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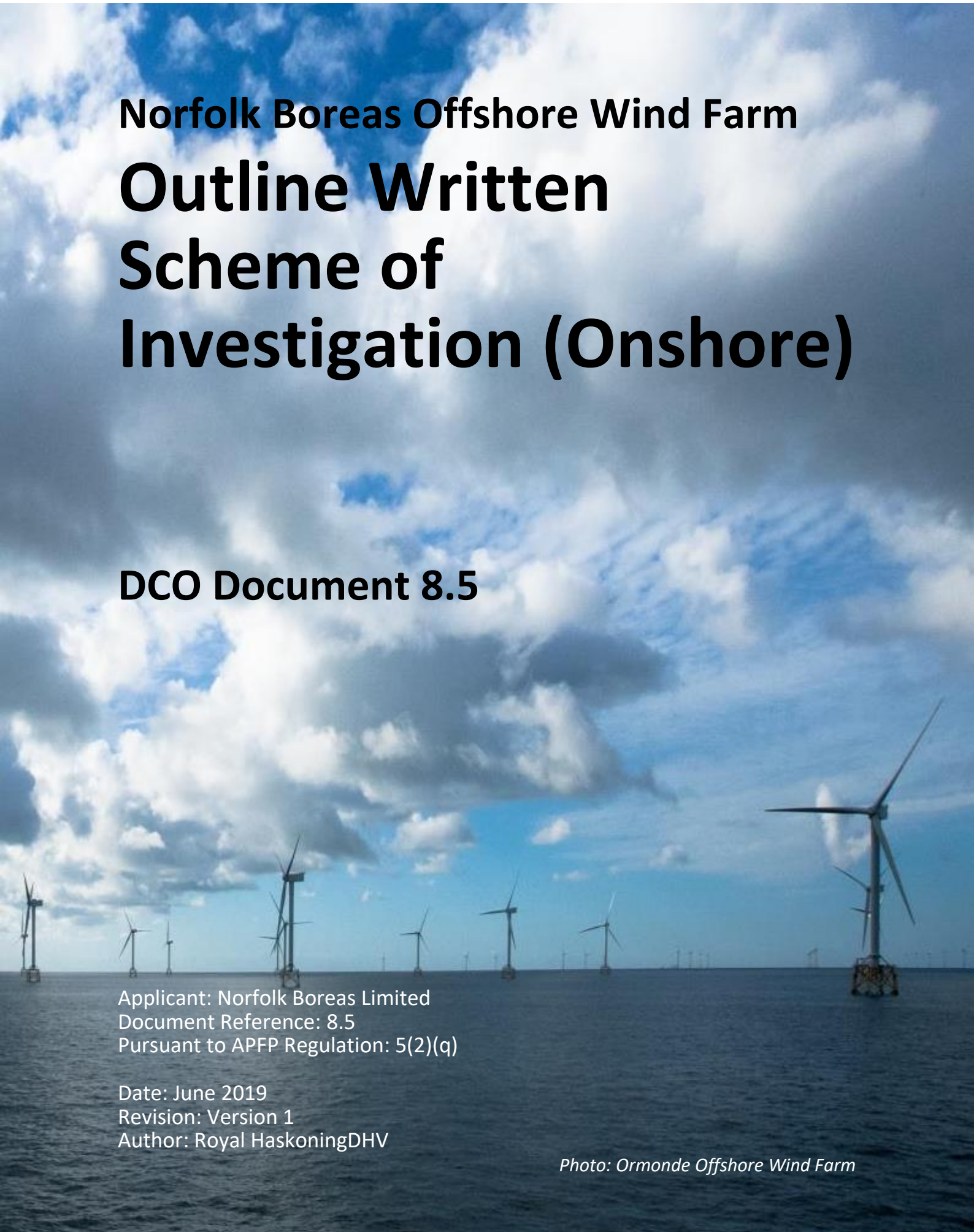

Norfolk Boreas Offshore Wind Farm

Outline Written Scheme of Investigation (Onshore)

DCO Document 8.5

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Glossary of Acronyms

ADBA	Archaeological Desk Based Assessment
AHOB	Ancient Human Occupation of Britain
BGS	British Geological Survey
CFB	Cromer Forest Bed
DCO	Development Consent Order
EIA	Environmental Impact Assessment
ES	Environmental Statement
GI	Ground Investigation
HDD	Horizontal Directional Drilling
HE	Historic England
HLC	Historic Landscape Character
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
LiDAR	Light Detection and Ranging
MoRPHE	Management of Research Projects in the Historic Environment
NCC HES	Norfolk County Council Historic Environment Service
NHER	Norfolk Historic Environment Record
OD	Ordnance Datum
ORPAD	Offshore Renewables Protocol for Archaeological Discoveries
OS	Ordnance Survey
OWSI	Outline Written Scheme of Investigation
PAB	Pathways to Ancient Britain
RAMS	Risk Assessment Method Statement
SPE	Set-Piece Excavation
SMS	Strip, Map and Sample
UPD	Updated Project Design
WSI	Written Scheme of Investigation

Glossary of Terminology

Cable pulling	Installation of cables within pre-installed ducts from jointing pits located along the onshore cable route.
Ducts	A duct is a length of underground piping, which is used to house electrical and communications cables.
Jointing pit	Underground structures constructed at regular intervals along the onshore cable route to join sections of cable and facilitate installation of the cables into the buried ducts.
Landfall	Where the offshore cables come ashore at Happisburgh South
Landfall compound	Compound at landfall within which HDD drilling would take place
Link boxes	Underground chambers or above ground cabinets next to the cable trench housing low voltage electrical earthing links
Mobilisation area	Areas approx. 100 x 100m used as access points to the running track for duct installation. Required to store equipment and provide welfare facilities. Located adjacent to the onshore cable route, accessible from local highways network suitable for the delivery of heavy and oversized materials and equipment.
National Grid new / replacement overhead line tower	New overhead line towers to be installed at the National Grid substation.
National Grid overhead line modifications	The works to be undertaken to complete the necessary modification to the existing 400kV overhead lines.
National Grid substation extension	The permanent footprint of the National Grid substation extension
National Grid temporary works area	Land adjacent to the Necton National Grid substation which would be temporarily required during construction of the National Grid substation extension.
Necton National Grid substation	The grid connection location for Norfolk Boreas and Norfolk Vanguard.
Offshore cable corridor	The corridor of seabed from the Norfolk Boreas site to the landfall site within which the offshore export cables will be located.
Onshore 400kV cable route	Buried high-voltage cables linking the onshore project substation to the Necton National Grid substation
Onshore cable route	The up to 35m working width within a 45m wide corridor which will contain the buried export cables as well as the temporary running track, topsoil storage and excavated material during construction.
Onshore cables	The cables which take power and communications from landfall to the onshore project substation.
Onshore project area	The area of the onshore infrastructure (landfall, onshore cable route, accesses, trenchless crossing zones and mobilisation areas; onshore project substation and extension to the Necton National Grid substation and overhead line modifications).
Onshore project substation	A compound containing electrical equipment to enable connection to the National Grid. The substation will convert the exported power from HVDC to HVAC, to 400kV (grid voltage). This also contains equipment to help maintain stable grid voltage.
Onshore substation areas	Collectively the term used to refer to the area of the onshore project substation, 400kV cable route and National Grid substation extension.
Onshore project substation temporary construction compound	Land adjacent to the onshore project substation which would be temporarily required during construction of the onshore project substation.

Order limits	The area of the land (as defined by the DCO) within which the project may be constructed, operated and maintained.
Overhead Line	An existing 400kV power line suspended by towers.
Running track	The track along the onshore cable route which the construction traffic would use to access work areas.
The Applicant	Norfolk Boreas Limited.
The project	Norfolk Boreas Wind Farm including the onshore and offshore infrastructure.
Trenchless crossing zone	Areas within the onshore cable route which will house trenchless crossing entry and exit points.

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1 INTRODUCTION

1.1 Project Background

1. Norfolk Boreas Limited ('the Applicant', an affiliate company of Vattenfall Wind Power Ltd (VWPL)) is seeking a Development Consent Order (DCO) for the Norfolk Boreas Offshore Wind Farm (herein referred to as 'the project' or 'Norfolk Boreas').

2. The offshore wind farm comprises of a 725km^2 area located approximately 73km from the Norfolk coastline within which wind turbines would be located. Norfolk Boreas would have a maximum export capacity of 1,800 megawatts (MW). The offshore wind farm would be connected to the shore by offshore export cables installed within the offshore cable corridor from the wind farm to a landfall point at Happisburgh South, Norfolk. From there, onshore cables would transport power over approximately 60km to the existing Necton National Grid substation.

3. As part of the Environmental Impact Assessment (EIA) process, Norfolk Boreas Limited has reviewed consultation received and in response, has made a number of decisions in relation to the onshore project design. One of those decisions is to deploy HVDC cable technology to the UK's National Grid, which has removed the need for a cable relay station and reduced the onshore cable route width.

1.2 Development Scenarios

4. VWPL is also developing Norfolk Vanguard, a 'sister project' to Norfolk Boreas. The Norfolk Vanguard project is approximately one year ahead of Norfolk Boreas in its development programme having submitted its DCO application in June 2018. In order to minimise impacts associated with onshore construction works for the two projects, Norfolk Vanguard are seeking consent to undertake the duct installation and some enabling works for both projects at the same time. This is the preferred option and considered to be the most likely, however, Norfolk Boreas needs to consider the possibility that Norfolk Vanguard may not proceed to construction.

5. In line with the Norfolk Boreas Environmental Statement (ES) (document reference 6.1) this Outline Written Scheme of Investigation considers the following two alternative scenarios:

   - **Scenario 1** – Norfolk Vanguard proceeds to construction and installs ducts and other shared enabling works for Norfolk Boreas.
   - **Scenario 2** – Norfolk Vanguard does not proceed to construction and Norfolk Boreas proceeds alone. Norfolk Boreas undertakes all works required as an independent project.

6. Under Scenario 1 Norfolk Vanguard proceeds to construction and would have undertaken the following to benefit Norfolk Boreas:

- Installation of ducts to house Norfolk Boreas cables along the entirety of the onshore cable route from the landfall to the onshore project substation;
- A47 junction works for both projects and installation of a shared access road up to the Norfolk Vanguard substation; and
- Overhead line modifications at the Necton National Grid substation, which will accommodate both projects.

7. Under Scenario 1, the following works will be undertaken by Norfolk Boreas:

- Installation of ducts and cables at the landfall;
- Cable pulling through pre-installed ducts, including reinstalling up to approximately 12km of temporary running track;
- Construction of onshore project substation, including extension of the access road from the A47 (installed by Norfolk Vanguard);
- Extension of the Necton National Grid Substation in an easterly direction, with a footprint of approximately 135m by 150m; and
- Landscape mitigation planting.

8. Under Scenario 2, the following works will be undertaken by Norfolk Boreas:

- Installation of ducts and cables at the landfall;
- Duct installation via open trenching and trenchless crossings, including installation of 60km of temporary running track;
- Installation of mobilisation areas and trenchless crossing compounds;
- Cable pulling through pre-installed ducts, including retaining or reinstalling up to approximately 12km of temporary running track;
- Construction of onshore project substation, including installation of new permanent access road from A47 and associated junction improvement works;
- Extension of the Necton National Grid Substation in a westerly direction, with a footprint of approximately 200m by 150m;
- Modifications to the existing National Grid overhead lines; and
- Landscape mitigation planting.

9. Full details of the scenarios are presented in Chapter 5 Project Description of the ES (document reference 6.1.5), including a further detailed comparison provided in Appendix 5.1 (document reference 6.3.5.1).

1.3 Outline WSI Structure and Purpose

10. This Outline Written Scheme of Investigation (OWSI) for onshore archaeology and cultural heritage has been produced by Royal HaskoningDHV on behalf of Norfolk

Boreas Limited to support the DCO application. The OWSI sets out the proposed approaches and commitments to archaeological survey and investigation to be undertaken post-consent. This includes both initial informative survey stages of mitigation work and subsequent additional mitigation measures, where required. This forms part of an overarching archaeological mitigation strategy to be undertaken within the onshore project area. A separate OWSI for offshore archaeology and cultural heritage has also been produced and submitted as part of the DCO application (document reference 8.6).

11. Under Scenario 1 the majority of the archaeological works (initial informative stages of mitigation and subsequent additional mitigation measures, where required) would be undertaken by the Norfolk Vanguard project. Under Scenario 2 this work would all be completed as part of the Norfolk Boreas project.

12. Under Scenario 1, archaeological works (initial informative works and subsequent additional mitigation measures) will still be required in the post- consent stages for certain project elements (see paragraph 7 above) bespoke to Norfolk Boreas, including the potential for the application of a suite of methodologies as outlined under sections 5 and 6 below.

13. The figures referred to throughout this OWSI are those included in Chapter 28 Onshore Archaeology and Cultural Heritage of the ES (document reference 6.1.28). Of particular relevance are:

- Figure 28.1 Designated heritage assets within 1km of Norfolk Boreas onshore project area;
- Figure 28.2 Non-designated heritage assets within 500m of the Norfolk Boreas onshore project area;
- Figure 28.4 Aerial photographic assessment (key sites) across the Norfolk Boreas onshore project area;
- Figure 28.6 Geophysical (Magnetometer) Survey Greyscales across the Norfolk Boreas onshore project area (overlain on the 1st Ed. Ordnance Survey map); and
- Figure 28.7 Archaeological Interpretation of Geophysical Survey Data across the Norfolk Boreas onshore project area.

14. Norfolk Boreas Limited will develop more detailed constraint style mapping during the post-consent stage, both prior to and following the initial informative stages of mitigation. This will include positioning and agreement of trial trench location plans, as well as other figures associated with targeted fieldwalking and metal detecting requirements (if/where required), all of which will be developed in consultation with Norfolk County Council Historic Environment Service (NCC HES) (and Historic England (HE), as required), in the post-consent stages.

15. This OWSI secures the DCO commitment (DCO Requirement 23) to undertake additional programmes of survey and evaluation post-consent; these are to be referred to as post-consent initial informative stages of mitigation work (e.g. further geophysical survey, targeted metal detecting, targeted field walking and archaeological trial trenching). The OWSI includes summary details of the overarching aims of these programmes. The results of these post-consent initial informative stages of mitigation will further inform the overarching mitigation strategy. An iterative process to developing and refining the mitigation strategy will help ensure that all potential impacts upon the onshore historic environment arising from the project are fully identified and appropriately and proportionately mitigated, wherever possible.

16. It is anticipated that the initial informative stages of mitigation will take place as part of the wider pre-construction programme and activities, followed by further and additional bespoke mitigation requirements on a case-by-case basis, as required, in ongoing consultation and engagement with NCC HES (and HE, as required).

1.4 Broad Approach to Developing the OWSI

17. This OWSI sets out the general strategies and methodologies by which the appointed Archaeological Contractor(s) will implement the required post-consent archaeological works, which were identified as the outcomes of the EIA process as set out in Chapter 28 Onshore Archaeology and Cultural Hertiage of the ES.

18. The OWSI conforms with current best practice and has been prepared in line with relevant legislation, policy and guidance. The relevant legislation and planning policy, as well as reference to guidance and best practice documents, is included within Appendix 1 of this OWSI.

19. Each post-consent initial informative stage of mitigation work (survey stage) will be subject to a separate survey-specific WSI to be agreed following consultation with NCC HES (and HE, as required), (see section 5), which will provide further survey-specific details in line with this OWSI.

20. As part of the wider onshore archaeological mitigation strategy, there will also be a requirement for both pre-construction and construction WSIs, detailing the subsequent additional mitigation measures, as required, to be undertaken within the onshore project area. These WSIs will build upon the information within this OWSI. Example (model) clauses (Appendix 2) have also been included as outline examples of the likely approaches to mitigation works required and the associated specifications, with respect to methodologies for Set-Piece Excavation (SPE); Strip, Map and Sample (SMS); and archaeological monitoring / watching brief.

21. Effective cross referencing to all archaeological mitigation requirements detailed shall be made within relevant engineering and environmental management plans, including the final Code of Construction Practice (CoCP) (DCO Requirement 20) to be further developed in the post-consent stages of the project; an outline version of the CoCP (document reference 8.1) has been submitted as part of the DCO application. The final CoCP will need to make direct reference to both the onshore and offshore archaeological mitigation related WSIs for clarity and for the avoidance of doubt in respect of the archaeological requirements and obligations on the project and its associated contractors (once appointed).

1.5 Approach to Development Scenarios

22. This OWSI is an outline strategy only and takes account of both potential development scenarios for the project as discussed in section 1.2 and 1.3.

23. Under Scenario 2, Norfolk Vanguard does not proceed to construction and therefore all works for Norfolk Boreas are to proceed as an independent project and all initial informative stages of mitigation and subsequent additional mitigation measures outlined in this OWSI would be undertaken by Norfolk Boreas.

24. Under Scenario 1, the ducts and other shared enabling works will have been undertaken by Norfolk Vanguard. As Norfolk Boreas and Norfolk Vanguard have a shared onshore cable route, then the vast majority of required pre-construction and construction related archaeological mitigation works along the onshore cable route will have been completed by Norfolk Vanguard and therefore further mitigation is likely to be of a more limited nature under Norfolk Boreas.

25. Some mitigation measures bespoke to the project may be required under Scenario 1 during cable pulling works at jointing pit and link box locations along the onshore cable route. Intrusive groundworks required for the project under Scenario 1 for these elements of work include the excavation of jointing pits along the onshore cable route and excavation for link box installation. The bespoke programme of mitigation that may be required with respect to link boxes and jointing pits will be determined based on a consideration of their siting in relation to the assessed baseline environment (the known and potential archaeological and cultural heritage resource), as well as the extent of mitigation work (and findings) carried out (on a case-by-case basis) by Norfolk Vanguard.

26. Both projects will make landfall at the same site at Happisburgh South via Horizontal Directional Drilling (HDD). Each project will undertake their own drilling works at separate locations and compounds. Therefore, under Scenario 1 initial informative and subsequent additional archaeological mitigation measures are likely to be

required at the landfall if works are undertaken in areas not previously investigated by Norfolk Vanguard.

27. An onshore project substation and associated National Grid substation extension will be constructed under either scenario. However, the locations of the onshore project substation and associated 400kV cable route and National Grid substation extension (herein referred to collectively as the 'onshore substation areas') are in different locations under each scenario. Therefore, mitigation measures associated with the onshore substation areas are required under both scenarios.

28. How the potential suite of methodologies outlined in sections 5 and 6 will be applied under each scenario is outlined at the start of each methodology.

29. The final Written Schemes of Investigation (including survey-specific and pre-construction and construction related WSIs) for the project will be drafted in the post-consent stages of the project. These will be drafted based on the final development scenario and the detailed design work of that development scenario, which will be taken forward to construction.

30. If both projects progress to construction (and therefore Scenario 1 applies) there will need to be regular and effective communication between the post-consent project teams and associated contractors. VWPL will ensure processes are established (and required levels of information sharing and dialogue are maintained) in order that the archaeological mitigation (initial informative and subsequent additional mitigation) requirements are undertaken in an optimum and coherent way, in regular and ongoing consultation with NCC HES (and HE, as required). The National Trust's archaeologist will also be consulted where works are relevant to the Blickling Estate's land ownership.

1.6 The Site (including Topography, Geology and Soils)

31. The onshore project area crosses gently undulating or predominantly flat arable countryside. The onshore cable route passes through two distinct solid geologies. The bed rock in the western section of the onshore cable route is white chalk (British Geological Survey, 2018). The eastern section of the onshore cable route, from around Cawston and Aylsham onwards towards the Landfall overlays Neogene and Quaternary rocks (undifferentiated), which is a sedimentary bedrock formed approximately 23 million years ago and consists of Gravel, Sand, Silt and Clay (British Geological Survey, 2018).

32. The predominant superficial geology consists of Till (Diamicton) with large areas of Glacial Sand and Gravel interspersed along the onshore cable route and concentrated in the centre and the eastern sections. The onshore cable route also

passes through smaller deposits of Alluvium (Clay Silt and Sand) and deposits of Crag Group sand and gravel in both the western and eastern sections of the onshore cable route (British Geological Survey, 2018).

33. The soils along the western section of the onshore cable route are slightly acidic, loamy, and clayey with impeded drainage in some places. There are smaller areas of slowly permeable seasonally wet slightly acid but base-rich loamy and clayey soils, and loamy and sandy soils, with naturally high groundwater and a peaty surface. In the centre and eastern sections of the onshore cable route, the soils are freely draining, slightly acidic and loamy, with smaller deposits of freely draining slightly acid sandy soils, and loamy sandy soils with naturally high groundwater and a peaty surface.

34. The free draining substrates in the eastern section of the onshore cable route are very conducive to the formation of cropmarks in times of even slight soil moisture deficit and were also likely appealing and favourable to historic settlement. The less well drained soils in the western section of the onshore cable route are more problematic and less conducive to crop mark formation, and therefore the identification of archaeological sites as crop marks may not be as effective as in the eastern section of the onshore cable route.

35. The majority of the onshore project area is agricultural land, interspersed with mainly small rural settlements, but also including the towns of North Walsham, Aylsham, Reepham and Dereham, as well as watercourses, road and rail crossings, areas of woodland, field boundaries and hedgerows.

2 ARCHAEOLOGICAL AND HISTORICAL BACKGROUND

2.1 Introduction

36. The following section provides a brief summary of the known and potential archaeological and cultural heritage resource of the onshore project area and is derived from Chapter 28 Onshore Archaeology and Cultural Heritage of the ES and associated appendices.

