

# Norfolk Boreas Offshore Wind Farm Applicant's Responses to the Examining Authority's Written Questions Appendices

## Section 4

Appendices 4.1 to 4.3

Applicant: Norfolk Boreas Limited  
Document Reference: ExA.WQ-1.D2.V1  
Deadline 2

Date: December 2019  
Revision: Version 1  
Author: Royal HaskoningDHV

*Photo: Ormonde Offshore Wind Farm*

# Norfolk Boreas Offshore Wind Farm

# Appendix 4.1

## Flow Diagram

Written Question 4.0.4

Applicant: Norfolk Boreas Limited  
Document Reference: ExA.WQ-1.D2.V1  
Deadline 2

Date: December 2019  
Revision: Version 1  
Author: Vattenfall

*Photo: Ormonde Offshore Wind Farm*

## Scenario 1

Electrical Solution a):  
2 x 900MW HVDC links

Install all onshore cables in two phases, or

Install all onshore cables in a single phase

Electrical Solution b):  
1 x 1200MW HVDC links

Install all onshore cables in a single phase

Electrical Solution c):  
1 x 1800MW HVDC links

Install all onshore cables in a single phase

## Scenario 2

Electrical Solution a):  
2 x 900MW HVDC links



Install all onshore cables in two phases, or

Install all onshore cables in a single phase

# Norfolk Boreas Offshore Wind Farm

# Appendix 4.2

## Norfolk Vanguard and Norfolk Boreas Outline Onshore construction programme

Written Question 4.0.5

Applicant: Norfolk Boreas Limited  
Document Reference: ExA.WQ-1.D2.V1  
Deadline 2

Date: December 2019  
Revision: Version 1  
Author: Royal HaskoningDHV

*Photo: Ormonde Offshore Wind Farm*

Activity	Year							
	2020	2021	2022	2023	2024	2025	2026	2027
<b>Landfall</b>								
<b>Norfolk Vanguard</b>								
Duct Installation								
Cable Pull, Joint and Commission								
<i>Phase 1</i>								
<i>Phase 2</i>								
<b>Norfolk Boreas</b>								
Duct Installation – Option A*								
Duct Installation – Option B*								
Cable Pull, Joint and Commission								
<i>Phase 1</i>								
<i>Phase 2</i>								
<b>Onshore cable route</b>								
<b>Norfolk Vanguard</b>								
Preconstruction works								
Duct installation works								
Cable Pull, Joint and Commission								
<i>Phase 1</i>								
<i>Phase 2</i>								
<b>Norfolk Boreas</b>								

Activity	Year							
	2020	2021	2022	2023	2024	2025	2026	2027
Cable Pull, Joint and Commission								
<i>Phase 1</i>								
<i>Phase 2</i>								
<b>Onshore project substation and Necton National Grid Substation</b>								
<b><i>Norfolk Vanguard</i></b>								
Preconstruction works								
Primary works								
Electrical plant installation and commission								
<i>Phase 1</i>								
<i>Phase 2</i>								
<b><i>Norfolk Boreas</i></b>								
Preconstruction works								
Primary works								
Electrical plant installation and commission								
<i>Phase 1</i>								
<i>Phase 2</i>								

\*Norfolk Boreas is assessing the potential for the landfall ducts to be installed separate to Norfolk Vanguard (Option A) or the same time as Norfolk Vanguard landfall ducts to minimise the cumulative impacts of the project (Option B).

