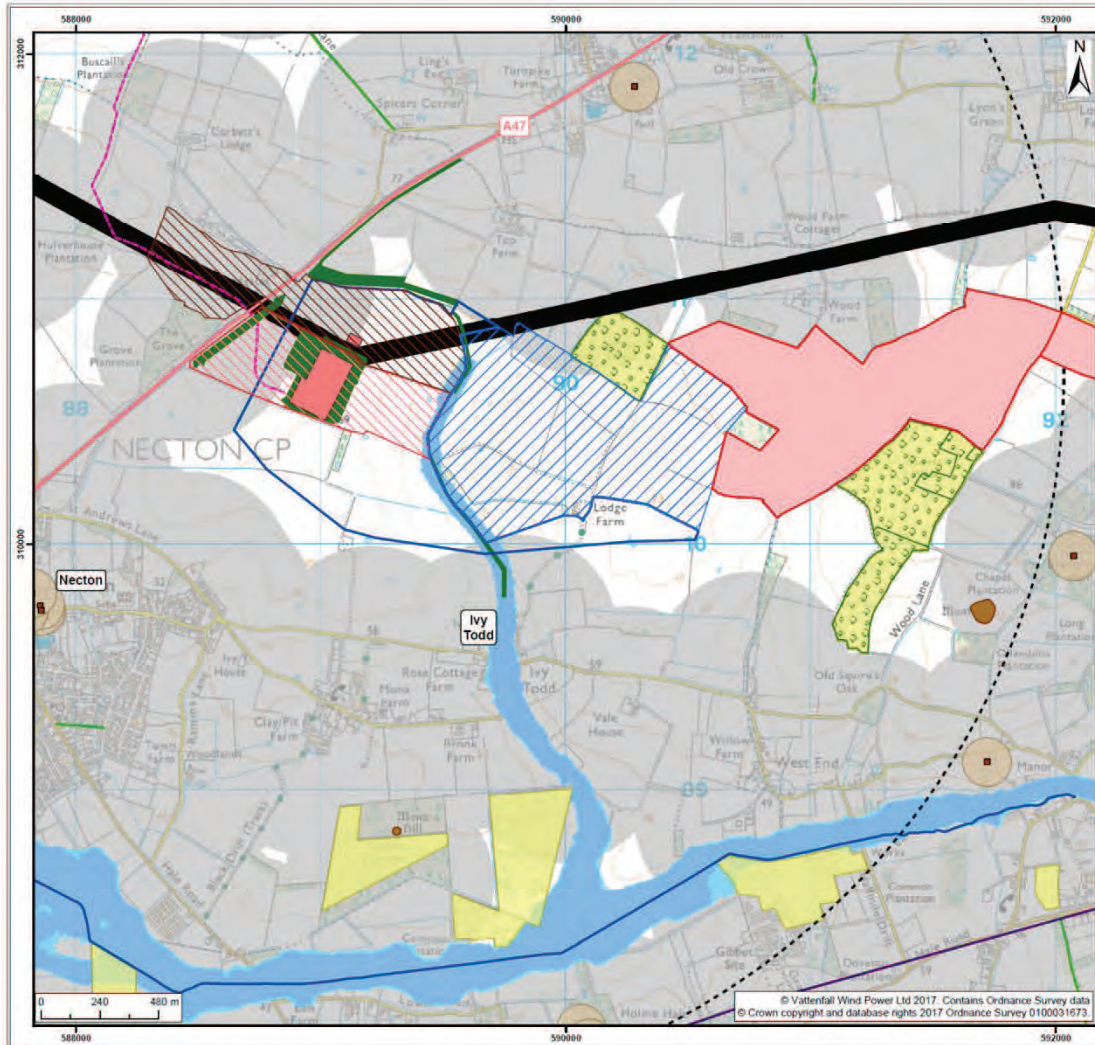
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		Drawn:	LB
		Checked:	RH
		Size:	A3
		Scale:	1:15,000

Coordinate system: British National Grid
 EPSG: 27700



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Legend

- Onshore Cable Corridor
- Refined Onshore Project Substation Zone
- 400kV Cable Corridor
- National Grid Substation Extension Zone
- Overhead Line Modification Zone
- Onshore Scoping Area
- Substation Search Area
- Listed Building¹
- Listed Building
- Scheduled Monument¹
- County Wildlife Site (CWS)²
- Ancient Woodland³
- Residential Buffer
- A Road
- Dudgeon Underground Cable (Indicative)
- Necton 400kV Substation
- Dudgeon Landscape Mitigation/Biodiversity Enhancement
- Electricity Transmission Overhead Lines - 40m Constraints Buffer
- Environment Agency Main River⁴
- Flood Zone 2²
- Flood Zone 3¹
- Norfolk Public Rights of Way⁴
- Footpath
- Restricted Byway

¹ Historic England, 2017
² Norfolk County Council, 2014
³ Natural England, 2017
⁴ Environment Agency, 2017

Project: Norfolk Vanguard	Report: Preliminary Environmental Information: Consultation Evidence Planning
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Title:
Substation Search Area and Constraints

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Co-ordinate system: British National Grid EPSG: 27700

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FOUR FOOTPRINTS



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EXTENSION TO NATIONAL GRID SUBSTATION

In order to connect our projects, National Grid will have to extend the existing 400kV substation, and make some changes to the way the overhead lines are linked to this substation.

- We are aiming to secure consent for National Grid's works as part of our DCO
- National Grid is carrying out an initial design study, to define:
 - Footprint of the 'permanent works'
 - Extent of 'temporary works'
 - Duration of construction
- We will share this information with you as soon as we can

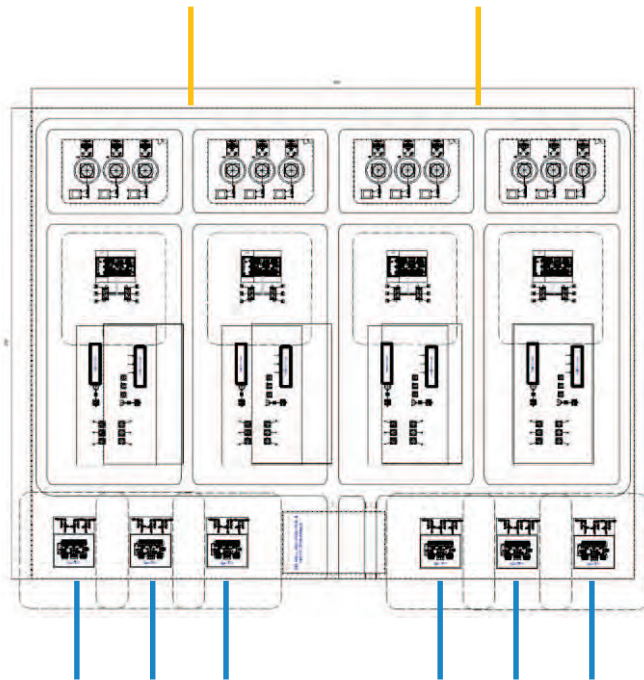
SUBSTATION FOOTPRINT OPTIONS

Vattenfall has developed four alternative footprints for the substations within the refined search area. The design of each footprint was an engineering-led process. Key considerations included:

- Routing of incoming and outgoing cables from each substation
- Known environmental sensitivities and constraints
- Land ownership boundaries

CABLES AND ROADS ~ SINGLE SUBSTATION

Connection to NG – 400kV cables



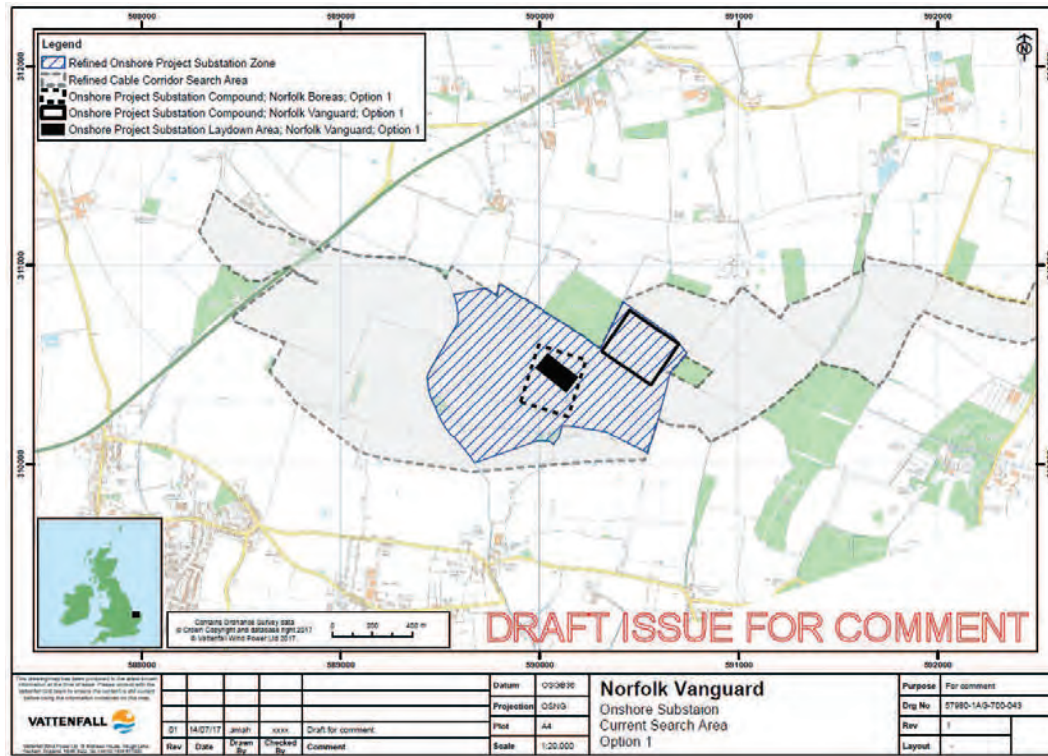
Connection to wind farm – export cables

400kV cable circuits enter the substation on one side, and the export cables exit on the opposite side.

Roadways within the substation to allow for off-loading of transformer units and other plant.

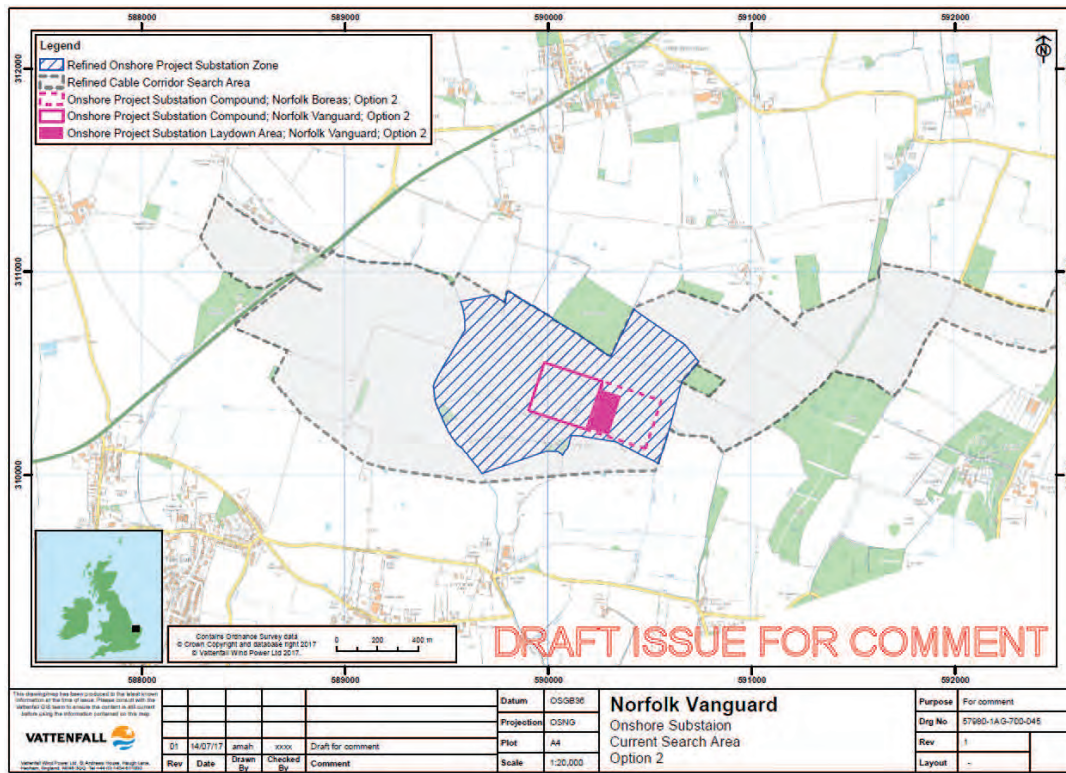
- Single point for vehicle entry and exit
- Entry point can be chosen to suit site constraints