37. Chapter 28 Onshore Archaeology and Cultural Heritage assessed the recorded non-designated onshore archaeology and cultural heritage (historic environment) resource within the onshore project area and a 500m buffer around this (in order to establish the study area), so as to provide context for the discussion and interpretation of the known and potential resource within the onshore project area (see ES Chapter 28 Onshore Archaeology and Cultural Heritage Figures 28.2, 28.4, 28.6 and 28.7).

38. Where mentioned in the tables below, the main archaeological and historical periods are broadly defined as outlined in Table 1, brief summaries of these periods are provided in Table 2.

Table 1 Archaeological and historical periods

Period	Date range
Palaeolithic	960,000 BP – 8,500 BC
Mesolithic	8,500 – 4,000 BC
Neolithic	4,000 – 2,200 BC
Bronze Age	2,200 – 700 BC
Iron Age	700 BC – AD 43
Romano-British	AD 43 – 410
Early medieval (Anglo Saxon)	AD 410 – 1066
Medieval	AD 1066 – 1499
Post-medieval	AD 1500 – 1799
19th Century	AD 1800 – 1899
Modern	AD 1900 – present day

Table 2 Brief summary of archaeological and historical background by period

Period	Summary of potential and evidence
Palaeolithic	Palaeolithic discoveries in the study area and further afield indicate that potential archaeological material of this date will most likely to be representative of subsistence activities associated with a nomadic lifestyle. The study area at and in the vicinity the landfall is recognised as an internationally important region for Lower Palaeolithic archaeology. This importance is due to a number of previous discoveries, including a footprint surface in Early Pleistocene estuarine muds (RHDHV 367 / NHER 60000), which provides indirect anatomical evidence of the first hominins in northern Europe. *In situ* laminated silts, considered to be laterally equivalent to the estuarine muds in which the footprints were recorded, have been recorded in the Happisburgh area (Birks, 2016: 16) and sediments of the Cromer Forest-bed Formation are known to be

Period	Summary of potential and evidence
	intermittently exposed in this area of the coast. The lithic working site known as 'Happisburgh 1' (RHDHV 372 / NHER 35385) provides further evidence for *in situ* remains of this date. However, although the potential for encountering *in situ* discoveries of a Lower Palaeolithic date in the coastal region cannot be discounted in the vicinity of the Happisburgh Landfall location, the results of the Phase 1 geoarchaeological watching brief of ground investigation works revealed no deposits resembling the CFB Formation (a pre-glacial deposit of Palaeolithic age) in the boreholes undertaken in the Landfall areas (See ES Chapter 28, Appendix 28.6). The assessment concluded that if CFB deposits do survive, they are likely to be found at significant depth. Artefactual remains attributed to the Middle and Upper Palaeolithic are less frequent in the archaeological record of the study area, and are predominated by isolated and presumably derived lithic discoveries. The evidence base thus indicates that any further material of this date within the study area and further afield will be predominated by isolated finds, although the *in situ* remains of a mammoth and associated Mousterian stone tools and debitage discovered within fill deposits of a palaeochannel at Lynford Quarry, Mundford (Boismier *et al*., 2012) in the wider environs of the study area suggests that *in situ* material cannot be discounted. Upper Palaeolithic finds across East Anglia as a whole are poorly represented. As such, discoveries of this date are likely to be rare.
Mesolithic	Mesolithic discoveries in the study area and further afield are likely to be representative of activities associated with a nomadic / seasonal hunter-gatherer lifestyle. The archaeological record primarily consists of lithic artefacts, with evidence for pits, hearths and traces of ephemeral structures rare in Norfolk as a whole (Dennis, 2006). Mesolithic finds within the study area and further afield comprise isolated lithic artefacts. Potential Mesolithic discoveries are therefore likely to be isolated and / or derived in nature, although the discovery of larger Mesolithic assemblages in the wider area such as those at Kelling Heath (North Norfolk Coast) and Great Melton (west of Norwich) suggest that the potential for larger assemblages should not be discounted.
Neolithic	Neolithic discoveries in the study area and further afield are likely to be representative of agricultural settlement of an increasingly sedentary nature, revolving around more static farming activities. Evidence representative of ritual activities is also possible. The archaeological record for the study area predominantly comprises discoveries relating to lithic artefacts, scattered variously across the study area with no significant areas of concentration apparent. However, the archaeological record also indicates an increase in landscape features from this date onwards, in the form of long and later round barrows which could have served as territorial markers as well as a means to inter the dead (Aldridge, 2005). The potential remains for further barrows of this date to exist within the study area. Such sites are likely to be visible in the form of cropmarks, which are at present either currently unidentified and / or undated. The aerial photographic and LiDAR data assessment identified two features of possible Neolithic date within the study area; comprising two possible long barrows (AP 209 / RHDHV 570 / NHER 16652 and AP 235 / RHDHV 574 / NHER 39033) and a possible enclosure (AP 254 / RHDHV 621 / NHER 38728).
Bronze Age	Bronze Age discoveries in the study area and further afield are likely to be representative of activities associated with settlement, subsistence and ritual activity, with the introduction of bronze metalworking, changes in pottery styles, the increased occurrence of single burial traditions and changes in monumental building. The archaeological record for the study area is predominated by ring ditches / round barrow features. Other finds include isolated stone and metal artefact discoveries. Other landscape features of this date are rare, with some indications for small farmsteads. On the basis of

Period	Summary of potential and evidence
	this evidence, potential sites and finds of this date are likely to be in the form of round barrows, either currently unidentified and / or undated likely to be visible in the form of crop marks or isolated artefactual remains. The aerial photographic and LiDAR data assessment identified numerous ring-ditch features of possible Bronze Age date within the study area, one of which is within the onshore project area (AP 270 / RHDHV 1609 / NHER 36505).
Iron Age	Iron age discoveries in the study area and further afield are likely to be representative of activities associated with settlement and subsistence, with the introduction of artefactual evidence in the form of weapons and tools made out of iron. Settlements of the period likely formed small farmsteads and villages, with a few larger settlements or towns known as oppida sites developing in the late Iron Age. The archaeological record within the study area comprises numerous cropmarks identified as field boundaries, trackways and enclosures of Iron Age date, with evidence of settlement in the form of a possible round house (RHDHV 824 / NHER 38020) and a number of farmsteads. Artefactual remains comprise various artefacts with a scattered distribution throughout the study area, many of which comprise a multi-period assemblage. It is considered that potential sites and find spots of Iron Age date in the study area will most likely comprise evidence of farming-related activities, such as trackways and field boundaries shown as either currently unidentified and / or undated crop marks. Evidence for small scale settlement (e.g. in the form of post-holes suggestive of a round house) is also possible. Artefactual discoveries of this date are also possible. The aerial photographic and LiDAR data assessment identified a number of features of possible Iron Age date within the study area, indicative of settlement and / or farming activities during this period. Of those identified, eight lie within or intersect the onshore project area: (AP 6 / RHDHV 811 / NHER 2999; AP 80 / RHDHV 814 / NHER 36495; AP 91 / RHDHV 828 / NHER 16015; AP 231 / RHDHV 822 / NHER 27237; AP 234 / RHDHV 795 / NHER 7014; AP 240 / RHDHV 791 / NHER 39032; AP 250 / RHDHV 784 / NHER 38730; and AP 262 / RHDHV 1608 / NHER 36504).
Romano-British	Romano-British discoveries in the study area and further afield are likely to be representative of a continuation of farming activities alongside an intensification of settlement, production-related activities and an increase in military presence. The archaeological record for the study area largely includes evidence for field systems, boundaries, trackways and farmsteads signifying the continuation of farming activities in the area as well as small-scale settlements. Military presence in the study area is rare, provided by a probable Roman fort (AP 29 / RHDHV 837 / NHER 21849) located south of the onshore project area between Reepham and Aylsham. This evidence indicates that potential sites and finds of this date are expected to be predominated by features signifying farming activities in the study area, with artefactual remains also possible. The aerial photographic and LiDAR data assessment identified a number of features of possible Romano-British date within the study area, indicative of settlement and / or farming activities during this period. Of those identified, 14 lie within or intersect the onshore project area: (AP 6 / RHDHV 811 / NHER 2999; AP 34; AP 80 / RHDHV 814 / NHER 36495; AP 91 / RHDHV 828 / NHER 16015; AP 120 / RHDHV 915 / NHER 38769; AP 131 / RHDHV 818 / NHER 38739; AP 137 / RHDHV 807 / NHER 21835; AP 225 / RHDHV 854 / NHER 27242; AP 231 / RHDHV 822 / NHER 27237; AP 233 / RHDHV 792 / NHER 39041; AP 234 / RHDHV 795 / NHER 7014; AP 240 / RHDHV 791 / NHER 39032; AP 250 / RHDHV 784 / NHER 38730; and AP 262 / RHDHV 1608 / NHER 36504).
Saxon	The Saxon period is characterised by the migration of Saxon, and later Norse and Danish setters into Britain, which saw the establishment of a network of trade and migration routes to the Continent. Discoveries in the study area and further afield, where present, may be representative of settlement, production, agricultural or ritual activities.

Period	Summary of potential and evidence
	The archaeological record for this period is relatively sparse, with a predominance of findspots. Features of this period are rare, and where present, commonly relate to field boundaries. Evidence of settlement, including a possible Early Saxon grubenhauser (sunken featured building) in Witton (RHDHV 955 / NHER 16641) are present in the wider area, as is the presence of religious and / or ceremonial activity (RHDHV 956 / NHER 3000; RHDHV 977 / NHER 57957; and RHDHV 988 / NHER 6916). This evidence suggests that potential discoveries will likely occur in the form of field boundaries represented by crop marks, although the potential for significant Saxon sites to be discovered should not be discounted, as indicated by the discovery a Saxon cemetery site at Fulmodeston during the Dudgeon Offshore wind farm (Onshore Electrical Connection) project and the Anglo-Saxon Cemetery at Tittleshall found along the route of the Bacton to King's Lynn Gas Pipeline. The aerial photographic and LiDAR data assessment identified numerous undated features which may be assigned to the Saxon period, such as a linear feature to the north of the onshore project area (AP 238 / RHDHV 953 / NHER 39028), south-west of Bacton, which may date from the Saxon period, although later dates are also possible.
Medieval	Medieval discoveries in the study area and further afield may be representative of the development growth of a number of East Anglian towns into busy trading centres, with discoveries representative of production and farming activities also possible. The archaeological record for the study area includes numerous settlements, tofts, buildings, manors, moats, chapels, enclosures and field boundaries, although findspots continue to dominate the record. Evidence suggests that potential archaeological sites and finds within the study area will most likely comprise features representative of farming activities, with evidence for settlement and production-related activities also possible. Artefactual discoveries of this date are likely to occur. The predominance of land-use of an agricultural nature is supported by the results of the aerial photographic and LiDAR data assessment, which identified numerous features considered to represent former field systems of possible medieval date within the study area, of which 16 such sites are identified within or intersecting the onshore project area (AP 1 / RHDHV 1015 / NHER 4190; AP 6 / RHDHV 811 / NHER 2999; AP 42 / RHDHV 1038 / NHER 7403; AP 78 / RHDHV 1135 + 1144 / NHER 38743 + 38777; AP 80 / RHDHV 814 / NHER 36495; AP 84 / RHDHV 1143 / NHER 38773; AP 91 / RHDHV 828 / NHER 16015; AP 116 / RHDHV 1140 / NHER 38761; AP 120 / RHDHV 915 / NHER 38769; AP 128 / RHDHV 1133 / NHER 38738; AP 136 / RHDHV 1146 / NHER 38842; AP 137 / RHDHV 807 / NHER 21835; AP 162 / RHDHV 1151 / NHER 39003; AP 164 / RHDHV 1152 / NHER 39007; AP 220 / RHDHV 1166 / NHER 27241; and AP 237 / RHDHV 1019 / NHER 39111).
Post-medieval and 19th century	Post-medieval discoveries in the study area and further afield may be representative of advances in transport, communications, industry and agriculture. This period is characterised by the Industrial Revolution. Agriculture also took on a more prominent role during this period, with East Anglia at the forefront of the 'Agricultural Revolution' in the 18th century with the improved communications developed to serve the farming economy and to facilitate the diverse trade of Norfolk. The archaeological record for the study area is varied and includes records relating to transport (e.g. the introduction of the railway), industry (e.g. production represented by mills, brickworks etc.), settlement, religious activity and agriculture. A review of cartographic sources indicates that potential archaeological discoveries of this date will most likely relate to agricultural activities which characterised a vast extent of the land-use during this period, with the potential for artefactual remains also possible. The discovery of other such features should not be discounted but are not expected to predominate.
Modern	Modern discoveries in the study area are likely to be representative of the two World Wars.

Period	Summary of potential and evidence
	The archaeological record comprises a predominance of defensive measures employed in the area, including pill boxes, gun emplacements, tank traps (e.g. anti-tank ditches and blocks), barbed wire obstructions, search light batteries and observation posts. The introduction of aviation-related assets is also witnessed in this period, as indicated by Oulton Airfield (RHDHV 1816 / NHER 7364), which intersects the onshore project storage area boundary. Potential archaeological remains of this date within the study area can be expected to be varied. Currently unknown sites may include the site of no longer extant military infrastructure, which may be visible as crop marks on aerial photographs or on LiDAR data.

2.2 Assessment, Survey and Evaluation Work Undertaken to Inform the ES

39. Baseline conditions with respect to Chapter 28 Onshore Archaeology and Cultural Heritage of the ES were established through an Archaeological Desk Based Assessment (ADBA) prepared in compliance with a WSI for ADBA (Terrestrial Archaeology) (Document reference: PB4476.003.039 (Royal HaskoningDHV, 2017a)), which was agreed with NCC HES and HE in advance. The ADBA includes the results of aerial photographic and LiDAR data assessment undertaken by Air Photo Services in June 2017. The ADBA represents a 'point in time' document prepared during the initial stages of the iterative project design process, undertaken by Norfolk Vanguard, but incorporating all of the Norfolk Boreas onshore project area.

40. Specifically in relation to below ground archaeological remains and earthworks, the aerial photographic and LiDAR data assessment (Chapter 28 Onshore Archaeology and Cultural Heritage of the ES, Appendix 28.1, Annex 28.1.3, and Figure 28.4) forms the primary, project-specific (for both Norfolk Vanguard and Norfolk Boreas), dataset, alongside the results of a priority programme of archaeological geophysical survey (Chapter 28 Onshore Archaeology and Cultural Heritage of the ES, Appendix 28.5, Figure 28.6 and 28.7) again undertaken in compliance with a WSI for Priority Archaeological Geophysical Survey (Terrestrial Archaeology) (Document reference: PB4476.003.046 (Royal HaskoningDHV, 2017b)), and agreed in advance with NCC HES and HE, see OWSI Appendix 6.

41. Those features identified as potentially being present as sub-surface remains within the onshore project area for both Norfolk Vanguard and Norfolk Boreas have not to date been ground-truthed through intrusive (e.g. trial trenching) evaluation approaches. As agreed with NCC HES and HE, this will be conducted in the post-consent stages of the project (as part of the initial informative stages of mitigation). Assessment and reporting as part of Chapter 28 Onshore Archaeology and Cultural Heritage of the ES with respect to below ground archaeological remains is based primarily on archaeological potential as indicated by the results of non-intrusive evaluation techniques.

42. In summary, the staged programme of archaeological survey and evaluation undertaken to inform the ES, as originally outlined in the Method Statement for Onshore Archaeology and Cultural Heritage (Royal HaskoningDHV, 2018), and agreed in consultation with HE and NCC HES, included the following:

- Detailed baseline data and information gathering exercise and assessment undertaken as part of the ADBA;
- A programme of aerial photographic and LiDAR data assessment (Chapter 28 Onshore Archaeology and Cultural Heritage, Figure 28.4);
- Site visits to inform a heritage settings assessment study;
- Two phases of geoarchaeological watching brief focussing on two sites at the Landfall and seven key crossing locations as part of Phase 1 GI works and four proposed crossing locations as part of the Phase 2 GI works (Chapter 28 Onshore Archaeology and Cultural Heritage, Appendix 28.3);
- A comprehensive priority programme of targeted archaeological geophysical survey comprising approximately 600Ha of survey coverage (Chapter 28 Onshore Archaeology and Cultural Heritage, Figures 28.6, 28.7 and Chapter 28 Onshore Archaeology and Cultural Heritage, Appendix 28.2); and
- An archaeological geophysical survey of the onshore project substation area (Chapter 28 Onshore Archaeology and Cultural Heritage, Figures 28.6 and 28.7, and Appendix 28.8).

43. All of the above assessment, survey and evaluation work was undertaken under the Norfolk Vanguard project, with the exception of the archaeological geophysical survey of the onshore project substation area, which was undertaken under Norfolk Boreas. Given the spatial overlap and timeframe between Norfolk Boreas and Norfolk Vanguard, the results of the staged programme of assessment and survey undertaken for Norfolk Vanguard were considered to be relevant and valid for use by Norfolk Boreas, as agreed with NCC HES and HE.

3 SCHEDULE OF ARCHAEOLOGICAL REQUIREMENTS

44. This OWSI should be read with reference to the Outline Schedule of Archaeological Requirements tables (OWSI Appendices 3 to 5), which present a summary of the currently known and potential remains within the onshore project area.

45. The tables within OWSI Appendices 3 to 5 will be subject to regular updates and refinements throughout the post-consent stages, as more information comes to light, and at key milestones as part of the post-consent archaeological works (for example, following each initial informative stage of mitigation, see section 5). Additional mitigation measures will then be established and formalised within subsequent pre-construction and construction related mitigation WSIs.

46. The Schedule of Archaeological Requirements under Scenario 1 will need to make direct reference to, and correlate with, post-consent archaeological works undertaken by Norfolk Vanguard, in order that any gaps are identified and addressed for works specific to Norfolk Boreas. Under Scenario 2 Norfolk Boreas would take sole ownership and responsibility for the Schedule of Archaeological Requirements.

47. A post-consent commitment will be to develop further constraint style mapping in consultation with NCC HES (and HE, as required), with the next major set of figures likely to be those associated with positioning and agreement of trial trench location plans (relevant to both Scenario 1 and Scenario 2), as well as other figures associated with targeted fieldwalking and metal detecting requirements (anticipated to be relevant to Scenario 2 only).

3.1 Programme and Timetabling

48. Under both scenarios, in the early post-consent stages of the project, the programme and timetabling of archaeological work (both initial informative and subsequent additional mitigation measures) will be subject to appropriate consideration with respect to making effective and expedient provision for commencing required pre-construction archaeological survey and investigation work in a timely and efficient manner. Each of the survey-specific and subsequent pre-construction and construction related WSIs will include detail on anticipated timetabling and programme. With respect to intrusive work, this will also include anticipated post-excavation timeframes (where required).

49. It is also anticipated that Norfolk Boreas Limited will retain the services of an archaeological consultant / adviser in the post-consent stages of the project, in order to identify any programme pinch points early in the process, so that these can be effectively allowed for and managed within the wider project timescales. Every effort will be made for archaeological works to be appropriately planned with

sufficient time allowance provided, within the confines of what can be realistically expected and anticipated at each stage.

4 SURVEY-SPECIFIC WSIS (METHOD STATEMENTS)

50. Each post-consent initial informative stage of mitigation work (ultimately informing subsequently required mitigation approaches) will be subject to a bespoke survey-specific WSI (Method Statement) to be approved by the relevant planning authority in consultation with NCC HES (and HE, as required). Any variations to the survey-specific WSIs will be agreed with the relevant planning authority in consultation with NCC HES (and HE, as required).

51. The post-consent initial informative stages of mitigation work will include:

- Additional project-wide Onshore Archaeological Geophysical Survey (Note: the survey-specific WSI for Priority Archaeological Geophysical Survey undertaken by Norfolk Vanguard and the further survey undertaken by Norfolk Boreas at the onshore substation areas to inform the DCO application, is included as Appendix 6 to this OWSI);
- Targeted Archaeological Metal Detecting Survey;
- Targeted Archaeological Field Walking Survey;
- Targeted Archaeological Trial Trenching;
- Earthwork Condition (GPS/topographic) Survey;
- Investigation and Recording of Standing Buildings or Structures (as required); and
- Geoarchaeological Assessment / Palaeoenvironmental Survey.

52. Under Scenario 1 the majority of these initial informative stages of mitigation would be undertaken by Norfolk Vanguard. Under Scenario 2 this work would all be undertaken by Norfolk Boreas. See section 5 for further detail on these initial informative stages of mitigation work and the requirements under each scenario.

4.1 Aims and Objectives

53. The general aims and objectives of the initial informative stages of mitigation (post-consent) are to:

- Further examine the archaeological and cultural heritage resource within the onshore project area, including clarifying the presence/absence and extent of any buried archaeological remains (and above ground remains, e.g. earthworks, extant buildings / structures, where present);
- Identify, within the constraints of the works, the date, character and condition of any surviving remains within the onshore project area;
- Assess the degree of existing impacts to sub-surface horizons and to document the extent of archaeological survival of buried deposits;
- Analyse and interpret the results; and

- Produce reports which will present the results of the works in sufficient detail, including information to allow informed decisions to be made concerning ongoing, further and additional mitigation strategies.

4.2 Monitoring

54. Having agreed the survey-specific WSIs, the Archaeological Coordinator / Contractor(s) will inform NCC HES (and HE, as required) of the proposed commencement dates of fieldwork for each survey / investigation type, and then provide regular updates on the progress of the surveys. Reasonable and regular access to the site will be arranged for representatives of NCC HES and HE, as appropriate, for inspection and monitoring visits. These will be accompanied by the Archaeological Coordinator / Archaeological Contractor(s).

4.3 Health and Safety

55. Health and Safety considerations will be of paramount importance in conducting all archaeological fieldwork. Safe working practices will override archaeological considerations at all times.