# Norfolk Boreas Offshore Wind Farm

## Appendix 4.3

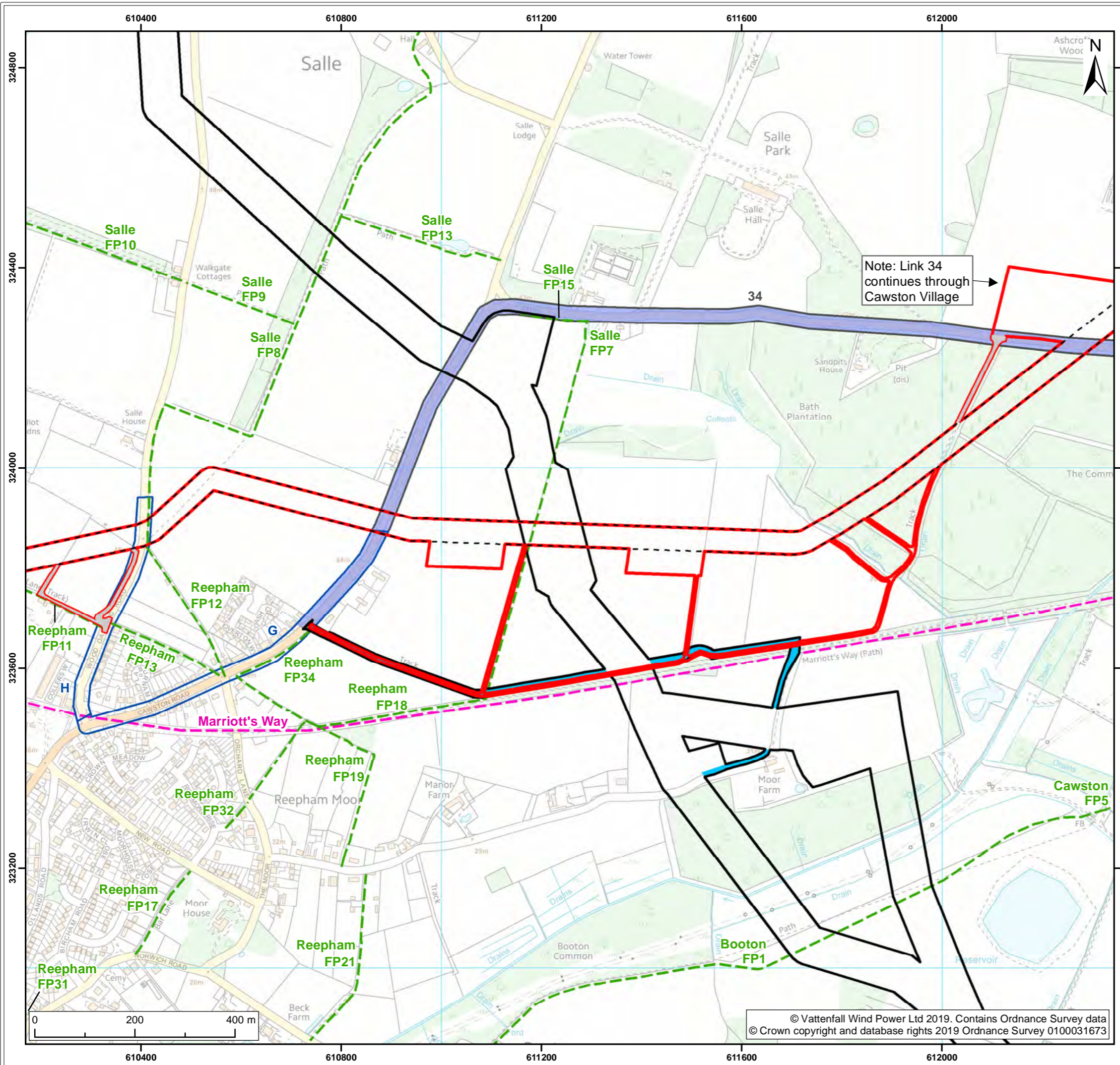
### Figures Showing Potential Cumulative Construction with Hornsea Project Three

Written Question 4.1.1

Applicant: Norfolk Boreas Limited  
Document Reference: ExA.WQ-1.D2.V1  
Deadline 2

Date: December 2019  
Revision: Version 1  
Author: Royal HaskoningDHV





- Legend:
- Norfolk Boreas Order Limits
  - Norfolk Boreas Onshore Project Infrastructure (Scenario 1)**
  - Onshore cable route
  - Construction access
  - Highway links**
  - Norfolk Boreas core highway links
  - Norfolk Boreas minor highway links
  - Shared highway links
  - Public Rights of Way & trails**
  - Footpath<sup>1</sup>
  - Long distance trails
  - Hornsea Project Three**
  - Hornsea Project Three Order Limits
  - Hornsea Project Three access route

<sup>1</sup> Norfolk County Council, 2014.