FOOTPRINT OPTION 1



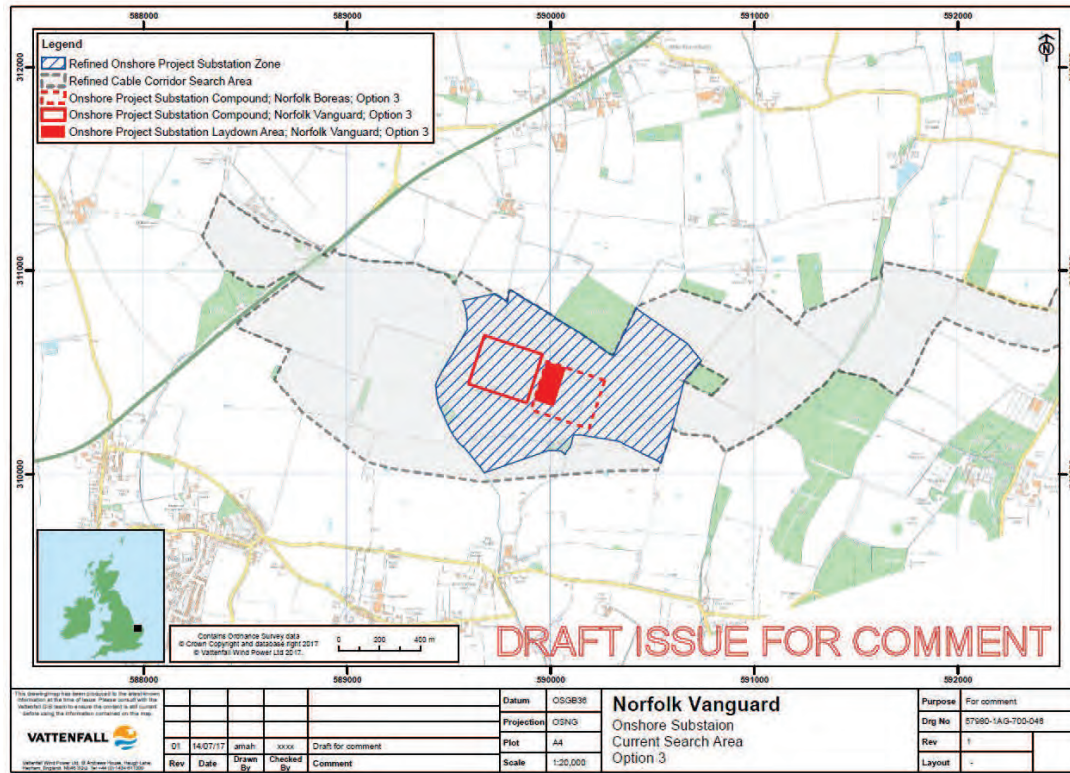
- Furthest from Necton, but closest to Wood Farm
- On high ground, but good use of existing woodland and hedgerows to provide visual screening
- Fairly level sites – less need for site preparation works

FOOTPRINT OPTION 2



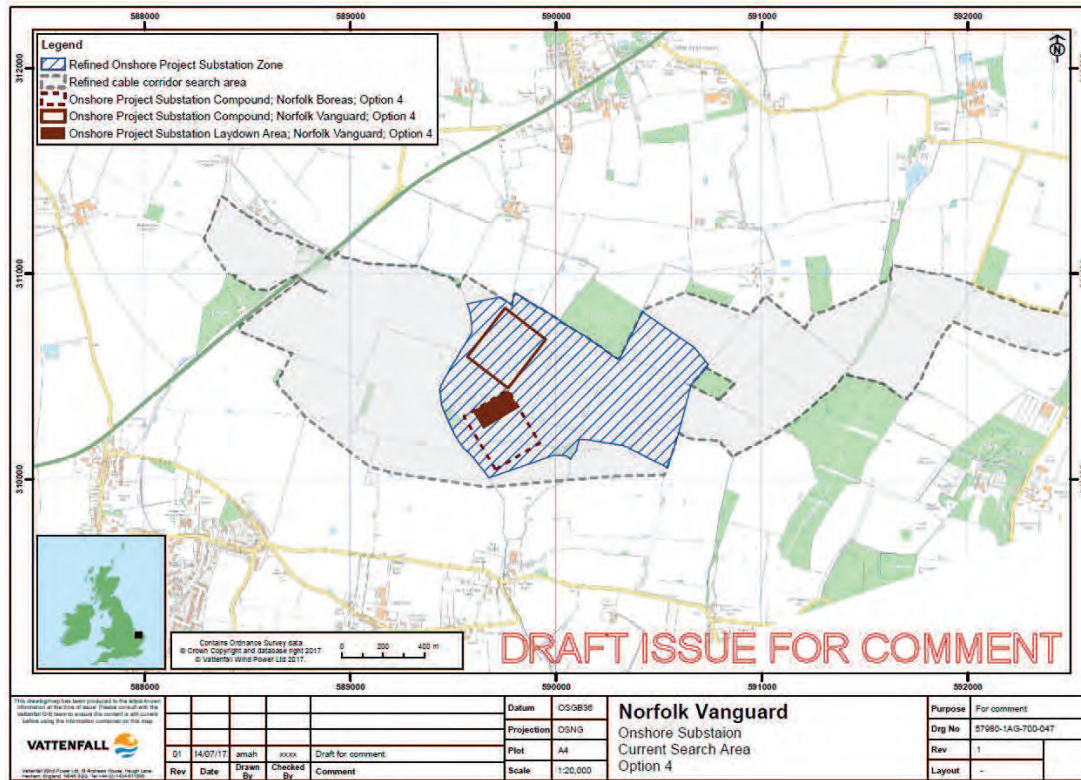
- Similar distance from Necton; not so close to Wood Farm
- On high ground, but good use of existing hedgerows to provide visual screening
- Moderately level sites – some site preparation needed

FOOTPRINT OPTION 3



- Slightly closer to Necton
- On lower ground; some use of existing woodland to provide visual screening
- Sloping sites – more need for site preparation works

FOOTPRINT OPTION 4



- Closest to Necton and Ivy Todd
- Lower in the landscape than other options
- Less use of existing woodland and hedgerows to provide visual screening
- Sloping sites – more need for site preparation works

MAPS AND VISUALISATIONS

Our landscape consultants have prepared visualisations of the substations, for both HVAC and HVDC options. These visualisations based on two of the defined footprints, and are in accordance with Scottish Natural Heritage Visualisation Guidance.