56. All work will be carried out in accordance with the Health and Safety at Work Act 1974 and the Management of Health and Safety Regulations 1992, as well as all other relevant Health and Safety legislation, regulations and codes of practice in force at the time.

57. The Archaeological Contractor(s) will supply a copy of their Health and Safety Policy and a site and task specific health and safety focused Risk Assessment Method Statement (RAMS) document to Norfolk Boreas Limited (and the Archaeological Coordinator) before the commencement of any fieldwork. The Risk Assessment will have been read and understood by all staff attending the site before any survey and investigation works commence. The Risk Assessment will be subject to updates as any new risks are identified and regularly reviewed.

58. The appropriate landowner agreements will need to be in place and any environmental constraints will be highlighted, considered and managed both prior to any archaeological works commencing and during the survey and investigation works themselves.

5 METHODOLOGIES (INITIAL INFORMATIVE STAGES OF MITIGATION)

59. Initial informative stages of mitigation work will be employed and undertaken post-consent, and in the event that non-designated heritage assets cannot be avoided this will be followed by subsequent additional mitigation measures, as and where required (see section 6).

60. Under Scenario 2 all initial informative stages of mitigation work would be undertaken by Norfolk Boreas.

61. Under Scenario 1 the majority of the initial informative stages of mitigation would be undertaken by Norfolk Vanguard. Archaeological works (both initial informative and subsequent additional mitigation measures) will still be required in the post-consent stages for certain project elements (see paragraph 7 above) bespoke to Norfolk Boreas under Scenario 1, including potential for the application of a suite of required methodologies. However, under Scenario 1 'Norfolk Boreas responsible' specific initial informative archaeological work would likely be focused on areas at the landfall and onshore substation areas and would predominantly (but not necessarily exclusively) entail trial trenching and geoarchaeological assessment / palaeoenvironmental survey requirements.

62. Under Scenario 1 no additional onshore archaeological geophysical survey would be undertaken, as the survey along the cable route would be undertaken by Norfolk Vanguard and the archaeological geophysical survey of the landfall and onshore substation areas has already been completed.

63. It is also anticipated (but not necessarily definitive at this stage) that under Scenario 1, areas requiring targeted archaeological metal detecting survey and fieldwalking survey (given current locations under consideration) would also be undertaken by Norfolk Vanguard. Areas requiring earthwork condition surveys and the investigation and recording of standing buildings or structures would also be undertaken, for the most part, by Norfolk Vanguard. However, the potential for these elements of post-consent initial informative stages of mitigation work to be required under the Norfolk Boreas project should not be discounted, particularly in relation to the landfall and the onshore substation areas, as required.

64. Appropriate cross checks and gap analysis work will be undertaken in the post-consent stages as to initial informative work undertaken or proposed to be undertaken under Scenario 1. This is in order that no areas or requirements (including further survey need for Norfolk Boreas) are overlooked or subject to accidental omission.

65. As above, VWPL will ensure processes are established and required levels of information sharing and dialogue between the projects are maintained in order that the archaeological mitigation (initial informative and subsequent additional mitigation) is undertaken in an optimum and coherent way, in regular and ongoing consultation with NCC HES (and HE, as required). The National Trust's archaeologist will also be consulted where works are relevant to the Blickling Estate's land ownership.

5.1 Additional Project-wide Archaeological Geophysical Survey

66. Under Scenario 2 these works would be undertaken by Norfolk Boreas, but under Scenario 1 it is anticipated that all additional archaeological geophysical survey would be completed by Norfolk Vanguard, as the archaeological geophysical survey of the onshore substation areas and landfall have already been completed.

67. In the pre-application stages of the Norfolk Vanguard project, between October 2017 and March 2018, Headland Archaeology undertook a targeted programme of priority archaeological geophysical survey, which covered both the landfall and priority sections of the onshore cable route for both projects. Approximately 600 ha were surveyed, alongside an additional c. 11 ha of contingency areas. Excluding the contingency areas, this equated to c. 80% of the 750 ha originally outlined for priority survey within the survey-specific WSI: Priority Archaeological Geophysical Survey (Terrestrial Archaeology) document reference: PB4476.003.046 (Royal HaskoningDHV, 2017b), as agreed in advance with NCC HES and HE (OWSI Appendix 4). See also ES Chapter 28 Onshore Archaeology and Cultural Heritage, Figures 28.6 and 28.7, and Appendix 28.2.

68. The results of the earlier aerial photographic and LiDAR data assessment (June 2017, ES Chapter 28 Onshore Archaeology and Cultural Heritage, Figures 28.4 and Appendix 28.1) and the priority programme of archaeological geophysical survey were taken into account as part of the iterative design process for both projects and were reviewed throughout a series of workshops during the EIA stages of the project (see ES Chapter 4 Site Selection and Assessment of Alternatives, document reference 6.1.4). Known individual features and areas considered to be of heightened archaeological sensitivity were avoided, wherever possible, within the confines of other engineering, environmental and landowner constraints.

69. The decision to deploy HVDC cable technology further facilitated this process, with the maximum onshore cable route width for both projects reduced to 45m (a 100m width would have been required to cover both projects (i.e under Scenario 1) for an HVAC solution). With respect to the onshore project area, there are still c. 270 ha of additional project-wide archaeological geophysical survey which require completion

post-consent (ES Chapter 28 Onshore Archaeology and Cultural Heritage, Figures 28.6 and 28.7, maps 1 to 24).

70. Under Scenario 2, further post-consent geophysical survey, in combination with the results from the priority programme and archaeological geophysical survey of the onshore project substation area already undertaken, will further establish additional areas of archaeological potential. The geophysical survey will aim to identify further anomalies representing archaeological sites and features across the remainder of the onshore cable route and associated infrastructure.

71. Data collected from this additional programme of geophysical survey will then be analysed alongside the existing data, information and reporting from the priority programme and onshore substation areas, as well as a review of pre-enclosure maps. This will contribute directly to informing archaeological trial trench locations and positioning, and the production of trench location plans for approval by the relevant planning authority in consultation with NCC HES (and HE, as required).

72. Although detailed magnetometry will be the standard technique to be adopted and implemented for the outstanding post-consent geophysical survey work, as it is considered the most appropriate and feasible method to practically cover the area still requiring survey, additional and alternative geophysical survey techniques if/where relevant) will also be considered within the post-consent stages of the project, to be agreed with NCC HES and HE (where required). The application and scope of any such alternative methods (in discrete and defined areas) will be outlined in a separate survey-specific WSI post-consent, and if required, will be considered on a case-by-case (anomaly and suspected feature) basis.

5.2 Targeted Archaeological Metal Detecting Survey

73. Under Scenario 2 these works would be undertaken by Norfolk Boreas. Under Scenario 1 it is anticipated (given current locations under consideration) that all targeted archaeological metal detecting survey would likely be completed by Norfolk Vanguard. However, in order that no areas or requirements (including further survey need for Norfolk Boreas) are overlooked or subject to accidental omission until appropriate cross checks and gap analysis work has been undertaken in the post-consent stages, the potential requirement for such works to be undertaken by Norfolk Boreas under Scenario 1 has not, at this stage, been discounted.

74. Post-consent targeted metal detecting surveys will aim to ascertain the presence / absence, character and extent of any surviving archaeological remains through the recovery of associated metallic artefacts and will build upon previous desk-based and HER information, where applicable. There are currently three known areas with early Anglo-Saxon brooch finds that are under consideration as potential cemetery

locations (NHER 60320, RHDHV 673 - ES Chapter Figure 28.2, map 21); (NHER 56476, RHDHV 776 - Chapter 28 Onshore Archaeology and Cultural Heritage, Figure 28.2, map 15); and (NHER 56255, RHDHV 965 - Chapter 28 Onshore Archaeology and Cultural Heritage, Figure 28.2, map 13).

75. In previous discussions with NCC HES and HE, it has been acknowledged that the only way to try to identify the specific location of Anglo-Saxon cemeteries is by means of metal detector survey. The fields / plots relevant to the above brooch finds will therefore be subject to metal detecting survey post-consent, in order to see if the finds evidence can be refined at these locations.

76. Other locations to be considered for targeted metal detecting surveys (within the onshore project area) include the National Trust Estate Land to the south of Blickling Hall (Chapter 28 Onshore Archaeology and Cultural Heritage, Figure 28.1, map 4), and any further areas identified in consultation with NCC HES (and HE, as required).

5.3 Targeted Archaeological Field Walking Survey

77. Under Scenario 2 these works would be undertaken by Norfolk Boreas. Under Scenario 1 it is anticipated (given current locations under consideration) that all targeted archaeological field walking surveys would likely be completed by Norfolk Vanguard. However, in order that no areas or requirements (including further survey need for Norfolk Boreas) are overlooked or subject to accidental omission until appropriate cross checks and gap analysis work has been undertaken in the post-consent stages, the potential requirement for such works to be undertaken by Norfolk Boreas under Scenario 1 has not, at this stage, been discounted.

78. Any required fieldwalking surveys post-consent would involve the methodical walking of targeted areas of the onshore project area to recover and map archaeological material on the field surface, and to identify potential archaeological sites below or within the modern plough zone, which may require archaeological trial trenching and subsequent additional mitigation approaches.

79. Locations currently under consideration for targeted archaeological field walking (within the onshore project area) include the National Trust Estate Land to the south of Blickling Hall (ES Chapter 28 Onshore Archaeology and Cultural Heritage, Figure 28.1, map 4), and any further specific and justified areas identified in consultation with NCC HES (and HE, as required).

5.4 Archaeological Trial Trenching

80. Under Scenario 2 these works would be undertaken by Norfolk Boreas. Under Scenario 1, although the majority of trial trenching work would be undertaken by Norfolk Vanguard (specific to the onshore cable route for example), it is also

anticipated that Norfolk Boreas would undertake its own trial trenching campaigns, specifically in relation to the landfall and the onshore substation areas.

81. Programmes of archaeological trial trenching will be undertaken post consent under both scenarios. These will be focused primarily on potential archaeological anomalies identified from the analysis of the geophysical survey data (in conjunction with previous desk-based information, including aerial photographic and LiDAR data assessments, as well as any significant and / or concentrations of finds from targeted fieldwalking and metal detecting surveys). A number of trenches will also need to sample and investigate apparent blank areas.

82. The data and findings from the trial trenching programmes will then further inform the approaches to subsequent additional mitigation requirements (both pre-construction and at / during construction) on a case by case basis.

83. Next steps may include for example, set-piece (open-area) excavations (normally undertaken within the pre-construction programme as part of an early works programme for instance); strip, map and sample excavations (sometimes fitted into / alongside the construction programme or undertaken immediately in advance) and archaeological monitoring (watching briefs) often undertaken during the construction topsoil strip, sometimes also on the excavation of the cable trench(es), and any subsequent / associated open cut trenching and ground intrusive works, e.g. at crossing locations, joint pits, compound and mobilisation areas etc.

5.5 Earthwork Condition (GPS/topographic) Survey

84. Under Scenario 2 these works would be undertaken by Norfolk Boreas. Under Scenario 1, although the majority of earthwork condition survey work would be undertaken by Norfolk Vanguard (specific to the onshore cable route for example), it is also anticipated that Norfolk Boreas may be required to undertake some bespoke earthwork condition survey work, specifically in relation to the landfall and the onshore substation areas.

85. Earthwork Condition Surveys would target locations (for example areas of pasture and non-arable, or any areas thought or known to contain important surviving or potentially important historic landscape features) to record the presence / absence, extent, profile and 'on the ground' condition of any surviving, above ground historic earthworks, which may be impacted by construction within the onshore cable route and onshore project area. Data collected would predominantly feed into an additional approach (in certain identified areas) with respect to construction related backfilling and reinstatement (e.g. the 'restoration' of any historic earthwork features or trends and land form / shape, where possible).

5.6 Investigation and Recording of Standing Buildings or Structures

86. Built heritage / historic building surveys and recording may be required at certain targeted locations as part of the post-consent initial informative stages of mitigation, and could result in subsequent additional mitigation, as required, in the form of further conservation and restoration requirements.

87. Under Scenario 2 these works would be undertaken by Norfolk Boreas. Under Scenario 1, although the majority of any investigation and recording of standing buildings or structures would be undertaken by Norfolk Vanguard (specific to the cable route for example), it is also anticipated that Norfolk Boreas may be required to undertake some investigation and recording of standing buildings or structures, if/where applicable and specifically in relation to the landfall and the onshore substation areas, as required.

5.7 Geoarchaeological Assessment / Palaeoenvironmental Survey

88. Under Scenario 2 these works would be undertaken by Norfolk Boreas. Under Scenario 1, although the majority of geoarchaeological assessment and palaeoenvironmental survey would be undertaken by Norfolk Vanguard (specific to the cable route for example), it is also anticipated that Norfolk Boreas would undertake geoarchaeological assessment and palaeoenvironmental survey, specifically in relation to the landfall and the onshore substation areas.

89. Geoarchaeological assessment / palaeoenvironmental survey is largely designed to identify deposits that often lie outside the main areas of traditional archaeological interest along a large linear scheme, and that have a high potential for yielding information that would permit the reconstruction of the past environmental, vegetational and land use history of the areas within the cable route. Where required and justified, such a survey often facilitates the recognition of localised palaeochannel sediments, small bogs or lake deposits, valley floodplain sediments and dry valley fills, as well as buried soils from which the palaeoenvironmental history of an area may be reconstructed through the analysis of a series of identified features. For example; any identified areas of peat-rich soils, with the potential for organic preservation. A post-consent scheme-wide approach to geoarchaeology and the palaeoenvironment will be formulated for approval by the relevant planning authority, in consultation with NCC HES (and HE, as required), and subsequently implemented. This will include an initial review of the British Geological Survey (BGS) archive of cores and boreholes.

90. With respect to the nearshore, intertidal and coastal considerations at Happisburgh South, ongoing dialogue and consultation with members of the AHOB (Ancient Human Occupation of Britain) / PAB (Pathways to Ancient Britain) research teams

will be maintained throughout the post-consent stages of the project, under both scenarios.

91. The four main high-level aims of the AHOB / PAB engagement process, as summarised under engagement undertaken for Norfolk Vanguard, include:

- Minimise loss of archaeological information;
- Maximise knowledge gained from pre-construction and construction activities;
- Inform the detailed design of the cable landfall; and
- Avoid delays during construction.

6 METHODOLOGIES (SUBSEQUENT ADDITIONAL MITIGATION MEASURES)

92. Non-intrusive and intrusive archaeological investigations (initial informative stages of mitigation) such as the completion of geophysical survey, project-wide trial-trenching (targeted and a sample of apparent 'blank' areas) and targeted metal detecting / fieldwalking will take place pre-construction where required under both scenarios.

93. The initial informative stages of mitigation have the potential to indicate the presence of previously unknown buried archaeological remains (and further verify previously known / anticipated above ground and buried site remains). This will enable the archaeological and historic environment resource associated with and impacted by the project (under both scenarios) to either be safe-guarded and / or better understood by means of subsequent additional mitigation measures in a manner that is both appropriate and proportionate to the significance of the remains present. This will be formally agreed with the relevant planning authority as part of separate pre-construction and construction related WSIs in consultation with NCC HES (and HE, as required).

94. Although much of the subsequent additional mitigation measures would be undertaken by Norfolk Vanguard under Scenario 1, there would still be relevant, specific and bespoke mitigation to be agreed and implemented by Norfolk Boreas (e.g. associated with the landfall and the onshore substation areas, as well as other additional ground intrusive works required for the cable pulling works). Under Scenario 2 all subsequent additional mitigation measures would be undertaken by Norfolk Boreas.

95. Subsequent additional mitigation measures are expected to comprise a combination of the following recognised standard approaches both in advance of and / or during construction:

- Set-Piece Excavation (SPE);
- Strip, Map and Sample (SMS);
- Archaeological Monitoring / Watching Brief;
- Preservation In-Situ;
- Sensitive and Precautionary Approaches to Construction Works;
- Temporary Suspension of Works in the Event of an Archaeological Discovery; and
- Reinstatement of Field Boundaries and Hedgerows.

6.1 Set-Piece Excavation Methodology

96. SPE is an intrusive form of fieldwork, which systematically identifies, examines and records archaeological deposits, features and structures, and recovers artefacts, ecofacts and other remains within a specified area.

97. This type of mitigation will be recommended where the presence of a known site of archaeological importance has been highlighted by previous field survey and confirmed by initial informative stages of mitigation (e.g. trial trenching), and where micrositing of the cable route (for example) is not appropriate or achievable, and therefore the preservation in-situ of known archaeological deposits is not possible. This mitigation would be applicable under Scenario 2 and could also be applicable under Scenario 1 (e.g. in relation to the landfall and the onshore substation areas).

98. SPE (and SMS – see below) will lead to a programme of post-excavation assessment, analysis and publication.

99. Following completion of the SPE (and SMS – see section 6.2) fieldwork, a post-excavation assessment would be carried out in accordance with Historic England guidance Management of Research Projects in the Historic Environment (MoRPHE). This would result in the preparation of an Updated Project Design (UPD), which would include proposals and a timetable for further analysis (including scientific dating, if appropriate), publication of the results (including a synopsis for publication) in an appropriate academic journal or monograph series, and preparation of the archive (including all paper records, reports and finds assemblages) for deposition in an appropriate museum or archive facility. NCC HES would be consulted on the proposals included in the UPD prior to issue.

100. Wherever possible any SPE would be carried out in advance of construction, as this would ensure that the most sensitive sites of identified archaeological significance are dealt with well in-advance of construction activity and that construction will be able to progress in an effective and timely manner in these areas during the construction window.

6.2 Strip, Map and Sample Methodology

101. Strip, Map and Sample (SMS) is often appropriate where archaeological remains are thought or known to be present, but their specific type(s) or exact extent are unknown or remain uncertain following initial informative stages of mitigation or are not believed to warrant full in-advance SPE. In advance of or during construction, the topsoil and subsoil is removed ('stripped') under direct archaeological control and supervision, and the archaeology is then planned and excavated ('mapped' and 'sampled'). This type of mitigation is anticipated to take place during and / or dovetailing with the construction phase; utilising ground works construction

(Principal Contractor) plant and drivers. This mitigation would be applicable under Scenario 2 and could also be applicable under Scenario 1 (e.g. in relation to the landfall and the onshore substation areas).

102. Once all of the topsoil and subsoil has been 'stripped', the surface is cleaned back manually by the archaeologists and archaeological features are 'mapped'. The features are drawn and compiled onto a site plan so that all the remains can be looked at in relation to one another. Decisions are then made as to which features to excavate and how much (% and location). A 'sample' of the archaeological features are then hand-excavated, enough to allow the clear identification of phases of human occupation on the site, where possible.

103. Advantages of this method include:

- Soil stripping for archaeological purposes can be undertaken within the construction programme, avoiding the need to strip, backfill / reinstate, and then strip the site again;
- Principal Contractor's plant can be used, and the work built into the construction programme;
- Sampling strategies required for dealing with the archaeology can be targeted at the most significant remains; and
- In the first instance a more generic recording and sampling strategy would be agreed with the relevant planning authority in consultation with NCC HES (and reflected in the Construction Related WSI), which would then be refined, as required, once the soil strip had been undertaken in areas specified as requiring a SMS approach.

6.3 Archaeological Monitoring / Watching Brief

104. Archaeological monitoring / watching brief involves archaeological observation and any subsequent required investigation conducted during certain groundworks (e.g. targeted areas of both top-soil stripping and excavation of the cable trench, if required and where possible) associated with the construction phase. This mitigation measure will be applicable to the project under both scenarios.

105. Where appropriate (in locations identified in advance), machine excavation would proceed under archaeological observation, but would not be controlled directly by the nominated on-site archaeologist(s). A contingency period would be included in the works programme to allow investigation and recording of archaeological remains that might be identified, disturbed or destroyed. Watching Briefs (archaeological monitoring) normally take place where there is considered to be a lower potential of encountering archaeological remains, as part of construction-led ground intrusive works.

106. An agreed mechanism would be established to allow archaeological investigation during the Watching Brief, where appropriate. However, it is not usually anticipated that substantial archaeological remains (which would generally be highlighted for SPE or SMS approaches where known about) will be found in areas that have been identified for a Watching Brief, although the possibility still remains.

107. The programmes of Watching Brief would also result in the preparation of a report and ordered archive. Where archaeological remains are investigated and recorded, a further programme of post-excavation assessment, analysis and publication would be required, as appropriate, as outlined in section 6.1. This is also the case for any remains investigated and recorded via the SMS approach (section 6.2).

6.4 Preservation In-Situ

108. Where well-preserved and / or significant archaeological remains survive within or along a development site, the planning authority, through their archaeological advisers, in this case NCC HES, may state a preference for preservation 'in-situ' of certain remains. This mitigation would be applicable under Scenario 2 and could also be applicable under Scenario 1 (e.g. in relation to the landfall and the onshore substation areas).

109. Where opportunities remain for preserving sites (including important features) / certain areas or elements of sites / certain areas of significantly important archaeological remains in-situ through the pre-construction and construction stages, these will be considered on a case by case, site by site and area by area basis in further discussion with the relevant planning authority and NCC HES / HE (as required).

110. As part of the post-consent detailed design phase, further consideration will be given, where possible, to micrositing (within the confines of the established Order limits) which will seek to minimise impact upon those areas of highest sub-surface archaeological potential, within the confines of engineering and other environmental constraints.

6.5 Sensitive and Precautionary Approaches to Construction Works

111. This mitigation measure will be applicable to the project under both scenarios.

112. Certain areas within the onshore project area will require additional, sensitive and precautionary approaches to construction works. One such example is in the vicinity of MA10 and TC 14a/b (Chapter 28 Onshore Archaeology and Cultural Heritage, Figure 28.1, map 2 and Chapter 28 Onshore Archaeology and Cultural Heritage, Figure 28.2, maps 5 and 6).