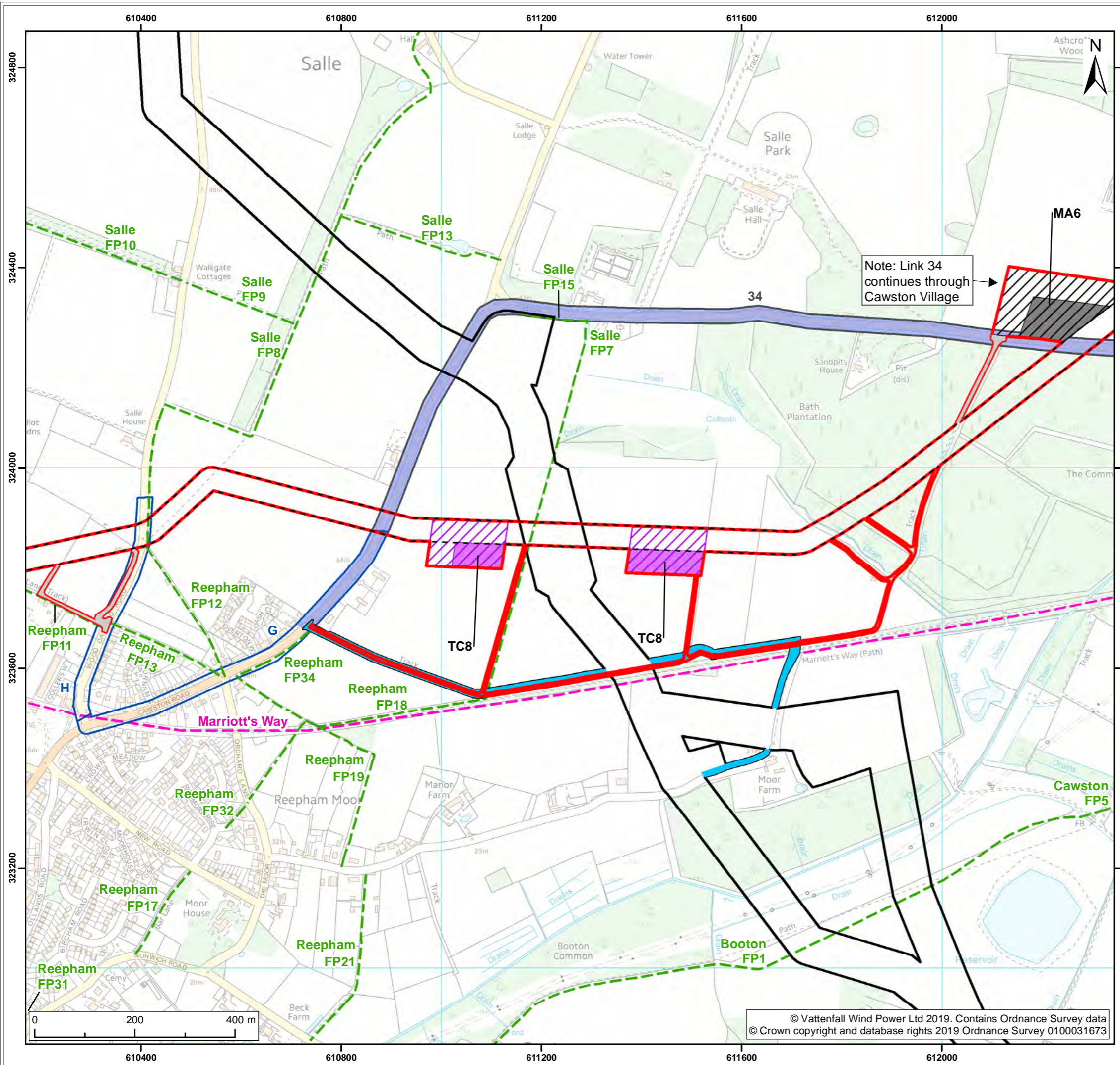
Project: Norfolk Boreas	Report: Norfolk Boreas Responses to the ExA's First Written Question
----------------------------	---