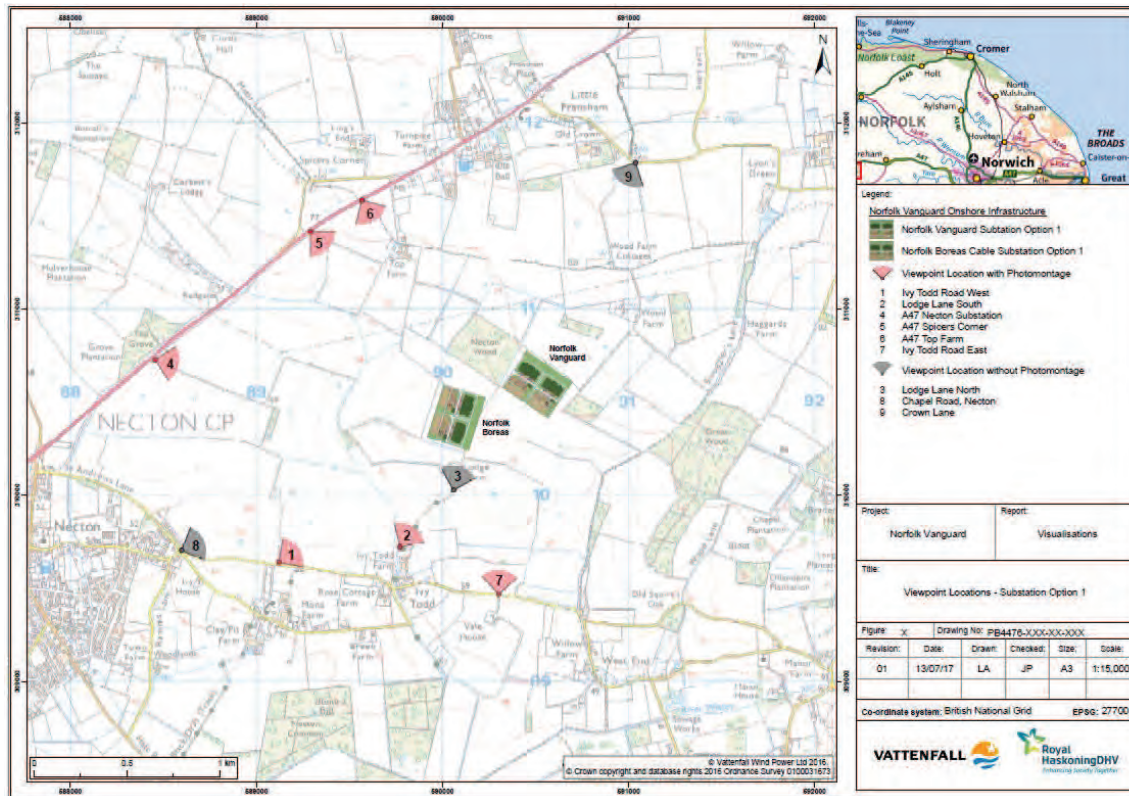
<http://www.snh.gov.uk/planning-and-development/renewable-energy/visual-representation/>

Each table has a printed booklet containing hard copies of the visualisations.

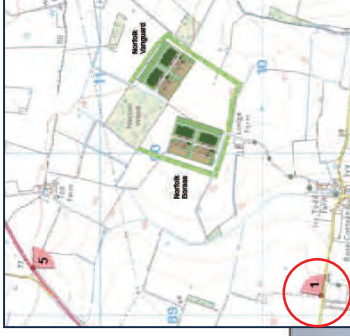
Presentation scope:

- Quickly guide you through the viewpoints and visualisations for footprint option 1
- Brief discussion of mitigation planting

OPTION 1 ~ LOCATION MAP WITH VIEWPOINTS



OPTION 1 ~ VIEW FROM IVY TODD ROAD WEST



© 2018 Vattenfall

This image provides a perspective and visual context only.

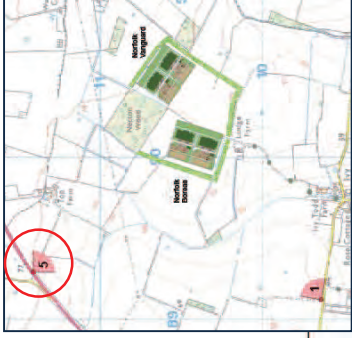
Photomontage of the proposed installation.
 OS reference: 881250 E 500000 N
 Eye level: 40.0m ACD
 Camera height: 1.50m
 Horizontal field of view: 60° (vertical projection)
 Principal distance: 62.0m

Camera:
 Lens: 50mm
 Date and time: 20/01/2018, 11:14:19

View file at a downloadable army's length
 OPTION 1 VIEWPOINT 1: IVY TODD ROAD WEST
 HVDC: 881250E 500000N



OPTION 1 ~ VIEW FROM A47 SPICER'S CORNER



Baseline photograph

This image provides a baseline and visual context only.

Photomontage of the proposed substations

Site name: 7004 A47S
 Project ID: 211151515
 Date of issue: 15/07/2021
 Drawn by: NCF
 Checked by: NCF
 Scale: 1:5000

Proposed date of issue: 15/07/2021
 Project reference: 211151515
 Project reference (preliminary): 211151515

Client: Vattenfall
 Location: Spicer's Corner
 Client's project: Spicer's Corner
 Date and time: 15/07/2021

Client: Vattenfall
 Location: Spicer's Corner
 Client's project: Spicer's Corner
 Date and time: 15/07/2021



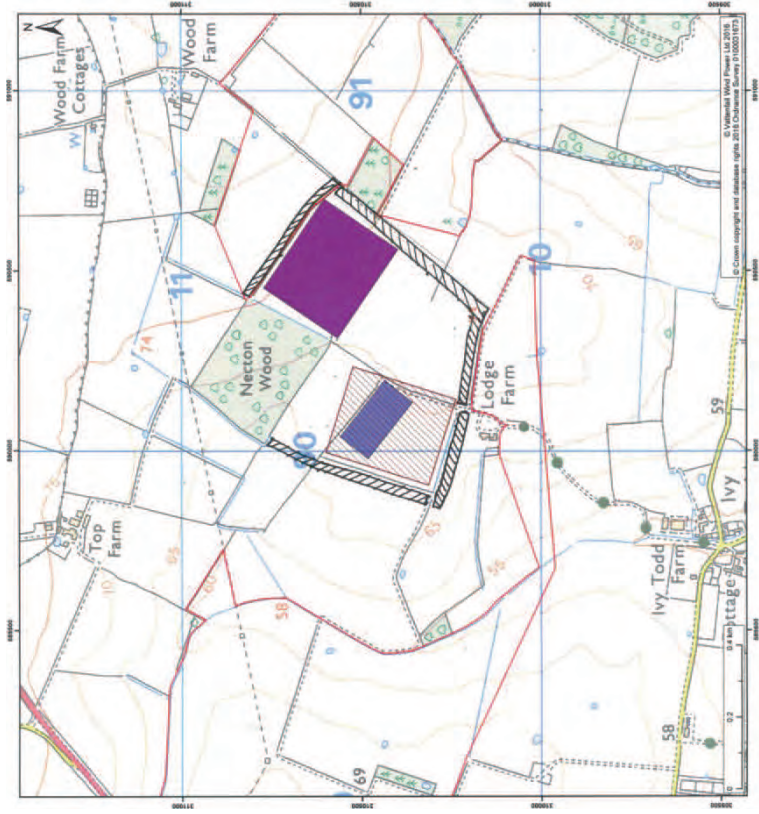
OPTION 1 ~ Viewpoint 6: A47 Spicer's Corner
 NCF
 15/07/2021

ACCESS ROUTES FOR CONSTRUCTION TRAFFIC

There will be a lot of traffic during construction of the substations. We are taking steps to minimise the impact on local residents.