113. The onshore cable route is constrained at the crossings of Little London Road, the Paston Way and the B1145. Construction work around the Old Quaker Burial Ground (1408) will need to be conducted in a sensitive and controlled manner, with associated signage and temporary barriers to ensure that no accidental damage or physical interactions occur.

114. Other constrained areas may be identified in the post-consent detailed design stages, and similar measures will need to be adopted, and would be detailed in a Construction Stage Plan(s), Contractor Environmental Action Plan(s), or similar.

6.6 Temporary Suspension of Works in the Event of an Archaeological Discovery

115. This mitigation measure will be applicable to the project under both scenarios.

116. Should previously unknown buried archaeological remains of a significant nature be encountered during construction works, the project has made a commitment to the temporary suspension of intrusive groundworks upon agreement with NCC HES, (and HE, as required). The same would apply to the National Trust's Blickling Estate, and the National Trust (and their archaeologist) would be consulted on appropriate and necessary next steps. The provision for the temporary suspension of works in the event of a significant archaeological discovery will be achieved through the implementation of an industry standard archaeological reporting protocol, at times when intrusive groundworks are being carried out where an archaeologist is not present. This will be achieved through the application of the Offshore Renewables Protocol for Archaeological Discoveries (ORPAD) (The Protocol) (The Crown Estate, 2014). See section 7 below for more details.

6.7 Reinstatement of Field Boundaries and Hedgerows

117. This mitigation measure will be applicable to the project under both scenarios.

118. Impact to the Historic Landscape Character (HLC) of the onshore project area has been minimised through careful route selection and will be further off-set by returning field boundaries / hedgerows to their pre-construction condition and character post-construction (see also Outline Landscape and Ecological Management Strategy (OLEMS) document reference 8.7), wherever possible, as part of a sensitive programme of backfilling and reinstatement / landscaping. Certain hedgerows and field boundaries (e.g. county and parish boundaries) may require archaeological recording prior to and / or during the construction process and further enhanced provisions made and implemented during backfilling and reinstatement.

6.8 The National Trust Blickling Estate

119. The onshore project area has undergone an extensive site selection process (ES Chapter 4 Site Selection and Assessment of Alternatives) to avoid direct physical impacts on designated heritage assets from the outset. As such, embedded mitigation of the project in this regard ensures that, where known, no designated heritage assets will be subject to direct physical impacts arising from the project.

120. The exception being where the cable pulling works (under Scenario 1) and cable duct installation and cable pulling works (under Scenario 2) run through the rural and arable elements of Blickling Conservation Area (part of predominantly National Trust owned land to the south of Blickling Hall) (ES Chapter 28 Onshore Archaeology and Cultural Heritage, Figure 28.1, map 4). Cable pulling works (under Scenario 1) and cable duct installation and cable pulling works (under Scenario 2) through the Blickling Conservation Area will directly impact landscape elements of the Conservation Area. As described in ES Chapter 28, the areas of Blickling Conservation Area associated with the onshore project area and onshore works are mostly subject to tenant farming. As such many of the landscape elements subject to impact are considered to have been largely subject to certain levels of alteration and 'recent' change already, as part of agricultural use.

121. Sensitive backfilling and reinstatement will be undertaken following construction and field boundaries and hedgerows returned to their pre-construction condition (see also OLEMS document reference 8.7), this may be applicable to both scenarios, but is likely to be of more direct relevance to Scenario 2. Albeit that under Scenario 1, Norfolk Boreas will exercise the same levels of all due care and attention when it comes to all site works across the onshore project area, including those undertaken within the National Trust's Blickling Estate.

122. A comprehensive programme of post-consent archaeological survey work (in-line with proportionate and appropriate approaches to be adopted elsewhere across the onshore project area) is also anticipated to take place across the relevant parts of the wider National Trust Blickling Estate, associated with the onshore project area and onshore works. This programme of archaeological work will be undertaken in consultation (planning and engagement) with the National Trust, their archaeologist and NCC HES due to the sub-surface archaeological interests potentially associated with this landscape.

123. Under Scenario 2 these works would be undertaken by Norfolk Boreas. Under Scenario 1, although the majority of post-consent archaeological survey and subsequent additional mitigation work would be undertaken by Norfolk Vanguard (specific to the cable route), it is also anticipated that Norfolk Boreas would need to undertake its own post-consent archaeological survey work in certain locations,

including subsequent additional mitigation measures, specifically in relation to any further ground intrusive works undertaken during the cable pulling works required under Scenario 1.

124. Norfolk Boreas Limited acknowledges the National Trust's position as a conservation organisation and will consult with the National Trust's Archaeologist in developing the programme of post-consent archaeology survey and mitigation work.

125. In addition to NCC HES, the National Trust's Archaeologist will also be notified if archaeological remains are encountered or suspected during works within the Blickling Estate land ownership boundary. The National Trust's Archaeologist would also be included in discussions with respect to required next steps.

126. Opportunities for public engagement and involvement (where appropriate) will also be discussed with the National Trust in developing the programme of post-consent archaeology survey and mitigation work. This level of detail would, however, be agreed and included in subsequent WSIs (survey-specific and mitigation related) to be produced in the post-consent stages of the project.

127. At the request of the National Trust's Archaeologist, an archaeological contractor (watching brief archaeologist) will be present on site during any ground intrusive works associated with the onshore project area and onshore works (e.g. top-soil and/or sub-soil stripping) across the Blickling Estate land ownership boundary, in order to undertake archaeological monitoring. Other more detailed works of an archaeological nature would be agreed as appropriate, as per commitments made above in this section.

128. With respect to the finds archive from any archaeological works undertaken, it is acknowledged that certain finds may warrant bespoke display or that the National Trust may wish for finds to form part of public engagement activities (e.g. exhibitions or similar). Norfolk Boreas Limited welcomes collaborative working in this regard, as part of associated public engagement, involvement and interest in the scheme, especially where opportunities exist to enhance current understanding of the historic environment in a publicly accessible and engaging way. Any potential funding mechanisms for such activities will be discussed with the Trust during the post-consent stages of the project, if/when consent is achieved.

7 PROTOCOL FOR ARCHAEOLOGICAL DISCOVERIES

129. For all intrusive groundworks carried out onshore above Mean High Water Springs (MHWS) where an archaeologist is not present, Norfolk Boreas Limited and the appointed Principal Contractor(s) will implement a protocol for reporting archaeological discoveries through the application of the Offshore Renewables Protocol for Archaeological Discoveries (ORPAD) (The Crown Estate, 2014).

130. Section 1.2.9 of The Protocol states that "*It is recognised that this Protocol refers primarily to offshore schemes of development. However, with offshore renewable schemes it is usual to have associated infrastructure (such as export cables) that impact not only the offshore historic environment, but also inshore, inter-tidal, and in fully terrestrial localities. Therefore this Protocol has been designed to operate in all of these environments, where an archaeologist is not present.*" (The Crown Estate, 2014)

131. Groundwork activities during which previously unidentified sites or unexpected discoveries of material may be encountered include:

- The removal of topsoil anywhere across the onshore project area;
- The excavation of transition pits at the landfall;
- Open cut trenching as part of the duct installation works;
- The excavation of jointing pits along the onshore cable route;
- The excavation for link box installation;
- Groundworks associated with the onshore cable route easement, mobilisation areas, and associated access trackways; and
- Groundworks associated with onshore infrastructure (e.g. onshore project substation, and to the National Grid substation extension and overhead line modifications).

132. ORPAD came into effect in December 2010 and applies to pre-construction, construction and installation activities in developing offshore renewable energy schemes where an archaeologist is not present on site. The main objective of the protocol is to reduce direct impacts from occurring on currently unrecorded heritage assets by allowing for the effective reporting of discoveries of archaeological material in a manner that is conducive to construction works in order to ensure that advice, concerning measures to address discoveries, is received and implemented in a timely and efficient manner.

133. Each worksite team has a Site Champion, a single person who is responsible for reporting discoveries to a Nominated Contact within the Developer's core team. The Nominated Contact uploads discoveries onto a secure web portal and the Implementation Service is alerted to the presence of new discoveries. The Crown

Estate provides for the reporting and assessment of discoveries through the ORPAD Implementation Service, currently maintained by Wessex Archaeology.

134. The Nominated Contact will be a suitable person within Norfolk Boreas Limited. Individual Site Champions for specific activities will be specified in method statements. The identity of the Site Champion will be clearly communicated to work teams, via pre-commencement briefings (tool box talks) for example.

135. Norfolk Boreas Limited will be responsible for ensuring that construction teams working within the onshore project area are provided with appropriate training in the application of ORPAD and that all staff and contractors are aware of their responsibilities under the protocol. The ORPAD documentation, including a full description of the methodology and requirements for implementing the protocol, can be found via the following web link:

- https://www.wessexarch.co.uk/sites/default/files/field_file/2_Protocol%20For%20Archaeological%20Discoveries.pdf

136. Training to construction staff, site crews and work teams with regard to the practical application of the protocol in their day to day work can be provided by the Implementation Service or by an alternative sufficiently experienced and qualified Archaeological Contractor. Hard copies of the ORPAD document will be made available for use at each mobilisation area and / or construction compound.

137. Provision will be made by Norfolk Boreas Limited, in accordance with the ORPAD, for the prompt reporting / recording to NCC HES of archaeological remains encountered or suspected during works. The same will apply with respect to notifying the National Trust (and their archaeologist) with reference to the Blickling Estate.

138. Following completion of the onshore construction works, a report will be produced by the Archaeological Contractor presenting the results of the ORPAD implementation during relevant activities and submitted to NCC HES. In the event that no discoveries are made, a nil discoveries report should be compiled in order to demonstrate adherence to the measures as will be set out in the construction-related mitigation WSI, to be produced in the post-consent / pre-construction stages of the project.

8 CONCLUSION / SUMMARY

139. This OWSI has been produced to set out the proposed approach to archaeological survey and investigation to be undertaken post-consent. This includes both initial informative survey stages of mitigation work and subsequent additional mitigation measures, as and where required.

140. This document sets out an initial overarching archaeological mitigation strategy to be undertaken within the onshore project area of Norfolk Boreas post-consent. The survey-specific WSIs and final pre-construction and construction mitigation WSIs will be approved by the relevant planning authority in consultation with NCC HES (and HE, as required) in the post-consent stages of the project. All documents will be produced in-line with relevant legislation, planning policy, guidance and best practice (Appendix 1).

141. This OWSI has made regular reference to the two scenarios relevant to the project. The following two alternative scenarios have been subject to consideration:

- **Scenario 1** – Norfolk Vanguard proceeds to construction and installs ducts and other shared enabling works for Norfolk Boreas.
- **Scenario 2** – Norfolk Vanguard does not proceed to construction and Norfolk Boreas proceeds alone. Norfolk Boreas undertakes all works required as an independent project.

142. Under Scenario 2, Norfolk Boreas would be solely responsible for all initial informative stages of mitigation and all subsequent additional mitigation measures, as found to be required following the initial informative stages. Norfolk Boreas would also be responsible for all consultation, communication and agreements with NCC HES (and HE, where required), as well as the National Trust in respect to the Blickling Estate.

143. Under Scenario 1, it is anticipated that the majority of the archaeological works (both initial informative stages of mitigation and subsequent additional mitigation measures, where required) would be undertaken by the Norfolk Vanguard project. However, there will still be required archaeological works (initial informative and subsequent additional mitigation measures) to be undertaken in the post-consent stages for certain project elements bespoke to Norfolk Boreas under Scenario 1, and particularly in respect to the landfall and onshore substation areas. There are also intrusive groundworks associated with the excavation of jointing pits and link box installation along the onshore cable route, which would require the agreement and implementation of mitigation approaches under Norfolk Boreas.

144. The final Written Schemes of Investigation (including survey-specific and pre-construction and construction related WSIs) for the project will be drafted in the post-consent stages, and these will be drafted based on the final development scenario to be taken forward to construction.

145. As noted above under section 1.5, if both projects progress to construction (Scenario 1) there will need to be regular and effective communication between the post-consent project teams and associated contractors. VWPL will ensure processes are established (and required levels of information sharing and dialogue are maintained) in order that the archaeological mitigation (both initial informative and subsequent additional mitigation) requirements are undertaken in an optimum and coherent way, in regular and ongoing consultation with NCC HES (and HE, as required). The National Trust's archaeologist will also be consulted where works are relevant to the Blickling Estate's land ownership.

9 REFERENCES (ALSO RELEVANT TO APPENDICES 1 AND 2)

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The Chartered Institute for Archaeologists (2014g). Standard and guidance for the collection, documentation, conservation and research of archaeological materials, CIfA, Reading
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10 APPENDIX 1 LEGISLATION, POLICY AND GUIDANCE

10 LEGLISATION, POLICY AND GUIDANCE

10.1 Legislation and Planning Policy

1. Norfolk Boreas Offshore Wind Farm is a Nationally Significant Infrastructure Project (NSIP), and as such the primary legislation relating to the consent regime for the project is provided by the Planning Act 2008. The Act designates a series of National Planning Statements (NPSs) setting out national policy in relation to NSIPs.

2. Those NPSs of specific relevance to the project comprise EN-1 Overarching Energy NPS, EN-3 Renewable Energy Infrastructure and EN-5 Electricity Networks Infrastructure, each designated in July 2011. Also of relevance is NPPF Section 16: *Conserving and enhancing the historic environment;* which sets out the principal national guidance on the importance, management and safeguarding of heritage assets within the planning process.

3. This national guidance provides a framework which:

- Recognises that heritage assets are an irreplaceable resource;
- Requires applicants to provide a level of detail that is proportionate to the assets' importance and no more than is sufficient to understand the potential impact of the proposal on their significance;
- Takes into account the desirability of sustaining and enhancing the significance of heritage assets, including any contribution made by their setting, and putting them to viable uses consistent with their conservation;
- Places weight on the conservation of designated heritage assets (which include world heritage sites, scheduled monuments, listed buildings, protected wreck sites, registered parks and gardens, registered battlefields or conservation areas), with any anticipated substantial harm weighed against the public benefits of the proposal;
- Requires applicants to include a consideration of the effect of an application on the significance of non-designated heritage assets, giving regard to the scale of any harm or loss and the significance of the heritage asset;
- Regard proposals that preserve those elements of the setting that make a positive contribution to the asset (or which better reveal its significance) favourably; and
- Requires developers to record and advance understanding of the significance of any heritage assets to be lost (wholly or in part) in a manner proportionate to their importance and impact, and to make this evidence (and any archive generated) publicly accessible.

4. Regional Spatial Strategies have now been abolished under the *Localism Act 2011* though this specifies a 'duty to co-operate' to ensure that local authorities and other service providers work together on projects affecting two or more planning areas or strategic infrastructure.

5. The onshore project area falls within the administrative boundaries of Norfolk County Council, as well as North Norfolk District Council, Broadland District Council and Breckland Council.

10.2 Guidance and Best Practice

6. Relevant guidance and best practice documentation includes:

- Standards for Development-led Archaeological Projects in Norfolk (Norfolk County Council Environment Service, 2018);
- Management of Research Projects in the Historic Environment (MoRPHE: Historic England, 2015);
- The Chartered Institute for Archaeologists (CIfA) Code of Conduct (CIfA, 2014a);
- The Chartered Institute for Archaeologists' (CIfA) Standards and guidance (CIfA, 2014b-h – see below);
- Preserving Archaeological Remains: Decision-taking for Sites under Development (Historic England, 2016);
- Standards for Field Archaeology in the East of England (Gurney, D. Occasional Papers 14 in EAA, 2003);
- Research and Archaeology: A Framework for the Eastern Counties: 1. Resource Assessment. EAA, Occasional Paper 3 (Glazebrook, 1997);
- Research and Archaeology: A Framework for the Eastern Counties: 2. Research Agenda and Strategy (Brown and Glazebrook (eds), 2000); and
- Research and Archaeology Revisited: a revised framework for the East of England. EAA, Occasional Papers 24. ALGAO (Medlycott, 2011).

7. Detailed standard and guidance documents for archaeological fieldwork are produced by the CIfA, those most relevant to the required post-consent archaeological works include:

- Standard and guidance for geophysical survey (CIfA, 2014b);
- Standard and guidance for archaeological field evaluation (CIfA, 2014c);
- Standard and guidance for the archaeological investigation and recording of standing buildings or structures (CIfA, 2014d);
- Standard and guidance for an archaeological watching brief (CIfA, 2014e);
- Standard and guidance for archaeological excavation (CIfA, 2014f);
- Standard and guidance for the collection, documentation, conservation and research of archaeological materials (CIfA, 2014g); and

- Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives (CIfA, 2014h).

8. Norfolk County Council also has a series of documents (Generic Briefs) that provide the Council's minimum standard requirements for undertaking archaeological fieldwork. These will be checked and confirmed with NCC HES at the appropriate times, as part of the production of the survey-specific WSIs, and pre-construction and construction related WSIs, post-consent.

9. Also of relevance are the following publications from Historic England (formerly English Heritage):

- Geoarchaeology: Using earth sciences to understand the archaeological record (2007);
- Understanding the Archaeology of Landscapes: A guide to good recording practice (2007);
- Geophysical Survey in Archaeological Field Evaluation (2008);
- Conservation Principles: Policy and Guidance for Sustainable Management of the Historic Environment (2008) – Note: Conservation Principles (CPs) is proposed to be updated to set out Historic England's approach to conservation in a more accessible format aligned with the language of the NPPF and legislation. In November 2017 HE started consultation on their revised CPs. Consultation closed on 2nd February 2018;
- Environmental Archaeology: A Guide to the Theory and Practice of Methods, from Sampling and Recovery to Post-excavation (2011);
- Metric Survey Specifications for Cultural Heritage (2015);
- The Historic Environment in Local Plans: Historic Environment Good Practice Advice in Planning Note 1 (2015);
- Managing Significance in Decision-Taking in the Historic Environment: Historic Environment Good Practice Advice in Planning Note 2 (2015); and
- Preserving Archaeological Remains: Decision taking for sites under Development (2016).

11 APPENDIX 2 EXAMPLE (MODEL) CLAUSES - MITIGATION WORKS SPECIFICATION: SPE, SMS AND ARCHAEOLOGICAL MONITORING / WATCHING BRIEF

11 EXAMPLE (MODEL) CLAUSES - MITIGATION WORKS SPECIFICATION: SPE, SMS AND ARCHAEOLOGICAL MONITORING / WATCHING BRIEF

11.1 Introduction

1. The following sections provide example (model) clauses specific to the type of additional archaeological mitigation work (and the associated specifications) likely to be required following the initial informative stages of mitigation post-consent. Preparation of pre-construction and construction WSIs will be undertaken with reference to and inclusion of relevant model clauses, as outlined below.

2. The structure outlined below is anticipated to provide the framework only for the pre-construction and construction related mitigation WSIs, which would be tailored with specific requirements and circumstances on a case-by-case / area-by-area basis, as required.

3. The information provided is specific to the East Anglia region and the location of the project within the County of Norfolk, as well as more general local, regional and national-type approaches.

4. This appendix relates mainly to archaeological excavation and recording approaches and associated requirements to be undertaken under SPE, SMS and archaeological monitoring / watching brief scenarios.

11.2 General Approach

5. All WSIs will be prepared in accordance with:

   - The Chartered Institute for Archaeologists (CIfA) Standard and guidance for archaeological excavation (CIfA, 2014f);
   - CIfA Standard and guidance for an archaeological watching brief (CIfA, 2014e); and
   - The CIfA Code of Conduct (CIfA, 2014a).

6. The WSIs will also take account of:

   - Standards for Development-led Archaeological Projects in Norfolk (Norfolk County Council Environment Service, 2018);
   - Preserving Archaeological Remains: Decision-taking for Sites under Development (Historic England, 2016);
   - Standards for Field Archaeology in the East of England (Gurney, 2003);
   - Research and Archaeology: A Framework for the Eastern Counties: 1. Resource Assessment (Glazebrook, 1997);

- Research and Archaeology: A Framework for the Eastern Counties: 2. Research Agenda and Strategy (Brown and Glazebrook (eds), 2000); and
- Research and Archaeology Revisited: A Revised Framework for the East of England (Medlycott *et al*., 2011).

11.3 UXO and Other Site Briefings (e.g. Tool Box Talks)

7. Site briefings will include, as a minimum: Norfolk Boreas Limited Health and Safety; the Principal (groundworks) Contractor's Health and Safety; and UXO awareness. There may also be ecological, including great crested newt, briefings and requirements in specific relation to archaeological works.

8. It is assumed that the Principal (groundworks) Contractor will be responsible for UXO survey and clearance across the onshore project area by a specialist UXO survey team, in advance of construction.

11.4 Archaeological Monitoring of Soil Stripping

9. The location of SPE and SMS areas will be plotted on the ground using electronic survey equipment typically accurate to ±100mm in the field with respect to the OS grid, in order to ensure that the positions are transcribed accurately from location plans.

10. Mechanical excavation will utilise suitable construction plant (and fully certified and experienced machine drivers), which for areas of a SPE and SMS is anticipated to be a tracked 360 degree excavator(s) or other suitable plant, fitted with a flat bladed 'toothless' ditching bucket. The top-soil and sub-soil within the SPE and SMS areas will be excavated in spits under the direct control and supervision of the Archaeological Contractor(s).

11. For areas outlined for SPE and SMS, the topsoil and subsoil will be removed until either the top of the latest archaeological horizon or undisturbed natural deposits are encountered. Particular attention will be paid to achieving a clean and well-defined horizon (surface) with the machine.