Title:  
Plan Showing Cables Crossing Point Norfolk Boreas and Hornsea Project Three - Scenario 1

Figure: 1a	Drawing No: PB5640-008-007-013				
Revision:	Date:	Drawn:	Checked:	Size:	Scale:
01	02/12/2019	FC	CD	A3	1:7,500

Co-ordinate system: British National Grid EPSG: 27700





**Legend:**

- Norfolk Boreas Order Limits
- Public Rights of Way & trails
- Footpath<sup>1</sup>
- Long distance trails
- Norfolk Boreas Onshore Project Infrastructure (Scenario 2)**
- Onshore cable route
- Construction access
- Trenchless crossing zone (e.g. HDD)
- Indicative trenchless crossing compound
- Mobilisation zone
- Indicative mobilisation area compound
- Hornsea Project Three**
- Hornsea Project Three Order Limits
- Hornsea Project Three access route
- Highway links**
- Norfolk Boreas core highway links
- Norfolk Boreas minor highway links
- Shared highway links

<sup>1</sup> Norfolk County Council, 2014.

Project: Norfolk Boreas	Report: Norfolk Boreas Responses to the ExA's First Written Question
----------------------------	---

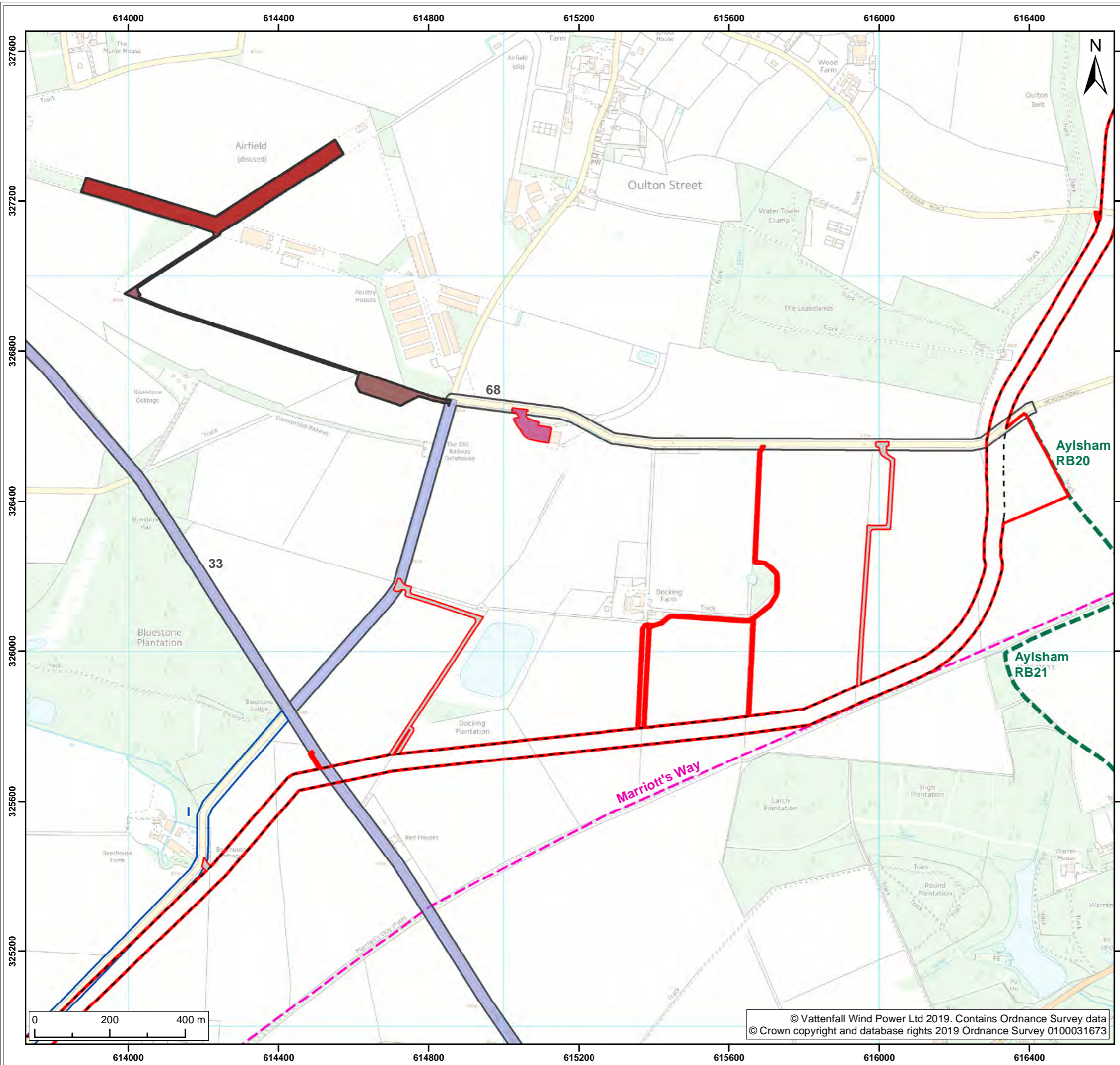
**Title:**  
Plan Showing Cables Crossing Point Norfolk Boreas and Hornsea Project Three - Scenario 2