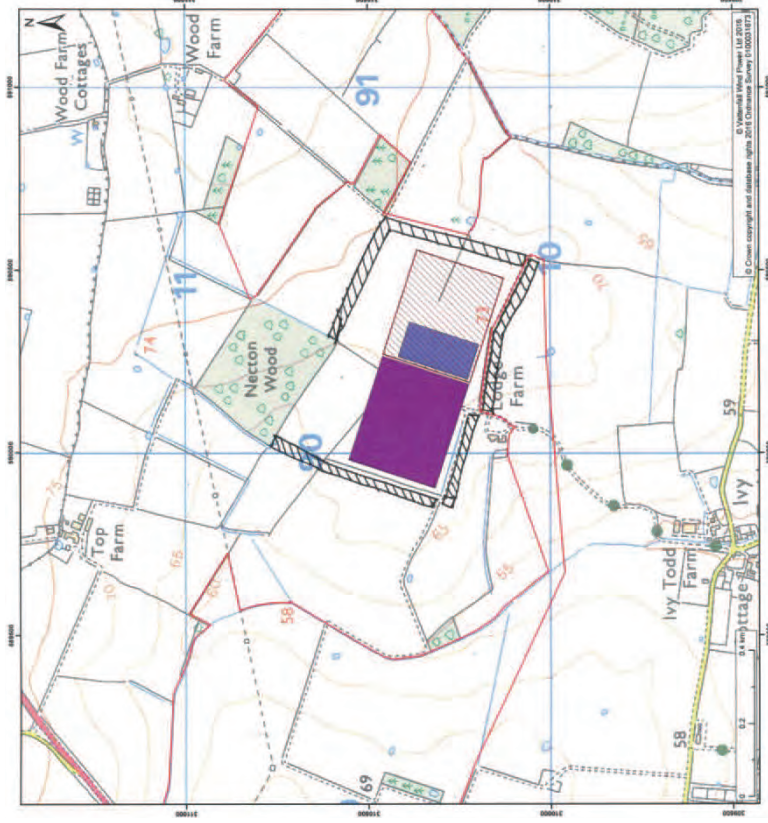
- Access to the site will be directly from the A47, via a dedicated access road
- Two options are being considered:
 - Use and extend the existing access road to the NG and Dudgeon site
 - Build a new access road, joining the A47 at Spicer's Corner
- We are talking to Highways England and NCC highways to agree on a solution; safe road design is the main concern

OPTION 1 ~ PLANTING



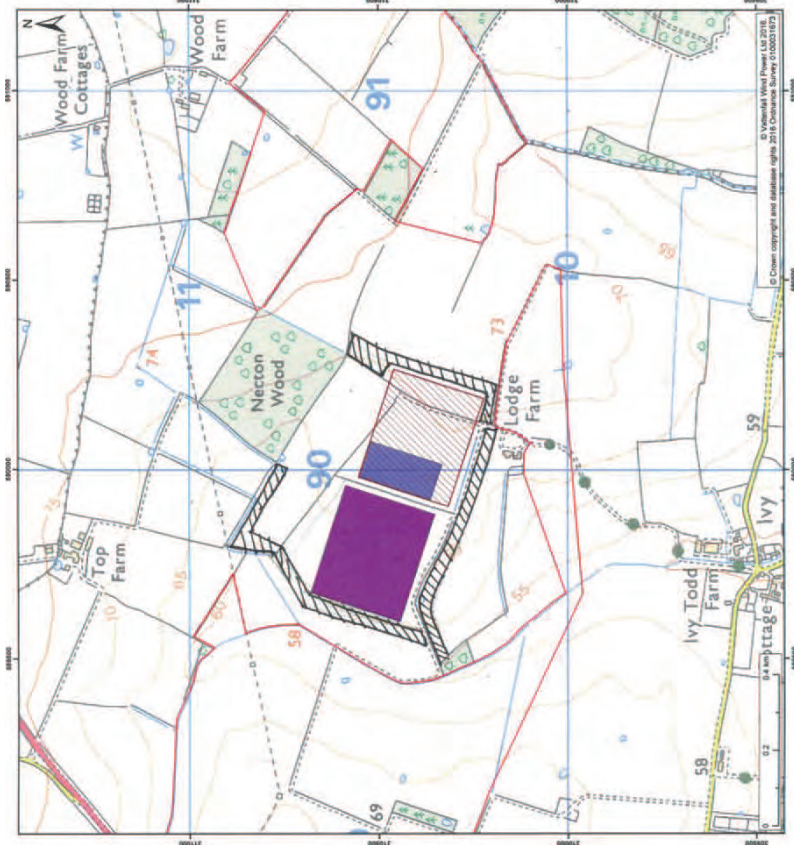
Hatched area shows proposed woodland planting scheme.