12. Topsoil and subsoil excavated from SPE and SMS areas will be stored separately. As far as practicable this will be beyond the limits of SPE and SMS areas. Or where possible, within the limits of the 'site' on archaeologically blank areas.

13. All spoil arising from SPE and SMS areas should also be investigated and scanned with a metal detector by the Archaeological Contractor(s) to recover any artefacts.

14. The extent of SPE and SMS should be clearly marked and the ends enclosed / demarcated using high visibility fencing in order to highlight the archaeological excavation area and in order to ensure that no construction traffic can inadvertently

enter the work area. The Archaeological Contractor(s) will make daily checks of any fencing.

15. If there are deep excavations (> c. 1.2-1.5m deep) then alternative fencing arrangements will be required and agreed in conjunction with the Principal Contractor, the Archaeological Contractor(s) and Norfolk Boreas Limited, this may involve fencing being erected around individual slots through features or over parts of the 'site'.

16. The machined surface will be cleaned by hand, where required, for the acceptable definition of archaeological remains. It is not anticipated that the entire SPE and SMS areas will require hand cleaning.

17. Provision will be made so that any areas in which sub-surface archaeological remains are identified as being present are not subject to prolonged periods of exposure. Archaeological remains and / or deposits left exposed to the elements for extended periods can suffer weathering which can accelerate their degradation, damage and / or loss. In addition, archaeology left exposed may be the target of heritage crime (e.g. illegal metal detecting). The Archaeological Contractor(s) will be responsible for ensuring that adequate security and protection measures are put in place in order to alleviate this risk.

11.5 Hand Excavation of Archaeological Features

18. Archaeological features and deposits will be excavated using appropriate hand tools, such as a mattock, shovel and hand trowel, in an archaeologically controlled and stratigraphic manner in order to meet the aims and objectives of the investigation.

19. Hand excavation will be targeted to provide sufficient information on the form, extent, level of preservation and function, with emphasis on stratigraphic relationships between features and recovery of dating evidence. Archaeological excavation and recording will be confined to the working width of the machined area.

20. A minimum of 10% of the identified feature will be excavated along the length of all linear and curvilinear features (with each excavated section not less than 1m). Key intersections will be investigated to determine the stratigraphic relationship between features, and sections will be located at all ditch terminals and to provide equal spatial coverage along the length of the feature.

21. Discrete features, such as postholes and pits, less than 1m in diameter, will be half sectioned (50%).

22. A minimum 25% will be excavated from all discrete features, such as pits, greater than 1m in diameter. Where possible, a complete section will be excavated across the feature to recover its full profile.

23. Smaller discrete features, such as stake holes, will be 100% excavated.

24. Structures, such as sunken floor buildings, will be 100% excavated.

25. Ring ditches and / or eaves-drip gullies believed to relate to structures will be investigated by excavated sections up to 2m wide, with all sections being fully recorded, to achieve a minimum 50% sample of the feature. Remaining deposits may require rapid hand excavation in order to achieve a 100% sample.

26. All burials will be fully excavated. The excavation of human remains requires an exhumation licence to be obtained from the Ministry of Justice (see section 11.9).

27. If deep features, such as shafts or wells, are encountered, hand-excavation will not proceed below a safe working depth of c. 1.2-1.5m from the machined surface. An appropriate methodology for achieving full excavation below this depth will be agreed in consultation with the Archaeological Coordinator, the Principal Contractor (where applicable), the Archaeological Contractor(s), NCC HES and Norfolk Boreas Limited.

28. A separate method statement for excavation of deep features would be prepared by the Archaeological Contractor(s), if required.

29. Machine-assisted excavation may be permissible if large / deep deposits or homogenous and non-archaeological layers are encountered, but only after consultation with the Archaeological Coordinator and NCC HES.

30. Any variation to the above would be agreed with the Archaeological Coordinator, Norfolk Boreas Limited and / or their representatives, the Archaeological Contractor(s) and NCC HES on site, and shall be confirmed in writing.

11.6 Archaeological Recording

31. SPE and SMS areas and any area excavated archaeologically during archaeological monitoring (watching brief) will be given a unique site code, and this will be written on all records, drawings, artefact bags and sample containers.

32. An accession number will also be obtained by the Archaeological Contractor(s) from Norfolk Museums and Archaeology Services prior to commencing work.

33. Following machine excavation, the extent of SPE and SMS areas and any area excavated archaeologically during archaeological monitoring (watching brief) will be

accurately recorded using electronic survey equipment typically accurate to ± 100mm in the field with respect to the OS grid. The data will be overlaid at an appropriate scale onto the OS National Grid (using digital map data).

34. Archaeological remains will be recorded in plan using electronic survey equipment. All survey points used will be accurately tied in to the OS National Grid.

35. A full written, drawn and photographic record will be made of archaeological features and deposits (contexts) with each context given a unique number and described on a separate record sheet. A context register, with brief details, will also be kept during the archaeological work.

36. In addition to the electronic survey of features, as a minimum, all interventions and areas of detailed archaeology will be planned by hand, using tape measures.

37. Hand drawn plans and sections of features will be produced at an appropriate scale (normally 1:20 for plans and 1:10 for sections) with Ordnance Datum (OD) heights recorded in metres, correct to two decimal places.

38. Each drawing will be given a unique drawing number. A drawing register, with brief details, will be maintained throughout the archaeological works.

39. Digital colour photography will form an integral part of the recording strategy, and all photographs will incorporate scales, an identification board and directional arrow. A photographic record will be maintained throughout. Photographs will be taken of all excavated features.

40. In addition to records of archaeological features, general photographs recording the context of the SPE and SMS and any area excavated archaeologically during archaeological monitoring (watching brief) will also be taken.

41. A photographic register, with brief details, will also be maintained throughout the archaeological works.

11.7 Artefact Recovery

42. With respect to finds and landowner permissions for the removal of artefacts and ecofacts, it is common practice on linear, multi-phase schemes to approach the landowners at the end of the project to request their permission to deposit any artefacts in an appropriate local museum, once all items are accounted for. This process will be adhered to as part of the project, and will be facilitated and overseen by the Archaeological Contractor(s).

43. Artefacts will be collected and labelled with the unique site code and context number of the deposit in which they were recovered.

44. Each 'significant' find will be recorded three dimensionally using electronic survey equipment typically accurate to ± 100mm in the field with respect to the OS grid, and assigned a 'Special Finds' number. Similarly, if artefact scatters are encountered these will also be recorded three dimensionally.

45. Bulk finds will be collected and recorded by context.

46. All archaeological artefacts that are collected from SPE and SMS areas and any area excavated archaeologically during archaeological monitoring (watching brief) that do not clearly belong to a particular context will be recorded as un-stratified and assigned the topsoil context number.

47. All non-modern and significant modern artefacts will be stored and processed in a manner appropriate to the material to minimise further deterioration.

48. All retained artefacts will, as a minimum, be washed, weighed, counted and identified. Any artefacts requiring conservation or specific storage conditions will be dealt with immediately in line with First Aid for Finds (Watkinson & Neal, 1998).

49. Artefacts will be properly conserved after excavation and will be stabilised for storage, where required. If necessary, a conservator will visit the site to undertake 'first aid' conservation treatment. If any of the SPE and SMS areas and any area excavated archaeologically during archaeological monitoring (watching brief) result in the recovery of unstable artefactual remains (e.g. metallic objects or preserved wood/leather), the Archaeological Contractor(s) will commission the services of a suitable specialist to advise and implement conservation of unstable artefacts; to undertake x-ray analysis and to provide an assessment of potential summary, which will then be attached to the main report(s).

50. All finds and environmental samples will be processed (cleaned and marked), as appropriate. Each category of find or environmental/industrial material will be examined by a suitably qualified archaeologist or specialist and the results incorporated into the post-excavation assessment report.

51. The collection, documentation and conservation of all artefactual and ecofactual material will conform to the Chartered Institute for Archaeologists' Standards and guidance for the collection, documentation, conservation and research of archaeological materials (CIfA, 2014g).

11.8 Environmental Sampling

52. Environmental samples will be taken from a range of contexts and phases encountered on site, and from any deposit where it is expected that worthwhile environmental evidence may be recovered. Such deposits will include, though not be

restricted to, waterlogged and burnt contexts. Provision will be made for the recovery of material suitable for scientific dating. Where practicable and deemed important, an environmental specialist will visit individual 'sites' and advise on an appropriate strategy to maximise the potential recovery, tied into the regional research agenda (Brown and Glazebrook, 2000; and Medlycott *et al*., 2011).

53. Bulk samples will be taken as part of a sampling strategy from a range of securely dated contexts, where present, and will typically be up to 40 litres in size. Where feasible, bulk samples will be taken as scatter samples, whereby tubs will be filled from different locations within the designated fill to avoid spatial preservation bias or missing biological remains invisible to the naked eye which can form discrete 'clusters' within the fill (English Heritage, now Historic England, 2011).

54. Samples must be taken from appropriately cleaned surfaces, be collected with clean tools and be placed in clean containers. They will be adequately recorded and labelled and a register of all samples will be kept. Samples should be stored appropriately in a secure location prior to being sent to the appropriate specialist.

55. Radiocarbon, dendrochronology, archaeomagnetic, pollen and monolith samples may be considered for collection where justified and warranted. These approaches would need to be agreed in consultation with the Archaeological Coordinator, the Archaeological Contractor(s), NCC HES and Norfolk Boreas Limited.

56. Further advice on the appropriateness of the Archaeological Contractor('s/s') proposed strategies will be sought from the Historic England Regional Science Advisor (East of England), as appropriate, although NCC HES would provide advice and recommendations in the first instance, again as required.

57. The sampling strategy, analysis of samples and subsequent reporting will follow best practice as recommended by Historic England (English Heritage, now Historic England, 2011).

58. All environmental samples will be processed as appropriate. Each category of environmental material will be examined by a suitably qualified archaeologist or specialist and the results incorporated into the report.

11.9 Human Remains

59. If human remains are discovered an application for a licence from the Ministry of Justice under Section 25 of the Burials Act 1857 will be made by the Archaeological Contractor(s). The works will also take place in accordance with the appropriate Environmental Health regulations. Other specific and bespoke requirements may also be required, on a case-by-case / area-by-area basis.

11.10 Treasure

60. Any recovered artefacts that are designated Treasure as defined by the Treasure Act 1996 will be treated in accordance with said Act. All Treasure will be reported to H. M. Coroner. Norfolk Boreas Limited and the Archaeological Coordinator will also be informed at the earliest opportunity.

61. Any Treasure will be removed to a secure store. Where removal cannot be effected on the same working day as the discovery, suitable security measures must be taken to protect the finds from theft.

11.11 Completion of Archaeological Fieldwork

62. The Archaeological Contractor(s) shall prepare and submit completion statements to Norfolk Boreas Limited and the Archaeological Coordinator once each distinct SPE and SMS area and any area excavated archaeologically during archaeological monitoring / watching brief have been vacated. Following internal review these will also be made available to NCC HES / HE (as appropriate) for information and comment.

11.12 Reporting Requirements

63. Verbal progress reports and brief written progress reports will be provided to Norfolk Boreas Limited and the Archaeological Coordinator regularly during the archaeological investigations and also at any stage during the works, upon reasonable request. NCC HES and HE will also be regularly updated with progress.

64. Upon completion of the archaeological works an interim statement will be prepared and submitted to Norfolk Boreas Limited and the Archaeological Coordinator. As a minimum this will include:

- A brief summary of the results of the works.
- A general location plan and all features plan of the SPE and SMS areas and any areas excavated archaeologically during monitoring / watching brief.
- Quantification of the primary archive including contexts, finds and samples.
- A brief chronological summary of the archaeological remains.

65. The reporting of the archaeological investigations will be commensurate with the results of the investigation, and will be produced in accordance with the relevant Chartered Institute for Archaeologists Standards and Guidance documents (CIfA, 2014a-h). The Management of Research Projects in the Historic Environment: The MoRPHE Project Mangers' Guide (Historic England, 2015) should also be considered relevant.

66. The post-excavation assessment report for SPE, SMS and any areas excavated archaeologically during monitoring / watching brief should ultimately incorporate the results of the earlier programmes of archaeological trial trenching. This will ensure the results from all fieldwork are fully integrated.

67. There should also be comment within the reporting from the project / Archaeological Contractor's(s') geophysicist on the results of the archaeological investigations / excavations.

68. Records and finds from other previous archaeological works (where project applicable) should also be examined and integrated into the assessment report, wherever possible. All finds must be assessed in relation to latest existing local and regional artefact type series. The content provided within the assessment report will adhere to best practice and available guidance, where relevant (see Appendix 1).

69. A draft report will be issued for review by Norfolk Boreas Limited and the Archaeological Coordinator prior to agreement and issue of the final report.

70. It is anticipated that issue of the final report should follow within XX weeks of comments being provided on the draft report.

71. Bound and unbound copies (master-copies) and a digital version of the report will be submitted within XX weeks of the receipt of final comments on the draft report.

72. A project CD shall also be submitted containing image files in JPEG or TIFF format, digital text files shall be submitted in Microsoft Word format, and figures and drawings in recent / compatible version AutoCAD and / or ArcGIS format.

73. A fully collated and completed version of the report shall be included in PDF format.

74. Both hard and digital version copies of the report will ultimately be lodged with NHER. The Archaeological Contractor(s) will be responsible for ensuring this is done.

75. A digital version of the report will be placed with OASIS (Online Access to the Index of Archaeological Investigations) at - http://www.oasis.ac.uk/. An OASIS form will be included as part of all reports produced. The Archaeological Contractor(s) will be responsible for ensuring this is done.

11.13 Archive Preparation and Deposition

76. The archive will consist of the documentary and digital records and any archaeological material generated during all phases of the fieldwork.

77. All records and materials produced will be quantified, ordered, indexed, marked with the unique project, site and context number and internally consistent. The archive will be kept secure at all stages of the project.

78. The site archive will be deposited with the Norfolk Museums and Archaeology Services within XX months of the completion of all archaeological fieldwork and reporting associated with the project. It will then become publicly accessible.

79. The Archaeological Contractor(s) will be responsible for identifying any specific requirements or policies of the museum / records office in respect of the archive, and for adhering to those requirements. The archive will conform to the standards required by the national guidelines in 'Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation' (AAF, 2007) and 'Standard and guidance for the creation, compilation, transfer and deposition of archaeological archives' (CIfA, 2014h).

80. Finds must be appropriately conserved and stored in accordance with UK Institute of Conservators Guidelines (Walker, 1990). The finds, as a permanent part of the site archive, should be deposited with the Norfolk Museums and Archaeology Services. If this is not possible for all or any part of the finds archive, then provision must be made for additional recording (e.g. photography, illustration, analysis), as appropriate.

81. Prior to the commencement of archaeological fieldwork, the Archaeological Contractor(s) will contact the NHER regarding the acquisition of further event numbers or confirming previous event numbers still apply. Event numbers may be issued on an area by area / stage by stage or project wide basis, but this will be confirmed with NHER personnel prior to starting the next stage of archaeological works in each instance.

82. Also at the start of work (immediately before fieldwork recommences) an OASIS online record (http://ads.ahds.ac.uk/project/oasis/) must be initiated by the Archaeological Contractor(s) and main areas / distinct coherent land parcels / stages of the onshore project area completed on details, location and creators forms.

83. All parts of the OASIS online form must be completed for submission to the NHER. This should include an uploaded .pdf version of entire final reporting (a paper copy should also be included with the archive), as relevant to each stage of fieldwork.

84. The deposition of the archive forms the final stage of the (archaeological) project. The Archaeological Contractor(s) must provide Norfolk Boreas Limited and the Archaeological Coordinator with copies of all communication with the recipient

museum / records office and written confirmation of the receipt / deposition of the archive.

85. The Archaeological Contractor(s) will liaise with Norfolk Boreas Limited to address the transfer of ownership and any copyright issues.

11.14 Monitoring, Progress Reporting and Site Visits

86. The archaeological investigations will be subject to regular monitoring visits by Norfolk Boreas Limited's Archaeological Coordinator, who will have unrestricted access to the site, site records and any other information.

87. The work will be inspected to ensure that it is being carried out to the required standards and that it will achieve the stated aims and objectives.

88. Regular written progress reports will be provided to Norfolk Boreas Limited and the Archaeological Coordinator by the Archaeological Contractor(s) during the main phases of archaeological fieldwork and the post-excavation phase(s).

89. The Archaeological Contractor(s) will only accept instruction from Norfolk Boreas Limited and the Archaeological Coordinator. There may also be occasions where instructions are given by the Principal Contractor, where appropriate/relevant.

90. If any problems are encountered during the archaeological works these will be reported immediately to Norfolk Boreas Limited and the Archaeological Coordinator.

91. Monitoring progress meetings between Norfolk Boreas Limited, the Archaeological Coordinator and the Archaeological Contractor(s) will be held on site during the course of the SPE, SMS works and any area excavated archaeologically during monitoring / watching brief. Representatives from NCC HES and HE (where applicable) shall be invited to attend in order to monitor the works on behalf of the Local Planning Authorities. These meetings will be arranged by the Archaeological Coordinator.

92. NCC HES will also be afforded access to the site on request, outside of any formal monitoring progress meetings. Arrangements should be made through the Archaeological Coordinator and the Archaeological Contractor's(s') key named contacts. Where appropriate, the Principal Contractor will also need to be informed in order that access can be facilitated in a safe manner.

93. Following top-soil strip and associated sub-soil removal across SPE and SMS areas, an initial meeting between the Archaeological Contractor(s), Norfolk Boreas Limited, the Archaeological Coordinator and NCC HES may be held to further agree the excavation / recording / sampling strategy for each area / site / stage etc.

94. Where necessary to achieve the objectives of the investigation within the overall project programme, variations to the scope of works will be agreed on site at progress meetings, as appropriate.

95. Any variations caused by ecological constraints, vegetation cover or ground conditions will be agreed with Norfolk Boreas Limited, the Archaeological Contractor(s) and the Archaeological Coordinator and communicated to NCC HES / HE (as appropriate).

96. Following the discovery of any unexpected archaeological sites during archaeological monitoring / watching brief work, the Archaeological Contractor(s) will ensure that the archaeological remains are properly dealt with and sufficiently resourced beyond (in addition to) the monitoring / watching brief archaeologist(s) on site, where appropriate. A process for this will be agreed between the Archaeological Contractor(s), Norfolk Boreas Limited and the Archaeological Coordinator. The Principal Contractor will also need to be informed of any additional personnel on site, where appropriate/relevant.

11.15 Security, Confidentiality and Publicity

97. Although information regarding the project is in the public domain, the archaeological investigation works may attract interest.

98. In the event of any enquiries by the public, the Archaeological Contractor(s) will refer all enquiries to Norfolk Boreas Limited, the Archaeological Coordinator and the Principal Contractor without making any unauthorised statements or comments.

99. The Archaeological Contractor(s) will not disseminate information or images associated with the project for publicity or information purposes, without the permission of Norfolk Boreas Limited.

11.16 Copyright

100. The Archaeological Contractor(s) shall assign copyright in all reports and documentation / images produced as part of this project to Norfolk Boreas Limited. The Archaeological Contractor(s) shall retain the right to be identified as the author / originator of the material.

101. The Archaeological Contractor(s) may apply in writing to use / disseminate any of the project archive or documentation (including images), and any such permission will not be unreasonably withheld.

11.17 Resources and Timetable

102. All archaeological personnel involved in the project must be suitably qualified and experienced professionals. The Archaeological Contractor(s) will provide Norfolk Boreas Limited and the Archaeological Coordinator with staff CVs of the Project Manager, Project Officer(s), Site Supervisor(s) and any proposed specialists. These will in turn be provided to NCC HES.

103. Site assistants' CVs will not be required, but all site assistants should have a minimum of six to twelve months excavation experience. Additional CVs must be made available upon request.

104. All equipment and tools required by the Archaeological Contractor(s) will be supplied by the Archaeological Contractor(s).

105. The Archaeological Contractor(s) must give immediate warning to Norfolk Boreas Limited and the Archaeological Coordinator should any agreed programme date not be achievable, due to for example severe / extreme weather conditions, and an early warning must be given on any costing and / or budget issues.

11.18 Health and Safety

106. The Archaeological Contractor(s) will adhere to any overarching risk assessments and any project specific health and safety plan prepared by the Principal Contractor, Norfolk Boreas Limited and / or their representatives.

107. The Archaeological Contractor(s) will provide Norfolk Boreas Limited and / or their representatives with details of their public and professional indemnity insurance and all other insurances required by law.

108. The Archaeological Contractor(s) will have their own Health and Safety policies compiled using national guidelines, which conform to all relevant Health and Safety legislation. A copy of the Archaeological Contractor(s) Health and Safety policy will be submitted to Norfolk Boreas Limited and / or their representatives.

109. The Archaeological Contractor(s) will prepare health and safety focused RAMS specific to the archaeological works to be undertaken, and will submit these to Norfolk Boreas Limited and / or their representatives for approval prior to entering the individual work sites.

110. Pre-Construction Information will be provided by Norfolk Boreas Limited and / or their representatives in accordance with the Approved Code of Practice, as required.

111. The Archaeological Contractor(s) shall be responsible for identifying any buried or overhead services and taking the necessary precautions to avoid damage to such

services, prior to the commencement of excavation works. Service location plans and UXO information will be provided by Norfolk Boreas Limited and / or their representatives, where appropriate, but these must be checked through appropriate means prior to the commencement of archaeological investigation works.

112. The Archaeological Contractor(s) will not commence any excavation works unless authorised to do so by Norfolk Boreas Limited and / or their representatives.

113. As a minimum the following Personal Protective Equipment (PPE) will be worn at all times on site:

- High visibility vest / jacket;
- Approved work wear (e.g. overalls/trousers/long-sleeved tops);
- Hard hat;
- Safety boots with reinforced toes and mid-sole, with ankle support;
- Safety glass; and
- Gloves.