Figure: 1b	Drawing No: PB5640-008-007-014				
Revision:	Date:	Drawn:	Checked:	Size:	Scale:
01	02/12/2019	FC	CD	A3	1:7,500

**Co-ordinate system:** British National Grid EPSG: 27700

**VATTENFALL**

**Royal HaskoningDHV**  
*Enhancing Society Together*



- Legend:
- Norfolk Boreas Order Limits
  - Norfolk Boreas Onshore Project Infrastructure (Scenario 1)**
    - Onshore cable route
    - Cable logistics area
    - Construction access
  - Highway links**
    - Norfolk Boreas core highway links
    - Norfolk Boreas minor highway links
    - Shared highway links
  - Public Rights of Way & trails**
    - Restricted byway<sup>1</sup>
    - Long distance trails
  - Hornsea Project Three**
    - Hornsea Project Three Order Limits
    - Hornsea Project Three main construction compound
    - Access to the Hornsea Project Three main compound

<sup>1</sup> Norfolk County Council, 2014.

Project: Norfolk Boreas	Report: Norfolk Boreas Responses to the ExA's First Written Question
----------------------------	---

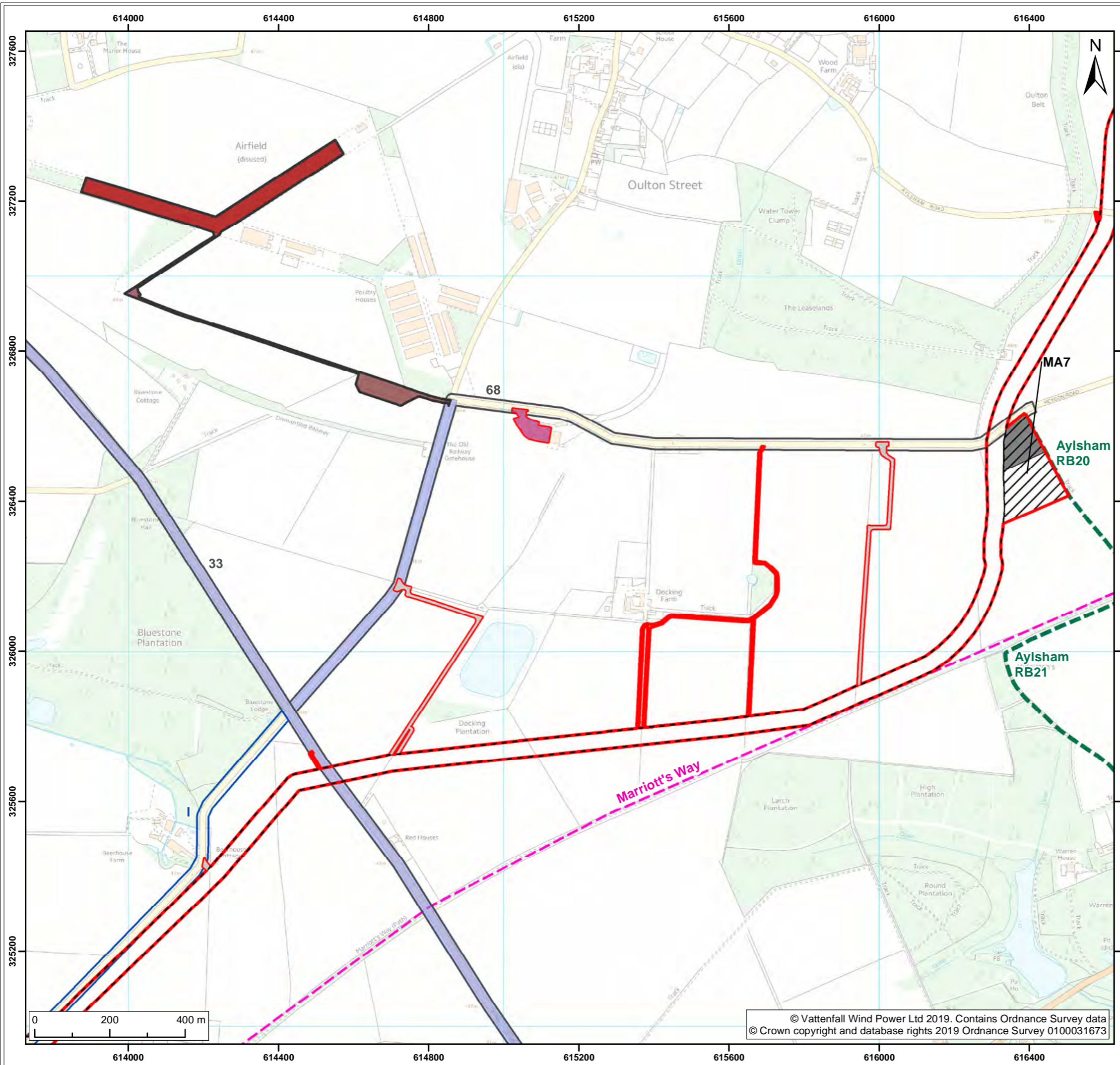
Title:  
Plan Showing Norfolk Boreas Cable Logistics Area and Hornsea Project Three Main Compound - Scenario 1

Figure: 2a	Drawing No: PB5640-008-007-015				