OPTION 2 ~ PLANTING



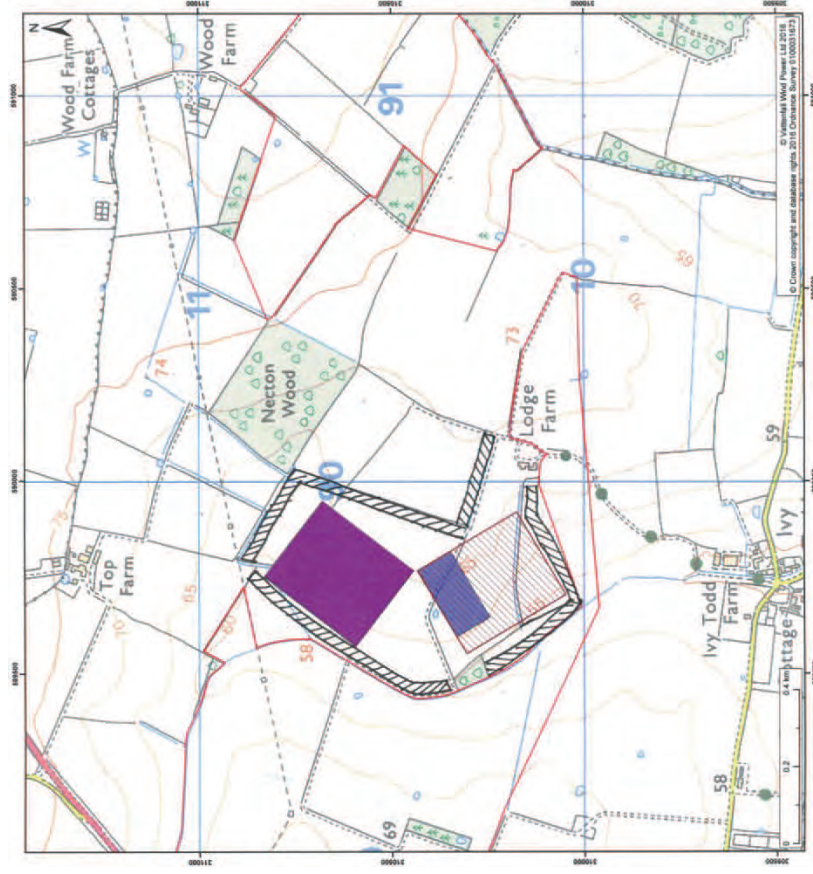
Hatched area shows proposed woodland planting scheme.

OPTION 3 ~ PLANTING



Hatched area shows proposed woodland planting scheme.

OPTION 4 ~ PLANTING



Hatched area shows proposed woodland planting scheme.

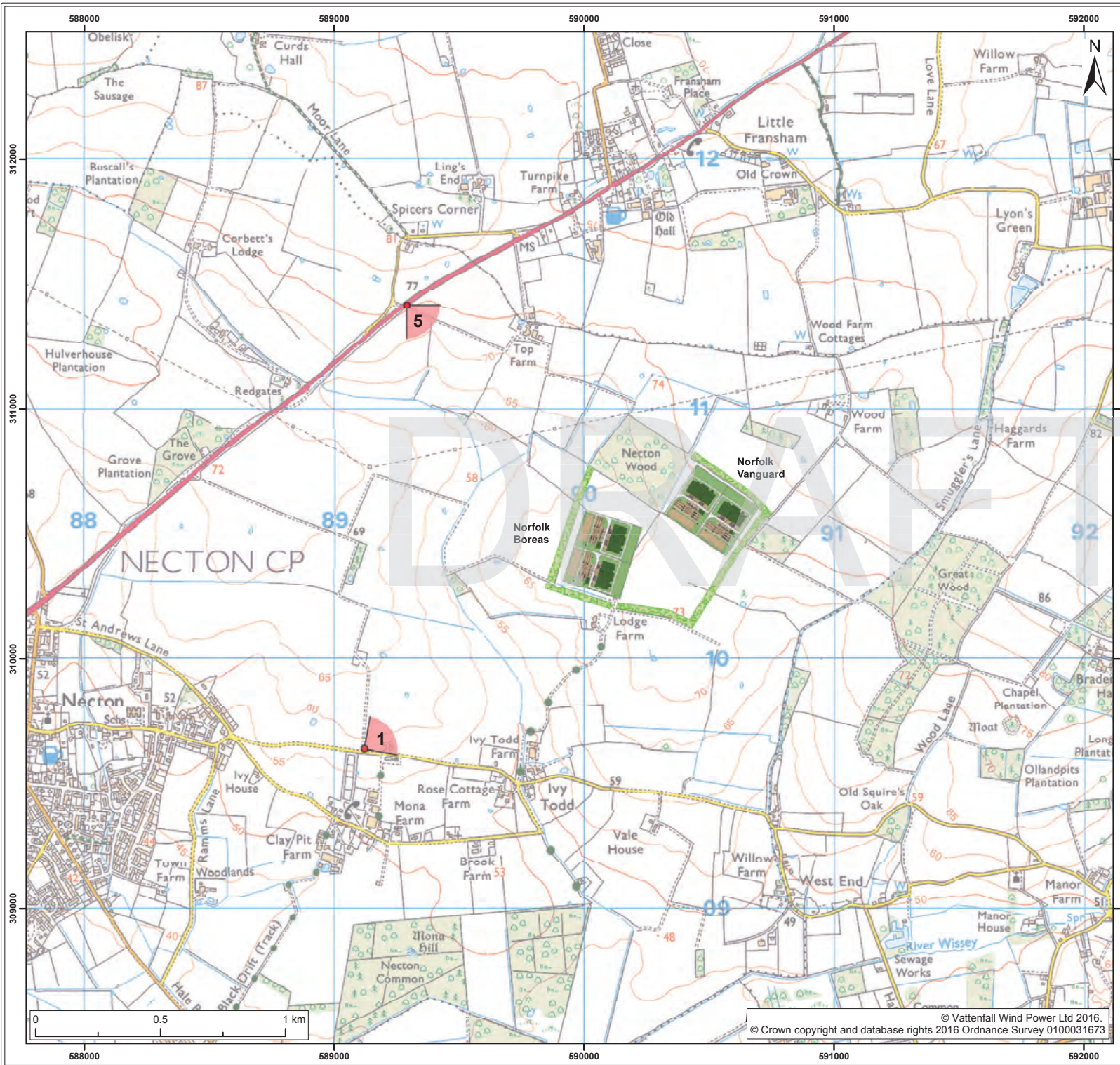
PHOTOMONTAGE & VISUALISATIONS

At the workshops and drop-ins we showed photomontage visualisations from Ivy Todd Road West and from Spicer's Corner of Option 1 and 4 for both AC and DC substations.

The 3DW model was available at both the evening and following-day drop-in sessions, although there was limited time to display it at the evening workshops. The advantage of the 3DW model is that it can provide visual aids to display the type of visual impact likely to be noted as a result of infrastructure from any local point, including people's homes. Many people at the drop-in sessions took advantage of the 3DW model to 'see' what any particular substation option would look like from a point of interest of particular interest to them e.g. their home, their favourite dog-walking path, a view from their commute etc.

Here we show you the additional photomontages again on the following pages. The 3DW visualisations will be made available in a separate booklet, also linked from the 'Documents' page on the project website.

This is a flavour of the kind of information the consenting team are using to inform decision-making, and we hope can help to inform the feedback you will provide.