114. In undertaking the work, the archaeologists are to abide by all statutory provisions and by-laws relating to the work in question, especially the Health and Safety at Work Act 1974.

115. No lone working will be permitted at any time.

116. The archaeological works may be halted in the event that adverse / extreme weather, ground conditions or health and safety requirements demand it and the site-specific situation reassessed prior to any recommencement.

11.19 General Provisions

117. The Archaeological Contractor(s) must leave work sites in a tidy and workmanlike condition and remove all materials brought onto the site, including any grid pegs or other markers.

118. The Archaeological Contractor(s) is to allow the site records to be inspected and examined at any reasonable time, during or after the investigations, by Norfolk Boreas Limited and the Archaeological Coordinator.

119. Access for parking and use of site welfare facilities shall be agreed between Norfolk Boreas Limited and the Archaeological Contractor(s) prior to entering each discreet work site.

120. Provision must be made for fencing of archaeological remains, or potential archaeological remains, where identified at / during construction, whilst archaeological investigation and recording works continue.

121. The Archaeological Contractor(s) will need to make provision for site security, in conjunction with Norfolk Boreas Limited and / or their representatives, particularly where sensitive archaeological remains are uncovered.

12 APPENDIX 3 OUTLINE SCHEDULE OF ARCHAEOLOGICAL REQUIREMENTS FOR SUB-SURFACE REMAINS

12 OUTLINE SCHEDULE OF ARCHAEOLOGICAL REQUIREMENTS FOR SUB-SURFACE REMAINS

Note: The outlined schedule of archaeological requirements for sub-surface remains summarised in the following table has been prepared based on Scenario 2 (Norfolk Vanguard does not proceed to construction and Norfolk Boreas proceeds alone. Norfolk Boreas undertakes all works required as an independent project). Should Norfolk Vanguard proceed to construction, thereby installing ducts and other shared enabling works for Norfolk Boreas (Scenario 1), this schedule will be updated accordingly in the post-consent stages of the project. The updated schedule will feed into any survey-specific WSIs, as necessary, and also inform subsequent and additional mitigation measures.

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
Onshore project substation (Figures 28.2b and c, 28.4b and c, 28.6b and c and 28.7b and c)	400kV Cable Route	AP 1 RHDHV 1015 / NHER 4190 / NB-AAA2 Mainly F1, F2, F6	Undated moated site (probably medieval) set within an area of likely associated ditches and boundaries and a further enclosure to the immediate north-west of the moat, of unknown date.	Medium - High	Yes. the survey has corroborated the historic OS mapping and cropmark data identifying an undated moated site.	**Yes:** but limited to the more peripheral looking ditches to the south of the main moated site area (with the 400kV cable route intersecting only the southern-most cropmark features associated with the site).	Low	Minor - Moderate (as a WCS)	-	TBC	Yes
	National Grid Temporary Works Area					**Yes:** but limited to the more peripheral looking ditches to the north-west of the site in the National Grid temporary works area.	Low	Minor - Moderate (as a WCS)			
	400kV Cable Route	NB-AAA1	Previously unrecorded possible Bronze Age barrow / post-medieval post mill (see high-level geophysical survey results column).	High (as a WCS) (Low if identified as a post-medieval post mill)	Yes. Feature identified in geophysical survey data (not previously recorded). A ring-ditch feature interpreted as the possible ploughed down remains of a Bronze Age funerary monument / or a possible post-medieval post mill.	**Yes:** within 400kV cable route.	High	Moderate-Major (as a WCS) depending on the further identification of the asset	-	TBC	Yes
Onshore project substation to MA 1b (Figures 28.2a (maps 21-22) and 28.2b and c, 28.4a (maps	Cable route	AP 3 (F10)	Former boundaries or drains, or possibly small tofts, which were extant in the 1940s and are now removed and showing as marks in crops.	Low	Yes. Geophysical survey data partially corroborates former field boundaries captured in the cropmark data and the 1st Edition OS mapping.	**Minimal**: Cable route intersects the outer-most mapped boundary of this feature by *c.* 7m. The cable has been routed southwards in this location to avoid these cropmark features.	Low	Minor	-	TBC	Yes
		AP 4 (F10)	Post enclosure field boundaries which were extant in the	Low	Yes. Geophysical survey data corroborates former field	**Yes:** Cable route interacts with small sections of these linear features (former field system,	Medium	Minor	-	TBC	Yes

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
21-22) and 28.4b and c, 28.6a (maps 21-22) and 28.6 b and c) and 28.7a (maps 21-22) and 28.7 b and c)			1940s and are now removed and visible only as marks in crops.		boundaries captured in the cropmark data and the 1st Edition OS mapping. The geophysical data acquired at this location does not suggest the presence of any additional notable sub-surface remains in this area.	post-enclosure field boundaries now removed and visible only as cropmarks) identified and captured as AP 4.					
		Wood Farm and Grove Farm	The First Edition OS map for this area depicts two former farm complexes (now demolished) within this section of the route, which are not held as records within the NHER; comprising Wood Farm and Grove Farm. There is potential for sub-surface remains relating to these former farmsteads to exist within this area.	Low	No.	**Yes (in part):** Level of surviving sub-surface remains unquantifiable based on current data.	Medium	Minor	Yes	TBC	Yes
MA 1b to 2 (Figures 28.2a, 28.4a, 28.6a, and 28.7a, map 21)	No features of possible archaeological interest were identified by the aerial photographic and LiDAR data assessment within this section of the route and as such, it has not been subject to priority geophysical survey pre-consent. It will, however, be further considered as part of the initial informative stages of mitigation work (e.g. further geophysical survey, targeted metal detecting / field walking and archaeological trial trenching) post-consent.								Yes	TBC	Yes
MA 2 to 3 (Figures 28.2a, 28.4a, 28.6a and 28.7a, maps 19-21)	Trenchless Crossing Zone (Little; Wood): TC3a/b	F12	Targeted as a result of the area being a trenchless crossing zone location (A47).	Low	Yes. Survey only partially completed on north side of the A47 crossing and not on the south side due to access constraints. Inconclusive results. Likely non-archaeological.	**Yes:** but survey results inconclusive. Likely non-archaeological.	N/A	N/A	-	TBC	Yes
		AP 5 (F14 and F16)	Buried ditches, of unknown date which may be part of a former field system.	Low	Yes. The cropmark data is not captured in / or corroborated by the	**Yes:** There is a limited interaction between the trenchless crossing zone to the west of Gressenhall and a small	Medium	Minor	-	TBC	Yes

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
					geophysical survey data from F16, with the exception of a former field boundary represented in both the cropmark data and 1st Edition OS mapping.	number of cropmark features (ditches) identified and captured as AP 5. Some of the cropmark features intersect the proposed Indicative Trenchless Crossing Footprint in this area.					
		(F18 and F19)	Former field boundary features.	Low	Yes. Geophysical data does not indicate any notable sub-surface remains of archaeological interest in this area, with the exception of the former field boundary features, some of which are also represented in the 1st Edition OS mapping data.	**Yes:** There is an interaction between the trenchless crossing zone to the east of Gressenhall Road and a number of linear features (former field boundaries) shown in geophysical data acquired in F18 / 19.	Low	Minor	-	TBC	Yes
MA 3 to MA 4 (Figures 28.2a, 28.4a 28.6a and 28.7a, maps 18-19)	Cable route	AP 159 RHDHV 1180 NHER 50699	Cropmark showing medieval road.	Medium	No.	**Yes (in part):** Cable route interacts with the southern extent of this medieval / post-medieval road.	Low	Minor	Yes	TBC	Yes
	Trenchless Crossing Zone: TC4	(F20 and F22)	Former field boundary features and ponds(?).	Low	Yes. Geophysical data does not indicate any notable sub-surface remains of archaeological interest in this area, with the exception of a number of former field boundary features also represented in the 1st Edition OS mapping data and former ponds, backfilled with ferrous material.	**Yes:** Interaction between indicative trenchless crossing footprint and field boundary feature in F22.	Low	Minor	-	TBC	Yes
MA 4 to MA 5a (Figures 28.2a, 28.4a 28.6a and 28.7a, maps 15-18)	Cable Route	(F23 and F24)	No discernible archaeological features. Vicinity of AP 16: Curvilinear ditched enclosures which survive as earthworks in grassland, to the west.	N/A	Yes. Features evident in survey areas are identified as geological in origin only.	**Yes:** but survey results indicate features which are non-archaeological	N/A	N/A	-	TBC	Yes

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
	Trenchless Crossing Zone: TC5a/b	(F25 to F29)	Former Field boundary feature visible in F25.	Low	Yes. Features evident are identified as geological in origin, or comprise former field boundaries and ferrous material from a demolished structure on historical maps.	**No**: Ferrous material from a demolished structure on historical maps (F27) is within a trenchless crossing location and unlikely to be directly impacted.	Negligible	Negligible	-	TBC	Yes
	Trenchless Crossing Zone: TC5a/b	(F30 and F31)	No discernible archaeological features.	N/A	Yes. Features evident are identified as geological in origin.	**Yes:** but no discernible archaeological features.	N/A	N/A	-	TBC	Yes
	Trenchless Crossing Zone: TC5a/b	AP 6 RHDHV 811 NHER 2999 (F32, F33 and F38 / 39)	Extensive area of likely multi period eroded field boundaries, tracks, ditches and possible enclosures.	Medium - High (as a WCS)	Yes. Geophysical data corroborates the cropmark data to a small degree, although the complexity of cropmark features as indicated by the cropmark data is not mirrored within the geophysical survey data, which highlights more geological, and agricultural and former field boundary, type anomalies.	**Yes (in part)**: There is an interaction between the trenchless crossing zone to the east of the River Wensum and a number of cropmark features (field boundaries, trackways and ditches) identified and captured as AP 6. A number of these features are within the proposed Indicative Trenchless Crossing Footprint in this area. Geophysics appears to show less density and complexity of remains, requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.	Low	Minor - Moderate (as a WCS)	-	TBC	Yes
	Cable route					**Yes**: Cable route interacts with a number of linear features (field boundary, field system, trackway and ditch) identified and captured on the periphery of AP 6. Geophysics appears to show a lesser density and complexity of remains, requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.	Low	Minor- Moderate (as a WCS)			
	Side access: South of Bylaugh Road (between					**Minimal:** Slight interaction between side access and the northernmost extent on a small number of cropmark features.	Low	Minor – Moderate (as a WCS)			

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
	River Wensum and Mill Street)										
	Cable route	RHDHV 1524 NHER 50771	Possible World War Two roadside ammunitions stores or defences.	Low	No.	**Yes:** The possible WWII roadside ammunitions stores / defences follow the route of Bylaugh / Lime Kiln Road. Sub-surface remains, if present are, however, likely to be minimal.	Low	Minor	TBC	TBC	TBC
	Cable route	RHDHV 947 NHER 14228 F40/41	Possible Roman Road.	Low - Medium	No.	**Yes**: cropmarks of an undated possible Roman road intersect the cable route at this location.	Medium	Minor – Moderate (as a WCS)	Yes	TBC	Yes
	Cable route	AP 14 RHDHV 1104 NHER 3024 (F40b and F41b)	Post-medieval field boundaries.	Low	Yes. Not corroborated by geophysical survey data, which shows predominantly geological, modern agricultural anomalies and a large scatter of ferrous material.	**Minimal**: Cable route interacts with a single linear feature (field boundary, field system, extractive pit) identified and captured as AP 14.	Low	Minor	-	TBC	Yes
MA 5a to MA 5b (Figures 28.2a, 28.4a, 28.6a and 28.7a maps 15-16)	MA 5a					**Minimal:** Mobilisation zone MA 5a interacts with a number of linear features (post-medieval field boundary, field system or extractive pit) identified and captured as AP 14, although only one feature intersects the indicative mobilisation area footprint (in the north-eastern extent of the mobilisation zone).	Medium	Minor			
		AP 15 RHDHV 1523 NHER 50770	Possible WWII structures and defensive installations, no longer extant.	Low	No.	**Yes:** MA5a (including the indicative mobilisation area compound) interacts with former WWII features (sub-surface remains may be present) identified and captured as AP 15.	Medium	Minor	Yes	TBC	Yes
	Cable route					**Yes (in part)**: Cable route interacts with former WWII features (sub-surface remains may be present) identified and captured as AP 15.	Medium	Minor			
MA 5b to MA 6 (Figures	Cable route	RHDHV 434 NHER 2796	Fen Causeway Roman Road.	Medium	No.	**Yes**: The Fen Causeway Roman road intersects the cable route at this location.	Medium (as a WCS)	Moderate (as a WCS)	Yes	TBC	Yes

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
28.2a, 28.4a, 28.6a and 28.7a, maps 12-15)	Trenchless Crossing Zone: TC6	RHDHV 1499 NHER 13585	Midland and Great Northern Joint Railway (Norwich to Cromer via Holt), North Norfolk Railway.	Low	No.	**No**: Interaction between this asset (the Midland and Great Northern Joint Railway) and the construction works is negligible due to the adoption of trenchless crossing techniques at this location.	Negligible	Negligible	No	No	No
	Trenchless Crossing Zone: TC7	RHDHV 1498 NHER 13587	Route of East Norfolk Railway, Aylsham Branch, including Bure Valley Railway.	Low	No.	**No**: Interaction between this asset (the Route of East Norfolk Railway, Aylsham Branch, including Bure Valley Railway) and the construction works is negligible due to the adoption of trenchless crossing techniques at this location.	Negligible	Negligible	No	No	No
	Trenchless Crossing Zone: TC7	RHDHV 966 / NHER 56980	A record for multi-period metal objects, including an Early Saxon brooch and a Late Saxon stirrup-strap mount, are recorded to have been discovered at this location.	High (as a WCS)	No.	**Yes**: Level of sub-surface remains unquantifiable based on current data. The indicative trenchless crossing footprint is located within an area in which metal finds of Anglo-Saxon date have been previously discovered.	Unknown	Unknown	Yes	Yes	Yes
	Cable route					**Yes**: Level of sub-surface remains unquantifiable based on current data. The cable route intersects an area in which metal finds of Anglo-Saxon date have been previously discovered.	Unknown	Unknown			
	Cable route	AP 27 (F49 to F52)	A group of former field boundaries and ditches.	Low	Yes. Geophysical survey data both corroborates and builds upon cropmark data in this area. Additional potential features to target with post-consent archaeological trial trenching.	**Yes**: Cable route interacts with linear features (field boundary ditches) identified and captured as AP 27 and visible in F49 and 52. Additional linear features (former field boundaries) are also visible in F49 and intersected by the cable route.	Medium	Minor	-	TBC	Yes
	Trenchless Crossing Zone: TC8					**Minimal**: There is an interaction between the trenchless crossing zone and a small number of cropmark features (ditches / field boundaries) identified and captured as AP 27. A number of linear features (possible former	Medium	Minor			

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
						field boundaries) are shown on geophysical survey data acquired in F50 / 51. Features within the proposed Indicative Trenchless Crossing Footprint in this area are confined to a curved feature identified as being possible archaeology within the geophysical survey data for F50.					
	Side access: South of the Cawston Road (B1145) to the west of Cawston					**Yes**: Interaction between side access and two minor cropmark features.	Medium	Minor			
MA 6 to MA 7 (Figures 28.2a, 28.4a, 28.6a and 28.7a, maps 11-12)	MA 6	F54 AAA3	Archaeological anomalies (possible features) visible in geophysical survey data in the form of possible enclosures and other linear features (e.g. possible boundaries, trackways etc.).	Medium - High (as a WCS)	Yes. Geophysical survey data indicates presence of dense concentration of archaeological anomalies (features) in the eastern extent of F54, locating a previously unrecorded roadside settlement with a series of interlinking rectangular enclosures.	**Yes**: Mobilisation zone MA 6 interacts with a number of linear features (possible former field boundaries / enclosures) identified in geophysical survey data acquired in F54. The indicative mobilisation area footprint (in the south-eastern extent of the mobilisation zone) is proposed in an area which intersects a few linear features (former field boundaries only).	Low	Minor – Moderate (as a WCS)	-	TBC	Yes
	Cable route					**Yes:** the cable route intersects a relatively high concentration of potential sub-surface remains as indicated in the geophysical survey data for F54. Requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.	Medium - High (as a WCS)	Moderate – Major (as a WCS)			
	Cable route	F55 and F56	Features visible include linear features of agricultural origin and a large modern service pipe.	Low	Yes. Geophysical data includes agricultural anomalies as well as features of geological origin, and the large modern service pipe.	**No**: the cable route does not intersect features identified as being of archaeological interest within this area.	Negligible	Negligible	-	TBC	Yes
	Cable route	AP 28 RHDHV	A group of linear ditches possibly part of	Low - Medium	Yes. Geophysical data shows a	**Yes** (slight): The cable route intersects a small number of	Low	Minor	-	TBC	Yes

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
		1183/698 NHER 51469 / 21848 AAA4 (F57)	a field system and enclosures. These features also extend north and north-west of the mapped extend beyond the area of interest. The undated cropmarks and possible Bronze Age ring ditch (RHDHV 698) are in the same location as AP 28 and likely represent the same features. Medieval / post-medieval finds have been reported in the area, including multi-period pottery of Saxon to medieval date.		number of features identified in the cropmark data as extending southwards from AP 28, including a number of rectilinear anomalies at the north of the field forming the southern extent of three small enclosures. Several discrete anomalies in the interior of the enclosures are identified, perhaps locating pits.	linear features identified as being of possible archaeological interest in F57. The main concentration of archaeological features in the northern extent of this field, and within the wider extent of AP 28, are avoided by the cable route.					
	Cable route	RHDHV 1266 NHER 23276 (F58)	Site of post-medieval brickworks. Mapped as a Brick Yard on the 1st Edition OS Mapping for the area.	Low	Yes. The geophysical survey data indicates the presence of ferrous material in the vicinity of the brickworks site. Other features include a linear feature identified as possible archaeology, which may be associated with AP 34 below.	**Yes**: the cable route intersects an area in which ferrous material has been identified in the geophysical survey data (area of a former brickyard) and a linear feature identified as being of possible archaeological interest.	Medium	Minor	-	TBC	Yes
	Cable route	AP 34 (F59)	Group of linear ditches which may be part of as field system. These features may be related to the Roman settlement to the south-east. It is probable that these features extend further than the mapped extent.	Medium	Yes. The geophysical survey data largely corroborates and in part builds upon the cropmark data at this location, with a few additional linear features visible on the survey data.	**Yes (in part)**: the cable route intersects a small number of linear features (ditches) identified and captured as AP 34 and visible in F59.	Medium	Moderate	-	TBC	Yes
	Cable route	AP 30 RHDHV 1597 / NHER	An undated enclosure. It is possible that this site is related to the	Medium - High (as a WCS)	Yes. Geophysical survey data shows a continuation of the	**Yes**: although the cropmark features captured as AP 30 are avoided, the geophysical survey	High (as a WCS)	Major (as a WCS)	-	TBC	Yes

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
		22903 AAA5 F60 and F61	extensive Roman features to the south.		features observed in AP30, extending to the west, with two possible rectilinear enclosures either side of an east / west trackway. Due to the variable magnetic background across the area, low magnetic anomalies which may be archaeological in origin may not be detected by magnetometer. The archaeological potential of this area may therefore be greater than is currently suggested by the survey data. These represent additional features to target with post-consent archaeological trial trenching.	data indicates archaeological features in the north-west of F60 (rectilinear enclosure and trackway), which are intersected by the cable route. These features may be associated with AP 30 in F61. Requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.					
	Cable route	AP 36 RHDHV 1600 NHER 29565 (F62 and F63)	Ditched trackway with linear ditches in close proximity.	Low	Yes. Not corroborated by geophysical survey data.	**Yes**: the cable route intersects linear features (potential ditches and trackways) identified and captured as AP 36. These features are not visible on the geophysical survey data for F62 and F63.	Medium	Minor	-	TBC	Yes
	Cable route	(F65)	Former field boundaries.	Low	Yes. Geophysical survey data shows former field boundaries, features of geological origin and ferrous material.	**Yes** (slight): the cable route intersects at least two former field boundaries identified in the geophysical survey data for F65.	Low	Minor	-	TBC	Yes
	Cable route	AP 37 (F64)	Possible oval enclosure with two other circular possible ring ditches or enclosures. This area also contains a number of linear ditches which may relate to the possible enclosure.	Medium	Yes. Not corroborated by geophysical survey data.	**Yes** (slight): the cable route intersects a possible ditch identified and captured as AP 37 (not visible on geophysical survey data for F64).	Medium	Minor - Moderate	-	TBC	Yes
MA 7 to MA 8 **(includes National Trust Land)**	MA 7					**Yes** (slight): Mobilisation zone MA 7 interacts with two linear features (ditches) identified and captured as AP 37. The indicative mobilisation area footprint (in the northern extent	Low	Minor			