Revision: 01	Date: 02/12/2019	Drawn: FC	Checked: CD	Size: A3	Scale: 1:10,000

Co-ordinate system: British National Grid EPSG: 27700

**VATTENFALL**

**Royal HaskoningDHV**  
*Enhancing Society Together*



**Legend:**

- Norfolk Boreas Order Limits
- Hornsea Project Three Order Limits
- Hornsea Project Three main construction compound
- Access to the Hornsea Project Three main compound
- Onshore cable route
- Cable logistics area
- Construction access
- Mobilisation zone
- Indicative mobilisation area compound
- Norfolk Boreas core highway links
- Norfolk Boreas minor highway links
- Shared highway links
- Restricted byway<sup>1</sup>
- Long distance trails

**Highway links**

**Public Rights of Way & trails**

<sup>1</sup> Norfolk County Council, 2014.

Project: Norfolk Boreas	Report: Norfolk Boreas Responses to the ExA's First Written Question
----------------------------	---

**Title:**  
Plan Showing Norfolk Boreas Cable Logistics Area and Hornsea Project Three Main Compound - Scenario 2

Figure: 2b	Drawing No: PB5640-008-007-016				
Revision: 01	Date: 02/12/2019	Drawn: FC	Checked: CD	Size: A3	Scale: 1:10,000

**Co-ordinate system:** British National Grid **EPSG: 27700**

**VATTENFALL**

**Royal HaskoningDHV**  
*Enhancing Society Together*