Legend:

Norfolk Vanguard Onshore Infrastructure

- Norfolk Vanguard Substation Option 1
- Norfolk Boreas Substation Option 1
- Mitigation Woodland Planting
- Viewpoint Location with Photomontage

1 Ivy Todd Road West
5 A47 Spicer's Corner

Project:	Report:
Norfolk Vanguard	Visualisations

Title: Viewpoint Locations - Substation Option 1

Figure: X	Drawing No: PB4476-XXX-XX-XXX				
Revision: 01	Date: 13/07/17	Drawn: LA	Checked: JP	Size: A3	Scale: 1:15,000

Co-ordinate system: British National Grid EPSG: 27700

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OPTION 1 VIEWPOINT 1 IVY TODD ROAD WEST



Baseline photograph

This image provides landscape and visual context only



Photomontage of the proposed substations

View flat at a comfortable arm's length

OS reference:	S89120 E 309638 N	Horizontal field of view:	90° (cylindrical projection)	Camera:	Canon EOS 5D Mark II
Eye level:	60.5m AOD	Principal distance:	522 mm	Lens:	50mm (Canon EF 50mm f/1.4)
Direction of view:	48°			Camera height:	1.5 m AGL
Nearest distance:	1.04km			Date and time:	24/03/2017, 11:14:16

OPTION 1 Viewpoint 1: Ivy Todd Road West
HVDC Substation



OS reference:	S89120 E 309638 N	Horizontal field of view:	90° (cylindrical projection)	Camera:	Canon EOS 5D Mark II
Eye level:	60.5m AOD	Principal distance:	522 mm	Lens:	50mm (Canon EF 50mm f/1.4)
Direction of view:	48°			Camera height:	1.5 m AGL
Nearest distance:	1.04km			Date and time:	24/03/2017, 11:14:16

**OPTION 1 Viewpoint 1: Ivy Todd Road West
HVDC Substation with Mitigation Planting**



OS reference:	S89120 E 309638 N	Horizontal field of view:	90° (cylindrical projection)	Camera:	Canon EOS 5D Mark II
Eye level:	60.5m AOD	Principal distance:	522 mm	Lens:	50mm (Canon EF 50mm f/1.4)
Direction of view:	48°			Camera height:	1.5 m AGL
Nearest distance:	1.04km			Date and time:	24/03/2017, 11:14:16

OPTION 1 Viewpoint 1: Ivy Todd Road West
[HVAC Substation](#)



OS reference:	S89120 E 309638 N	Horizontal field of view:	90° (cylindrical projection)	Camera:	Canon EOS 5D Mark II
Eye level:	60.5m AOD	Principal distance:	522 mm	Lens:	50mm (Canon EF 50mm f/1.4)
Direction of view:	48°			Camera height:	1.5 m AGL
Nearest distance:	1.04km			Date and time:	24/03/2017, 11:14:16

**OPTION 1 Viewpoint 1: Ivy Todd Road West
HVAC Substation with Mitigation Planting**

OPTION 1 VIEWPOINT 5 A47 SPICER'S CORNER



Baseline photograph

This image provides landscape and visual context only



Photomontage of the proposed substations

View flat at a comfortable arm's length

OS reference:	589280 E 311415 N	Horizontal field of view:	90° (cylindrical projection)	Camera:	Canon EOS 5D Mark II
Eye level:	76m AOD	Principal distance:	522 mm	Lens:	50mm (Canon EF 50mm f/1.4)
Direction of view:	135°			Camera height:	1.5 m AGL
Nearest distance:	1.07km			Date and time:	24/03/2017, 09:31:33

OPTION 1 Viewpoint 5: A47 Spicer's Corner
 HVDC Substation



Baseline photograph

This image provides landscape and visual context only



Photomontage of the proposed substations

View flat at a comfortable arm's length

OS reference:	589280 E 311415 N	Horizontal field of view:	90° (cylindrical projection)	Camera:	Canon EOS 5D Mark II
Eye level:	76m AOD	Principal distance:	522 mm	Lens:	50mm (Canon EF 50mm f/1.4)
Direction of view:	135°			Camera height:	1.5 m AGL
Nearest distance:	1.07km			Date and time:	24/03/2017, 09:31:33

**OPTION 1 Viewpoint 5: A47 Spicer's Corner
HVDC Substation with Mitigation Planting**



Baseline photograph

This image provides landscape and visual context only



Photomontage of the proposed substations

View flat at a comfortable arm's length

OS reference:	589280 E 311415 N	Horizontal field of view:	90° (cylindrical projection)	Camera:	Canon EOS 5D Mark II
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Nearest distance:	1.07km			Date and time:	24/03/2017, 09:31:33

OPTION 1 Viewpoint 5: A47 Spicer's Corner
[HVAC Substation](#)