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
(Figures 28.2a, 28.4a, 28.6a and 28.7a, maps 9-11)						of the mobilisation zone) is proposed in an area which intersects one such linear feature (ditch) observed in AP 37.					
	MA 7	RHDHV 1490 NHER 13581	Route of Midland and Great Northern Joint Railway (Great Yarmouth to Sutton Bridge). Now dismantled.	Low	No.	**Yes**: the Mobilisation zone MA 7 (including the indicative mobilisation area footprint) intersects the route of the Midland and Great Norfolk Joint Railway at this location, now dismantled.	Medium	Minor	No	No	No
	Cable route					**Yes**: the cable route intersects the route of the Midland and Great Norfolk Joint Railway at this location, now dismantled.	Medium	Minor			
	Cable route	AP 39 RHDHV 1588 NHER 12974 (F67 and F68)	Extensive field system with a rectangular enclosure with trackways. Ditches may run further than mapped extent.	Medium – High (as a WCS)	Yes. Geophysical survey data shows a partial corroboration of the cropmark data, with features identified as being of possible archaeological or agricultural in origin. Additional linear features have been identified as possible archaeology. F69 which includes some of AP 39 was not possible to survey due to being overgrown, and a strip of F67 was under bird cover, and also not surveyed.	**Yes**: the cable route intersects a number of linear features (field systems and trackways) identified and captured as AP 39 and shown in F67-68 although the 45m wide cable route has been routed to avoid the densest concentration of cropmarks, where possible. Geophysics appears to show a lesser density and complexity of remains, requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.	Medium	Moderate - Major (as a WCS)	-	Yes	Yes
	Side access: Descending south from Whitetop Lane (to the west of Silvergate Lane)					**Yes**: Interaction with linear features (possible archaeology) visible in geophysical survey data acquired in the east of F68, requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.	Low	Minor - Moderate (as a WCS)			
	Cable route	AP 40 RHDHV 1589 NHER 12975 (F70 to F74)	Former field boundaries possibly relating to post-medieval agriculture. There are also a large number of ditched	Medium – High (as a WCS)	Yes. Geophysical survey data partially corroborates the cropmark data in this location.	**Yes**: the cable route intersects a few linear features (former field boundaries / ditches) identified and captured as AP 40 and shown in F70, although many of the cropmark features captured	Low	Minor - Moderate (as a WCS)	-	Yes	Yes

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
			features which are most likely earlier in date. It is noteworthy that the site of two ring ditches are recorded to the north (RHDHV 691) and south (AP 41 / RHDHV 692) of the proposed route in the area of AP 40.			in AP 40 are avoided. Geophysics appears to show a lesser density and complexity of remains, requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.					
	Side access: Descending south-west from Blickling Road (to the east of Silvergate Lane)					**Yes** (slight): the side access intersects the end of a cropmark feature in this location. Geophysics appears to show a lesser density and complexity of remains, requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.	Low	Minor - Moderate (as a WCS)			
	Cable route	(F75 and F76) NT Land west of The Bure	Former field boundaries and linear features of agricultural origin.	Low (for traditional shallow sub-surface)	Yes. Geophysical survey data shows former field boundaries and other agricultural anomalies, geological features and ferrous material.	**Yes** (slight): cable route interacts with a single field boundary visible in the geophysical survey data acquired for F75.	Low	Minor	-	Yes	Yes
	Side access: Adjacent and parallel to Drabblegate Road (east of the River Bure)	AP 43 RHDHV 1616 NHER 36453 (F79 and F80)	Large field boundaries and associated ditches.	Low	Yes. Not corroborated by geophysical survey data.	**Yes** (very slight): Interaction with cropmark feature identified and captured as AP 43.	Low	Minor	-	Yes	Yes
	Trenchless Crossing Zone: TC9a/b					**Yes:** To the east, there is an interaction between the trenchless crossing zone and a small number of cropmark features (ditches) identified and captured as AP 43. These linear features are not corroborated by geophysical data acquired in F79 / 80. No features have been identified based on data available to date within the	Medium	Minor			

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
						proposed Indicative Trenchless Crossing Footprint to the west in this area.					
	Trenchless Crossing Zone: TC10					**Yes**: There is an interaction between the trenchless crossing zone and cropmark features identified and captured as AP 43, with one cropmark feature (former field boundary) located within the indicative trenchless crossing footprint.	Medium	Minor			
		AP 46 RHDHV 531 / 1614 / 679 NHER 60062 / 3370 / 12772 (F80 to F83)	Multi period cropmark site consisting of ditches, field boundaries and field systems. The enclosure and henge monument within this area have been given their own monument polygon.	Medium - High (as a WCS)	Yes. Geophysical survey data acquired exhibit and corroborate a few linear features of possible archaeological interest, which align with the cropmark data captured for AP 46. Although the density and complexity of AP46 is not reflected in the geophysical survey data. This may be because of an insufficient magnetic contrast in the soils in this area for some archaeological features, if present, to manifest as magnetic anomalies.	**Yes**: There is an interaction between the trenchless crossing zone and cropmark features identified and captured as AP 46, with a number of cropmark features (ditches / trackways) located within the indicative trenchless crossing footprint. Geophysics appears to show a lesser density and complexity of remains, requires ground truthing (as part of the programme of archaeological trial trenching) post-consent. The most significant looking feature (the Henge Monument) has been deliberately and proactively avoided.	Medium (as a WCS)	Moderate - Major (as a WCS)	-	TBC	Yes
MA 8 to MA 9 (Figures 28.2a, 28.4a, 28.6a and 28.7a, maps 6-9)	MA 8					**Yes:** Mobilisation zone MA 8 (including the indicative mobilisation area footprint) intersects a trackway captured in AP 46. Geophysics appears to show a lesser density and complexity of remains, requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.	Medium (as a WCS)	Moderate - Major (as a WCS)			

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
						The most significant looking feature (the Henge Monument) has been deliberately and proactively avoided.					
	MA 8	AP 44 RHDHV 531 NHER 60062 (F82)	Undated square enclosure. This feature is cut by a modern road.	Medium - High (as a WCS)	Yes. Not corroborated by geophysical survey data.	**Yes:** AP 44 is intersected by the mobilisation zone but is beyond the parameters of the indicative mobilisation area footprint. Requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.	Low	Minor - Moderate	-	TBC	Yes
	Side access: Running westwards from Banningham Road and northwards directly adjacent to the A140					**Yes**: there is an interaction with cropmark features identified and captured as AP 44, including a possible enclosure (which is in the location of the A140, but with only partial survival likely at best). Requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.	Low	Minor - Moderate			
	Trenchless Crossing Zone: TC10	AP 45 RHDHV 531 NHER 3370 (F82)	Causewayed ring ditch. Possibly a henge or hengiform monument.	High	Yes. The ring ditch (henge monument) is visible and very evident in the geophysical survey data. Discrete anomalies within the interior of the ring-ditch may locate pits.	**No**: although the outer mapped feature boundary intersects the trenchless crossing zone, the ring-ditch (Henge Monument) feature has been deliberately and proactively avoided by the project design.	Negligible	Minor	-	TBC	Yes
	Cable route	AP 48 RHDHV 1615 NHER 36454 (F85 and F86)	A series of former field boundaries and trackways. These features are likely to be more widespread than their visible extent.	Low	Yes. Geophysical survey data in this area partially corroborated the cropmark data, with additional former field boundaries visible aligning with those featuring on 1st Edition OS mapping.	**Yes** (slight): the cable route intersects a feature mapped as an earthwork (bank - possible former field boundary). This feature is considered in relation to above ground archaeological remains. Sub-surface remains intersected by the cable route in this location are confined to a possible trackway visible in the	Medium	Minor	-	TBC	Yes

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
						geophysical survey data for F86.					
	Cable route	AP 50 AAA7 and AAA8 (F87, F88, F91)	Multi period ditched features which may form part of a wider field system and track ways. There are also two possible enclosures. One of the enclosures may have associated ditches.	Medium – High (as a WCS)	Yes. The geophysical survey data has corroborated and enhanced the cropmark data in this area, showing a previously unrecorded irregularly-shaped enclosure, several linear anomalies of possible archaeological interest (AAA7), a north / south trackway and at least one rectangular enclosure appended to the western side of the trackway (AAA8).	**Yes**: the cable route intersects a number of linear features (former field boundaries, ditches, trackways and enclosures) identified and captured as AP 50, with additional field boundaries and enclosures also seen in F87/F88. Requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.	Medium	Moderate - Major (as a WCS)	-	TBC	Yes
	Trenchless Crossing Zone: TC11					**Yes**: there is an interaction between the trenchless crossing zone and cropmark features identified and captured as AP 50. These features include former field boundaries, ditches, trackways and possible enclosures. Two cropmark features are recorded within the proposed Indicative Trenchless Crossing Footprint in this area, as is an archaeological feature identified in the geophysical survey data for F91. Requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.	Medium	Moderate - Major (as a WCS)			
	Trenchless Crossing Zone: TC11	AP 51 RHDHV 1607 NHER 36499 AAA9 (F93)	Area of large ditches which may be part of a field system. There is also a possible large enclosure in the south-east of the area and also a large possible ring ditch in the centre. It is likely that these ditches are more than their visible extent.	High (as a WCS)	Yes. Geophysical data acquired in the location of AP 51 indicates the presence of a more complex and concentrated area of features of archaeological interest than indicated by the cropmark data alone, with an extensive complex of criss-crossing linear and rectilinear anomalies	**Yes**: there is an interaction between the trenchless crossing zone and cropmark features identified and captured as AP 51. These features, which include a possible ring-ditch, are corroborated by geophysical data acquired in F93. Features within the proposed Indicative Trenchless Crossing Footprint in this area comprise an extensive complex of criss-crossing linear	High (as a WCS)	Major (as a WCS)	-	TBC	Yes

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
					forming multiple interlinking enclosures. The possible ring-ditch is captured in both cropmark and geophysical survey data.	and rectilinear anomalies forming multiple interlinking enclosures. Requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.					
	Cable route	(F94)	Former field boundaries.	Low	Yes. Geophysical survey data shows former field boundaries, features of agricultural origin and geological features.	**Yes**: the cable route intersects a number of former field boundaries.	Medium	Minor	-	TBC	Yes
	Cable route	AP 53 RHDHV 1612 NHER 35549 (F95 and F96)	Two possible square enclosures with associated ditches.	Medium	Yes. The geophysical data partially corroborates and partially builds upon the cropmark data at this location. The survey data also indicates the presence of additional features identified as possible archaeology.	**Yes**: the cable route interacts with a number of linear features (ditches / possible enclosure) identified and captured as AP 53 (not observed on geophysical survey data for F95 and F96) Requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.	Medium	Moderate	-	TBC	Yes
	Side access: Extending eastwards from Rectory Road, south of Brick Kiln Lane					**Yes**: Slight interaction with three recorded cropmark features identified and captured as AP 53.	Low	Minor			
	Cable route	AP 54 (F98)	Area of various ditches, field boundaries and trackways most likely of multiple dates.	Low - Medium	Yes. The geophysical survey area encompasses two cropmark features which are corroborated and built upon in the geophysical survey data. Although only likely to be former field boundaries or anomalies of more recent agricultural	**Yes** (slight): although the continuation of cropmark features into the cable route cannot be discounted, based on information to date, no cropmark features indicative of sub-surface remains are intersected by the cable route at this location. The geophysical survey data acquired in F98	Low	Minor	-	TBC	Yes

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
					origin.	suggests that a former field boundary may be intersected by the cable route at this location.					
	Cable route	AP 56 (F99 and F100)	Former field boundaries and trackways which may relate to post-medieval farming. It is possible the trackways and ditches are earlier in date.	Low	Yes. The geophysical survey data does not corroborate the cropmark data but does indicate the presence of additional linear features (former field boundaries).	**Yes**: the cable route intersects a number of linear features (former field boundaries, trackways and ditches) identified and captured as AP 56 and observed in F99 and F100.	Medium	Minor	-	TBC	Yes
	Cable route	AP 55 RHDHV 435 / 762 NHER 12821 / 37987 F101	Possible field systems with enclosures and trackways. These features may relate to the field system remains to the east and south. The NHER states the north of the site was excavated in 2003 revealing a Bronze Age cremation cemetery and Iron Age pits. Located to the north of the cable route.	Medium – High (as a WCS)	No. Targeted but no access possible.	**Yes**: the cable route intersects a possible enclosure / ditch identified and captured as AP 55. Requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.	Medium	Moderate - Major (as a WCS)	Yes	TBC	Yes
MA 9 to MA 10 (Figures 28.2a, 28.4a, 28.6a and 28.7a, map 6-7)	Trenchless Crossing Zone: TC12 / TC13	AP 57 RHDHV 435 NHER 12821 F103	A range of multi period features including possible ring ditches, trackways field systems and possible enclosures. These features most likely relate to the possible field systems to the west.	Medium - High (as a WCS)	No. Targeted but no access possible.	**Yes** (slight): The trenchless crossing zone between the East Norfolk Railway and the A149 intersects a number of cropmark features identified and captured as AP 57. There is currently (pre-consent) no geophysical survey data for this area. Despite this interaction, just one linear feature (ditch) intersects a proposed Indicative Trenchless Crossing Footprint in this area (to the immediate east of the A149). Requires geophysical survey and subsequent ground truthing (as part of the programme of archaeological trial trenching)	Low	Minor - Moderate	Yes	TBC	Yes

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
						post-consent.					
	Trenchless Crossing Zone: TC12 / TC13	RHDHV 1494 NHER 13586	East Norfolk Railway (later Great Eastern), Cromer line.	Low	No.	**No:** Interaction between this asset (the East Norfolk Railway, later great Eastern, Cromer Line) and the construction works is negligible due to the adoption of trenchless crossing techniques at this location.	Negligible	Negligible	No	No	No
	Cable route	AP 260 (F106)	Ditches which show as cropmarks, of unknown origin.	Low	No. Targeted but no access possible.	**Yes**: The cable route intersects linear features (ditches) identified and captured as AP 260.	Medium	Minor	Yes	TBC	Yes
MA 10 to MA 10a (Figures 28.2a, 28.4a, 28.6a and 28.7a, maps 4-6)	MA 10	AP 270 RHDHV 1609 NHER 36505 (RHDHV 1377 / RHDHV 6858) (F107)	The NHER identifies an oval enclosure and square enclosure. These features may be formed by natural deposits affecting the crop producing an irregular pattern of cropmarks. An old windmill is recorded in this general location on the 1st Edition OS mapping, which may have left a circular surface impression at this location.	Medium - High (as a WCS)	Yes. The geophysical survey data corroborates the cropmark data in part. Additional linear features (field boundaries) are also recorded.	**Yes** (slight): Mobilisation zone MA 10 interacts with a small number of former field boundary features observed in geophysical survey data acquired in F107. Only a fraction of a single field boundary intersects the indicative mobilisation footprint in this area.	Low	Minor	-	TBC	Yes
	Trenchless Crossing Zone: TC14a/b					**Yes**: To the west of the B1145, linear features and a possible ring-ditch identified and captured as AP 270 intersect the trenchless crossing zone. These features are only partially corroborated by geophysical data acquired in F107. The possible ring-ditch feature is within the proposed Indicative Trenchless Crossing Footprint at this location. Requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.	Medium - High	Moderate - Major (as a WCS)			
	Trenchless Crossing Zone: TC14a/b	RHDHV 1501 NHER 13585	Norfolk and Suffolk Joint Railway (Northern Section).	Low	No.	**No**: Interaction between this asset (the Norfolk and Suffolk Joint Railway (Northern Section) and the construction works is	Negligible	Negligible	No	No	No

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
						negligible due to the adoption of trenchless crossing techniques at this location.					
	Trenchless Crossing Zone: TC14a	AP 262 RHDHV 1608 RHDHV 36504 (F108)	Straight sided enclosure with terminal defined entrance and ditches which may be an associated field system of possible Iron Age / Roman date.	Medium - High (as a WCS)	Yes. The geophysical survey data corroborates the cropmark data in part. Additional linear features (possible archaeology) are also visible in the geophysical survey data.	**No:** Interaction between these features and the construction works is negligible due to the adoption of trenchless crossing techniques at this location.	Negligible	Negligible	-	TBC	Yes
	Trenchless Crossing Zone: TC15	(F109 and F110)	Former field boundaries.	Low	Yes. Former field boundaries visible in F109. No discernible archaeological features in F110.	**Yes** (slight): The indicative trenchless crossing footprint intersects a former field boundary at this location.	Low	Minor	-	TBC	Yes
	Cable route	AP 261 (F113)	Boundaries, which may be linked to similar features in the vicinity recorded by the NMP.	Low	Yes. Geophysical survey data only partially corroborates the cropmark data at this location, with a few former field boundaries visible. No other discernible archaeological features indicated.	**Yes**: the cable route interacts with linear features (boundary ditches) captured in AP 261 and extending into F113.	Medium	Minor	-	TBC	Yes
	Cable route	AP 163 RHDHV 1586 NHER 39000	Site of World War Two and Cold War military structures.	Low - Medium	No. Targeted but no access possible.	**Yes**: the cable route partly interacts with linear features captured in AP 163 (former site of WWII barbed wire entanglement).	Medium	Minor - Moderate	Yes	TBC	Yes
	Side access: Extending south-west and south-east from Paston Road (north-west of Bacton Wood)					**Yes:** Interaction with former extant features identified and captured as AP 163.	Medium	Minor - Moderate			
	Cable route	AP 164 RHDHV 1152 NHER 39007	Undated or post-medieval ditches and pits.	Low	No. Targeted but no access possible.	**Yes**: the cable route interacts in part with a linear feature captured in AP 164 (ditches, field boundaries).	Medium	Minor	Yes	TBC	Yes
	Cable route	RHDHV 1604 NHER 32172	Possible prehistoric hearths (RHDHV 1604)	Medium - High	Yes. No discernible	**No:** There is no interaction with RHDHV 1675 (undated pits).	Negligible	Minor	-	TBC	Yes

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
		and RHDHV 1675 / NHER 52898	and undated pits (RHDHV 1675).		archaeological features visible in the geophysical survey data at this location.	RHDHV 1604 (possible prehistoric hearths) intersects the cable route, however, these features have been previously excavated under an earlier unrelated project.					
	Cable route	(F115 and F116)	A few former field boundaries.	Low	Yes. Geophysical survey data indicates a few field boundaries, linear features of agricultural origin and geological features. Also at least one, if not two, modern services	**No:** the cable route intersects linear features observed in F115 which have been identified as being of agricultural origin. Former field boundaries lie beyond the cable route.	Negligible	Negligible	-	TBC	Yes
	Cable route	AP 227 RHDHV 1290 NHER 39031 (F117 and F118)	Undated linear features.	Low	Yes. The geophysical survey data does not corroborate the cropmark features at this location. Additional former field boundaries are visible in the data, and also present on 1st Edition OS mapping.	**Yes**: the cable route intersects linear features (ditches and field boundaries) identified and captured as AP 227 (F117).	Medium	Minor	-	TBC	Yes
MA 10a to 11 (Figures 28.2a, 28.4a, 28.6a and 28.7a, maps 3-4)	Trenchless crossing location: TC16	AP 239 RHDHV 1635 NHER 39026 (F118)	Undated boundaries and ditches.	Low	Yes. Geophysical survey data partially corroborates the cropmark data in this location.	**No**: Interaction between this feature and the construction works is negligible due to the adoption of trenchless crossing techniques at this location.	Negligible	Negligible	-	TBC	Yes
	Side access: Parallel and adjacent to Plantation Road (north of Bacton Wood)					**Yes** (slight): Slight interaction with northern extent of boundary ditch features identified and captured as AP 239.	Low	Minor			
	Trenchless crossing location: TC16	AP 240 RHDHV 791 NHER 39032 (F119)	Cropmarks of probable Iron Age field system.	Medium - High	Yes. Not corroborated by geophysical survey data. Modern plantation woodland shown on 1st Edition OS mapping.	**No**: based on information available to date, the cropmark features recorded at this location are not visible within the trenchless crossing zone or within indicative trenchless crossing footprint, although the possibility that they do extend into these areas should not be discounted.	Low	Minor – Moderate (as a WCS)	-	TBC	Yes

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
	Trenchless crossing location: TC16	AP 237 RHDHV 1018 NHER 39111 (F119 and F120)	Undated field boundary.	Low	Yes. Not corroborated by geophysical survey data.	**Yes**: a number of cropmark features (ditches / field boundaries) intersect the trenchless crossing zone and indicative trenchless crossing footprint at this location.	Medium	Minor	-	TBC	Yes
	Cable route					**Yes** (slight): a limited number of cropmark features are intersected by the cable route.	Medium	Minor			
	Side access: Two accesses extending northwards from Mill Common Road (east of Plantation Road)					**Yes** (slight): Very slight interaction with field boundary feature (ditch) identified and captured as AP 237.	Medium	Minor			
	Cable route	AP 234 RHDHV 795 / NHER 7014 F120 and F121	Cropmarks of Iron Age to Roman rectilinear enclosure complex and field system.	Medium - High	Yes. Geophysical survey data corroborates the cropmark data to a very small degree. Survey data also shows a limited amount of additional possible archaeological linear features in this location.	**Yes**: the cable route intersects a small number of linear features captured in AP 234 (ditches, field boundaries, trackways). Requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.	Low	Minor - Moderate	-	TBC	Yes
	Side access: Two accesses extending northwards from Mill Common Road (east of Plantation Road)					**Yes** (slight): Very slight interaction with cropmark feature (linear) identified and captured as AP 234.	Low	Minor - Moderate			
	Cable route	AP 231 RHDHV 822 NHER 27237 (RHDHV 538 and NHER 6956)	Cropmarks of multi-period field systems, enclosure and ditches (includes possible ring ditch AP217 - beyond the project boundary).	Medium - High	Yes. The geophysical survey data corroborates the cropmark data to a small degree. Additional features identified as possible	**Yes**: the cable route intersects a small number of linear features captured in AP 231 and possible archaeology (linear features) visible in the geophysical survey data acquired in F122.	Low	Minor - Moderate	-	TBC	Yes