Baseline photograph

This image provides landscape and visual context only

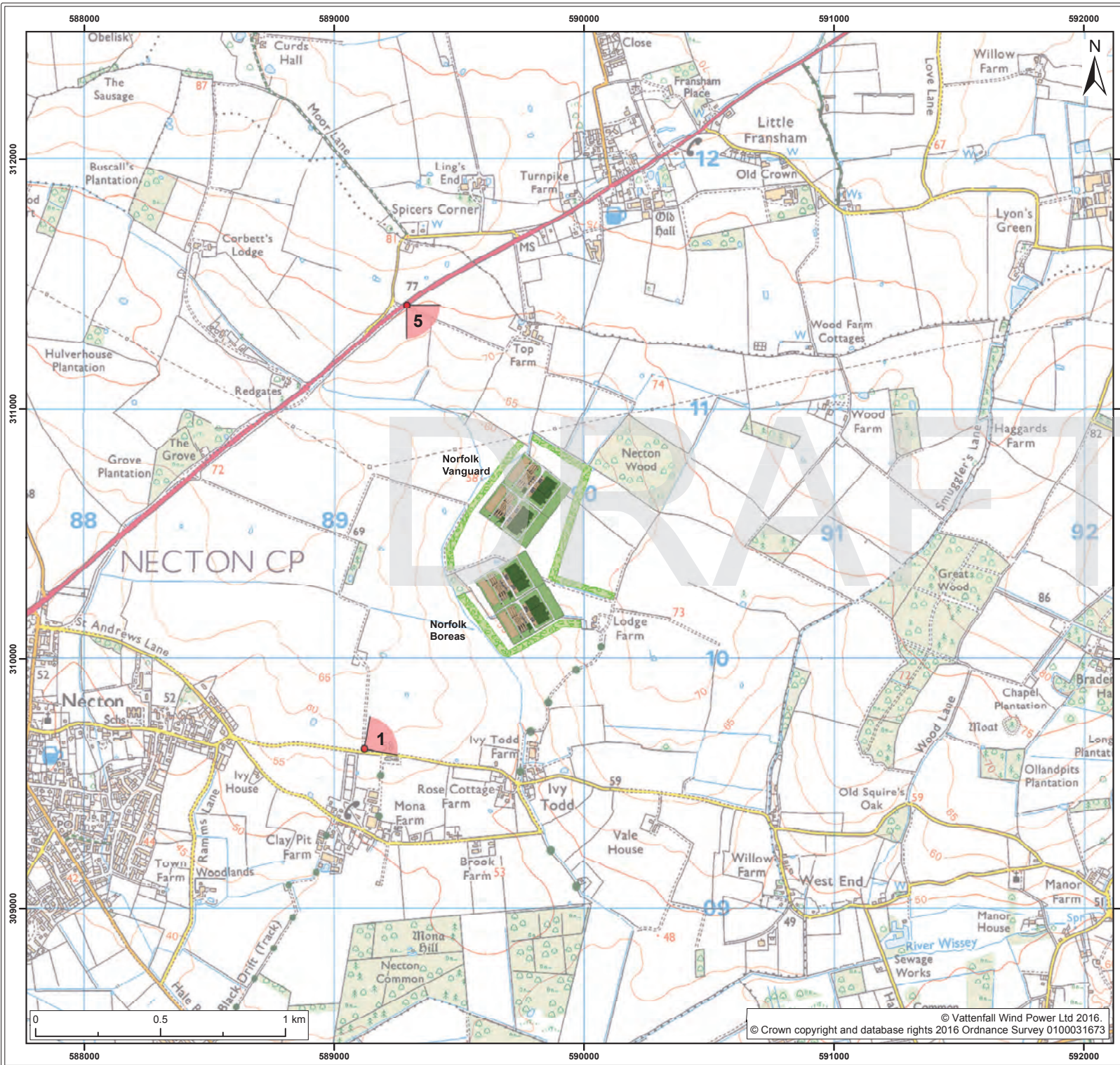


Photomontage of the proposed substations

View flat at a comfortable arm's length

OS reference:	589280 E 311415 N	Horizontal field of view:	90° (cylindrical projection)	Camera:	Canon EOS 5D Mark II
Eye level:	76m AOD	Principal distance:	522 mm	Lens:	50mm (Canon EF 50mm f/1.4)
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OPTION 1 Viewpoint 5: A47 Spicer's Corner
 HVAC Substation with Mitigation Planting



Legend:

Norfolk Vanguard Onshore Infrastructure

- Norfolk Vanguard Substation Option 4
- Norfolk Boreas Substation Option 4
- Mitigation Woodland Planting
- Viewpoint Location with Photomontage

1 Ivy Todd Road West
5 A47 Spicer's Corner

Project:	Report:
Norfolk Vanguard	Visualisations

Title:
Viewpoint Locations - Substation Option 4

Figure: X	Drawing No: PB4476-XXX-XX-XXX				
Revision:	Date:	Drawn:	Checked:	Size:	Scale:
01	13/07/17	LA	JP	A3	1:15,000

Co-ordinate system: British National Grid EPSG: 27700




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OPTION 4 VIEWPOINT 1 IVY TODD ROAD WEST



Baseline photograph

This image provides landscape and visual context only



Photomontage of the proposed substations

View flat at a comfortable arm's length

OS reference:	S89120 E 309638 N	Horizontal field of view:	90° (cylindrical projection)	Camera:	Canon EOS 5D Mark II
Eye level:	60.5m AOD	Principal distance:	522 mm	Lens:	50mm (Canon EF 50mm f/1.4)
Direction of view:	48°			Camera height:	1.5 m AGL
Nearest distance:	1.04km			Date and time:	24/03/2017, 11:14:16

OPTION 4 Viewpoint 1: Ivy Todd Road West
HVDC Substation



Baseline photograph

This image provides landscape and visual context only



Photomontage of the proposed substations

View flat at a comfortable arm's length

OS reference:	S89120 E 309638 N	Horizontal field of view:	90° (cylindrical projection)	Camera:	Canon EOS 5D Mark II
Eye level:	60.5m AOD	Principal distance:	522 mm	Lens:	50mm (Canon EF 50mm f/1.4)
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**OPTION 4 Viewpoint 1: Ivy Todd Road West
HVDC Substation with Mitigation Planting**



OS reference:	S89120 E 309638 N	Horizontal field of view:	90° (cylindrical projection)	Camera:	Canon EOS 5D Mark II
Eye level:	60.5m AOD	Principal distance:	522 mm	Lens:	50mm (Canon EF 50mm f/1.4)
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Nearest distance:	1.04km			Date and time:	24/03/2017, 11:14:16

OPTION 4 Viewpoint 1: Ivy Todd Road West
[HVAC Substation](#)



Baseline photograph

This image provides landscape and visual context only



Photomontage of the proposed substations

View flat at a comfortable arm's length

OS reference:	S89120 E 309638 N	Horizontal field of view:	90° (cylindrical projection)	Camera:	Canon EOS 5D Mark II
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**OPTION 4 Viewpoint 1: Ivy Todd Road West
HVAC Substation with Mitigation Planting**

OPTION 4 VIEWPOINT 5 A47 SPICER'S CORNER



Baseline photograph

This image provides landscape and visual context only

DRAFT



Photomontage of the proposed substations

View flat at a comfortable arm's length

OS reference:	589280 E 311415 N	Horizontal field of view:	90° (cylindrical projection)	Camera:	Canon EOS 5D Mark II
Eye level:	76m AOD	Principal distance:	522 mm	Lens:	50mm (Canon EF 50mm f/1.4)
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Nearest distance:	1.07km			Date and time:	24/03/2017, 09:31:33

OPTION 4 Viewpoint 5: A47 Spicer's Corner
 HVDC Substation



Baseline photograph

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Photomontage of the proposed substations

View flat at a comfortable arm's length

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**OPTION 4 Viewpoint 5: A47 Spicer's Corner
HVDC Substation with Mitigation Planting**



Baseline photograph

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Photomontage of the proposed substations

View flat at a comfortable arm's length

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OPTION 4 Viewpoint 5: A47 Spicer's Corner
[HVAC Substation](#)



Baseline photograph

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Photomontage of the proposed substations

View flat at a comfortable arm's length

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OPTION 4 Viewpoint 5: A47 Spicer's Corner
 HVAC Substation with Mitigation Planting



THANK YOU