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
		F122 and F123			archaeology are also visible on the survey data, including a possible enclosure, also referred to with regards to AP 225.						
	Cable route	AP 225 RHDHV 854 NHER 27242 (F122)	Cropmarks of undated but possible Roman field system.	Medium	Yes. Not corroborated by geophysical survey data. Additional features identified as possible archaeology are also visible on the survey data, including a possible enclosure, also referred to with regards to AP 231.	**Yes**: the cable route intersects a small number of linear features captured in AP 225 and possible archaeology (linear features) visible in the geophysical survey data acquired in F122.	Low	Minor	-	TBC	Yes
	Cable route	RHDHV 546 NHER 7023 (F122)	Possible Late Bronze Age cremation cemetery, Roman kiln and multi-period finds	High	Yes. The area in which this feature and the cable route interact is covered by cropmark data (see AP 231 and AP 225 above).	**Yes**: the cable route intersects possible archaeology (linear features) visible in the geophysical survey data acquired in F122. The Bronze Age cremation appears to be represented by cropmark data captured as AP 226 and is away to the south of the cable route. The location of the Roman kiln is unclear based on available data but is not suggested by the geophysical survey data as being present within the cable route at this location.	Low	Minor	-	TBC	Yes
	Cable route	AP 223 RHDHV 1149 NHER 38864 AAA11 (F123)	Cropmarks of a medieval to post-medieval road.	Low - Medium	Yes. The geophysical survey data corroborates the cropmark data at this location, although the anomaly is less extensive than suggested by the cropmarks with no clear continuation beyond the post mill (AP 219).	**Yes**: the cable route intersects this recorded medieval / post-medieval road / Holloway visible as cropmarks.	Medium	Minor - Moderate	-	TBC	Yes
	Cable route	AP 220 RHDHV 1166 NHER 27241 AAA12 (F123)	Cropmarks of medieval to post-medieval enclosures, ditches and possible trackway.	Low - Medium	Yes. The geophysical survey data largely corroborates the cropmark data at this location.	**Yes**: the cable route intersects a number of cropmark features (enclosures, ditches and trackways) recorded at this location.	Medium	Minor - Moderate	-	TBC	Yes

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
	Cable route	AP 226 RHDHV 747 NHER 27243 (RHDHV 454 and NHER 7025) AAA12 (F122 and F123)	Cropmarks of possible Bronze Age or Iron Age boundary ditch and multi-period enclosures.	High	Yes. The geophysical survey data largely corroborates the cropmark data at this location. Addition linear features identified as being possible archaeology are also visible in the geophysical survey data within the eastern extent of this AP site, possibly forming part of a wider landscape of land division and enclosure.	**Yes**: the cable route intersects a number of cropmark features (ditches, enclosures and field systems) recorded at this location. Requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.	Low	Moderate	-	TBC	Yes
	Cable route	AP 157 RHDHV 1632 NHER 38860 (F125)	Cropmarks of undated ditch.	Medium - High (as a WCS)	Yes. The geophysical survey data both corroborates and enhances/extends the cropmark features in this location, showing additional boundary features and enclosures.	**Yes**: The cable route intersects cropmark (boundary) features which are visible as being more extensive in the geophysical survey data for F125, which shows additional boundary features and enclosures. Requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.	Medium - High (as a WCS)	Moderate - Major (as a WCS)	-	TBC	Yes
	Cable route	(F125 and F126) AAA12	Complex enclosure / boundary features are visible in this field, and may relate to both AP 157 and / or AP 154.	Medium - High (as a WCS)	Yes. The geophysical survey data shows a concentration of archaeological features at this location not visible in the AP / LiDAR data, including a rectangular double-ditched enclosure Several amorphous anomalies are visible within the enclosure indicative of settlement activity. Several linear and rectilinear anomalies have also been identified which possibly form part of a wider landscape of land division and enclosure.	**Yes**: the cable route intersects features of archaeological interest identified in the geophysical survey data acquired in F125, including a rectangular double-ditched enclosure (F125) and linear features of possible archaeological interest (F126). Requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.	Medium - High (as a WCS)	Moderate - Major (as a WCS)	-	TBC	Yes

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
	Cable route	AP 153 RHDHV 1631 NHER 38853 AAA13 and AAA14 (F128 to F134)	Multi-period field boundaries.	Medium	Yes. Some of the cropmark features are corroborated by the geophysical survey data at this location. A number of additional archaeological features are also visible, indicating a higher potential for subsurface remains than that indicated by the cropmark data alone. Anomalies include a buried trackway, at least two small rectilinear enclosures locating areas of localised settlement (AAA13) and a fragmented irregularly-shaped enclosure (AAA14).	**Yes**: the cable route intersects cropmark (ditch / field boundary) features as well as features of archaeological interest identified in the geophysical survey data acquired in F130. Requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.	Medium	Moderate	-	TBC	Yes
	Side access: South-east of North Walsham / Happisburgh Road (south-west of Ridlington)					**Yes** (slight): Interaction with field boundary features identified and captured as AP 153.	Low	Minor			
	Cable route	AP 136 RHDHV 1146 NHER 38842 (F135 and F136)	Cropmarks of probable medieval to post-medieval field boundary ditches.	Low - Medium	Yes. The geophysical survey data partially corroborates the cropmark data at this location with some cropmark features visible as being more extensive than indicated by the cropmark data alone.	**No**: only the northernmost boundary of this AP feature intersects the cable route (by some 5m) with the cropmark features recorded within it avoided by the cable route.	Negligible	Negligible	-		
	Cable route	AP 137 RHDHV 807 NHER 21835 AAA15 and AAA16 (F136 to F138)	Cropmarks of probable Iron Age to Roman and medieval to post-medieval features.	Medium - High	Yes (but more to complete). Many of the cropmark features are corroborated by the geophysical survey data at this location. A number of additional archaeological features are also visible, indicating more dense and complex remains and a higher potential for subsurface remains than that indicated by the cropmark data alone. An extensive series of ditches,	**Yes**: The cable route interacts with a dense concentration of features at the northern extent of F137 as shown in the geophysical survey data. In the area of AP 137 itself, the highest concentration of archaeological features has been avoided by means of deliberate and proactive routeing of the cable route to the north-west. There is nonetheless an interaction between the cable route and some of the more peripheral looking features of	Medium-High	Moderate - Major (as a WCS)	Yes	TBC	Yes

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
					trackways and conjoined enclosures has been identified, confirming that the complex extends at least 215m further east than was previously known (AAA15). Further ditched enclosures and several anomalies have also been identified (AAA16), including a possible kiln / furnace (beyond the RLB).	archaeological interest visible in F137 and captured as AP 137. Requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.					
MA 11 to Landfall (Figures 28.2a, 28.4a, 28.6a and 28.7a, maps 1-3)	MA 11					**Yes**: Mobilisation zone MA 11 interacts with a number of linear features observed in F137, including a dense concentration of features at the northern extent, just south of the Happisburgh Road. The indicative mobilisation area footprint is proposed in a location adjacent to the cable route, just to the south of this concentration of features. Requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.	Low	Minor - Moderate (as a WCS)			
	Cable route	AP 250 RHDHV 784 NHER 38730 AAA17 (F147 to F152)	Cropmarks of Iron Age to Roman trackway, field system and possible farmstead.	Medium - High	Yes (but more to complete). Geophysical survey data at this location corroborates and, in some instances, extends the features visible in the cropmark data, with additional linear features of possible archaeological interest indicating a regular rectilinear field system. Numerous discrete anomalies are also identified which may locate pits.	**Yes**: the cable route intersects a small number of cropmark features (trackways, field boundaries, ditches) or linear features of possible archaeological interest identified in the geophysical survey data acquired in F149 and F151. Despite this interaction, the cable has been deliberately and proactively routed to the east to avoid the densest concentration of archaeological features in this area. Requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.	Low	Minor - Moderate (as a WCS)	Yes	TBC	Yes
	Side Access:					**Yes:** Interaction with features	Low	Minor -			

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
	Running north-south, parallel and adjacent to Grub Street (south-west of Happisburgh)					visible on geophysical data acquired in the east of F149 (possible archaeology).		Moderate			
	Cable route	AP 128 RHDHV 1133 NHER 38738 AAA18 (F157 and F158)	Undated trackway.	Low	Yes. Geophysical survey data partially corroborates the cropmark data at this location.	**Yes** (slight): there is a slight / minimal interaction between then northern-most crop features captured in AP 128 and the cable route.	Low	Minor	-	TBC	Yes
	Cable route	AP 120 RHDHV 915 NHER 38769 AAA19 (F159 and F160)	Ditches boundaries and coaxial field system, unknown or possibly Roman date.	Medium - High	Yes (but more to complete). The geophysical survey data corroborates the cropmark data at this location. The survey data also shows a large number of additional archaeological features in and to the east of F160, indicative of roadside settlement activity, with a number of conjoined enclosures visible, signifying a more dense concentration of sub-surface remains than that indicated by the cropmark data alone. Anomalies within the interior of the enclosures indicate settlement activity.	**Yes**: the cable route intersects a number of cropmark features (trackways, ditches, field boundaries and coaxial field system) captured in AP 120. Requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.	Low	Minor - Moderate	Yes	TBC	Yes
	Cable route	(F161 and F162 (west))	Archaeological features are visible in the geophysical survey data, including linear features. Possibly relates to features observed in F160.	Medium	Yes. Geophysical survey data fills a potential gap in the data between AP 119 and 120 to the west and AP 80 and 91 to the east. Anomalies are less-well defined with no clear	**Yes**: there is an interaction between the cable route and a number of features of archaeological or possible archaeological interest identified in geophysical survey data acquired for F161.	Medium	Moderate	-	TBC	Yes

Route Section	Project Element	ID (AP, RHDHV, NHER) + (Headland Field Numbers / AAAs)	Overview	Anticipated Heritage Significance (Importance)	Subject to Priority Archaeological Geophysical Survey Pre-application / High-level Results	Interaction (WCS)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
									Geophysical Survey	Metal Detecting / Field Walking	Trial Trenching
					enclosures discernible although they are characteristic of settlement activity, with indications of localised quarrying and / or industry on the margins of the settlement.	Requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.					
Landfall Figures 28.2a, 28.4a, 28.6a and 28.7a (map 1)	Cable route	AP 80 RHDHV 814 NHER 36495 AAA19 and AAA20 (F162 and F164 to F166)	Extensive area of multi period cropmarked ditches - likely field systems tracks and boundaries.	Medium	Yes. Geophysical survey data partially corroborates the cropmark data at this location. This feature extends into the Landfall zone.	**Yes**: the landfall compound zone intersects a small number of cropmark features captured as AP 80, although there is only a slight interaction with these cropmarks and the landfall indicative compounds, as a result of micrositing undertaken as part of the engineering design. Requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.	Low - Medium	Minor - Moderate	-	TBC	Yes
	Cable route	AP 91 RHDHV 828 NHER 16015 AAA19 (F165 and F166)	Extensive cropmarked multi period landscape, field trackways, possible grubenhauser (sunken houses) and ditches.	High (as a WCS)	Yes. The geophysical survey data partially corroborates the cropmark data at this location. The survey data also shows faint and fragmentary linear anomalies which correspond to a series of cropmark data although no clear pattern is discernible in the data. This feature extends into the Landfall zone.	**Yes**: the landfall compound zone intersects a small number of cropmark features captured as AP 91, although there is only a slight interaction with these cropmarks and the landfall indicative compounds, as a result of micrositing undertaken as part of the engineering design. Requires ground truthing (as part of the programme of archaeological trial trenching) post-consent.	Low	Moderate (as a WCS)	-	TBC	Yes

13 APPENDIX 4 OUTLINE SCHEDULE OF ARCHAEOLOGICAL REQUIREMENTS FOR ABOVE GROUND HERITAGE ASSETS

13 OUTLINE SCHEDULE OF ARCHAEOLOGICAL REQUIREMENTS FOR ABOVE GROUND HERITAGE ASSETS

Note: The outlined schedule of archaeological requirements for above ground heritage assets summarised in the following table has been prepared based on Scenario 2 (Norfolk Vanguard does not proceed to construction and Norfolk Boreas proceeds alone. Norfolk Boreas undertakes all works required as an independent project). Should Norfolk Vanguard proceed to construction, thereby installing ducts and other shared enabling works for Norfolk Boreas (Scenario 1), this schedule will be updated accordingly in the post-consent stages of the project. The updated schedule will feed into any survey-specific WSIs, as necessary, and also inform subsequent and additional mitigation measures.

RHDHV ID / NHER / AP ID	Name	Description / Justification for Inclusion	Anticipated Heritage Significance (Importance)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
						Earthwork Condition Survey	Built Heritage Survey / Historic Building Recording	Other form(s) of Ground-truthing
RHDHV 1101 NHER 29500 ES Chapter Figure 28.2 (map 8)	Undated earthworks and post-medieval bank.	Described in the NHER as a 'hollow way extending south from farm buildings, for approximately 200m... 0.3m deep and banked in part on both sides. Higher level to west than to east. Appears to correspond to common edge roadway shown on Faden's map'.	Low - Medium	Medium	Minor - Moderate	TBC	N/A	Yes
RHDHV 1379 NHER 7361 ES Chapter Figure 28.2 (map 16)	Sparham Limekiln.	A post-medieval limekiln that ceased to function in the 19th century and was then converted into two cottages. The NHER refers to the demolition of the upper cottage - no mention is made of the lower cottage.	Low	Low	Minor	N/A	N/A	TBC
RHDHV 1456 NHER 55475 ES Chapter Figure 28.2 (map 4)	Witton Park.	Witton Park is described in the NHER record as having been 'partially destroyed through compulsory ploughing during World War II'. This indicates that elements of the park may still remain.	Low	Low	Minor	N/A	N/A	Yes

RHDHV ID / NHER / AP ID	Name	Description / Justification for Inclusion	Anticipated Heritage Significance (Importance)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
						Earthwork Condition Survey	Built Heritage Survey / Historic Building Recording	Other form(s) of Ground-truthing
RHDHV 1529 NHER 15918 ES Chapter Figure 28.2 (map 1)	World War Two pillbox.	A Type 26 pillbox recorded as 'still present' in the NHER and visible on satellite imagery for the area.	Low	N/A	No Impact	N/A	No	N/A
RHDHV 1559 NHER 40950 ES Chapter Figure 28.2 (map 18)	World War Two buildings and the site of a World War Two antenna array.	The NHER states that 'some of the buildings survive but are derelict'.	Low - Medium	Low	Minor	N/A	TBC	Yes
RHDHV 1673 NHER 50412 ES Chapter Figure 28.2 (map 3)	Series of low banks in Witton.	Described in the NHER as a 'series of low banks, 0.2 - 0.3 metres high, up to 2 metres spread, forming incomplete enclosures'. Last visited and surveyed in 1993, as part of an earthwork survey conducted by B. Cushion.	Low	Medium	Minor	TBC	N/A	Yes

RHDHV ID / NHER / AP ID	Name	Description / Justification for Inclusion	Anticipated Heritage Significance (Importance)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
						Earthwork Condition Survey	Built Heritage Survey / Historic Building Recording	Other form(s) of Ground-truthing
RHDHV 1682 NHER 7295 ES Chapter Figure 28.2 (map 22)	Smugglers' Lane.	The landowner has indicated that a section of this feature survives as a hollow way (earthwork). This asset has been assigned a precautionary medium heritage significance until such a time as the survival and condition of this feature can be more fully ascertained.	Medium	Medium	Moderate	TBC	N/A	Yes
RHDHV 1816 NHER 7364 ES Chapter Figure 28.2 (map 11)	Oulton Airfield.	The NHER states that 'the runways were used as foundations for battery farm sheds. Some of the buildings remain, including the control tower'. The record also notes that the 'Hangar remains to the south-east. Several Nissen huts visible.'	Low - Medium	Low	Minor	N/A	TBC	Yes
AP 6 RHDHV 811 NHER 2999 ES Chapter Figure 28.4 (map 16)	Extensive area of likely multi period eroded field boundaries, tracks, ditches and possible enclosures.	Three slight banks are recorded running parallel to one another in a north-south orientation across the cable route. A possible candidate for Earthwork Condition Survey, post-consent.	Medium - High	Low	Minor	TBC	N/A	Yes

RHDHV ID / NHER / AP ID	Name	Description / Justification for Inclusion	Anticipated Heritage Significance (Importance)	Magnitude of Effect	Adverse Impact Significance Pre-mitigation	Post-consent Initial Informative Stages of Mitigation		
						Earthwork Condition Survey	Built Heritage Survey / Historic Building Recording	Other form(s) of Ground-truthing
AP 48 RHDHV 1615 NHER 36454 ES Chapter Figure 28.4 (map 8)	A series of former field boundaries and trackways of unknown date. These features are likely to be more widespread than their visible extent.	A possible former field boundary recorded as a bank / earthwork is mapped intersecting (perpendicular to) the proposed cable route.	Low	Medium	Minor	TBC	N/A	Yes
RHDHV 1490 NHER 13581	Route of Midland and Great Northern Joint Railway (Great Yarmouth to Sutton Bridge). Now dismantled.	The NHER records a number of stations, signal boxes, goods sheds and concrete mileposts that remain associated with this wider heritage asset.	Low	Low	Minor	N/A	TBC	Yes

14 APPENDIX 5 OUTLINE SCHEDULE OF ARCHAEOLOGICAL REQUIREMENTS FOR FINDSPOTS RECORDED BY THE NHER WITHIN / OVERLAPPING THE ONSHORE PROJECT AREA

14 APPENDIX 5 - OUTLINE SCHEDULE OF ARCHAEOLOGICAL REQUIREMENTS FOR FINDSPOTS RECORDED BY THE NHER WITHIN / OVERLAPPING THE ONSHORE PROJECT AREA

Note: The outlined schedule of archaeological requirements for findspots summarised in the following table has been prepared based on Scenario 2 (Norfolk Vanguard does not proceed to construction and Norfolk Boreas proceeds alone. Norfolk Boreas undertakes all works required as an independent project). Should Norfolk Vanguard proceed to construction, thereby installing ducts and other shared enabling works for Norfolk Boreas (Scenario 1), this schedule will be updated accordingly in the post-consent stages of the project. The updated schedule will feed into any survey-specific WSIs, as necessary, and also inform subsequent and additional mitigation measures.

RHDHV ID	NHER Pref Ref	Monument Types	Period	Name	Easting	Northing	Grid Ref	Post-consent Initial Informative Stages of Mitigation (e.g. Fieldwalking / Metal Detecting Survey)
384	29243	BURNT MOUND, FINDSPOT(S)	Prehistoric	Prehistoric flints and Roman pottery	596237	314573	TF 9623 1457	TBC
386	31855	FINDSPOT(S)	Prehistoric	Prehistoric worked flints	590460	311132	TF 9046 1113	TBC
394	41708	FINDSPOT(S)	Prehistoric	Neolithic flint find	629873	331860	TG 29 31	TBC
400	7017	BURNT MOUND, FINDSPOT(S)	Prehistoric	Prehistoric pot boiler concentrations, Middle Saxon, medieval and post medieval sherds	632301	331268	TG 323 312	TBC
407	28424	FINDSPOT	Prehistoric	Prehistoric flint scraper	610080	323816	TG 1008 2381	TBC
417	41587	FINDSPOT	Prehistoric	Prehistoric flint flake	639073	330417	TG 39073 30417	TBC
422	41593	FINDSPOT(S)	Prehistoric	Prehistoric flint artefacts	639180	330348	TG 39180 30348	TBC
425	41596	FINDSPOT	Prehistoric	Prehistoric flint scraper	638918	330526	TG 38918 30526	TBC
435	12821	ENCLOSURE, TRACKWAY, RING DITCH(ES), D SHAPED ENCLOSURE, SQUARE ENCLOSURE, LINEAR FEATURE, FIELD BOUNDARY, FINDSPOT(S).	Lower Palaeolithic to Medieval	Possible Bronze Age ring ditch and undated features	626364	331302	TG 2636 3130	TBC

RHDHV ID	NHER Pref Ref	Monument Types	Period	Name	Easting	Northing	Grid Ref	Post-consent Initial Informative Stages of Mitigation (e.g. Fieldwalking / Metal Detecting Survey)
447	29240	FINDSPOT(S)	Lower Palaeolithic to Medieval	Prehistoric flint, Late Saxon and medieval pottery	595136	314222	TF 9513 1422	TBC
454	7025	CREMATION, DITCH, FINDSPOT(S)	Lower Palaeolithic to Medieval	Prehistoric ditch, possible Bronze Age cremation	633076	330821	TG 33 30	TBC
460	17351	ENCLOSURE, FINDSPOT(S), ROAD, FARMSTEAD	Lower Palaeolithic to Post Medieval	Multi-period finds	638689	329820	Not displayed	TBC
479	29239	FINDSPOT(S)	Lower Palaeolithic to Post Medieval	Prehistoric flint and multi-period pottery	595356	314226	TF 9535 1422	TBC
480	29241	FEATURE?, PIT?, FINDSPOT(S)	Lower Palaeolithic to Post Medieval	Multi-period finds and pit-like geophysical anomalies	595474	314531	TF 9547 1453	TBC
481	29242	FINDSPOT(S)	Lower Palaeolithic to Post Medieval	Prehistoric flakes and multi-period pottery	595881	314554	TF 9588 1455	TBC
500	33962	FINDSPOT(S)	Lower Palaeolithic to Post Medieval	Prehistoric pot boilers and worked flints, medieval to post medieval pottery and tile fragments, Bacton to Great Yarmouth pipeline project	635394	331247	TG 3539 3124	TBC
511	34926	FINDSPOT(S)	Lower Palaeolithic to Post Medieval	Prehistoric flints and multi-period pottery and metal objects	638702	329937	TG 38 29	TBC
516	41020	FINDSPOT(S)	Lower Palaeolithic to Post Medieval	Prehistoric and post medieval finds scatter	638803	330472	TG 38803 30472	TBC
524	51470	FINDSPOT(S)	Lower Palaeolithic to Post Medieval	Multi-period finds	612927	324808	TG 12927 24808	TBC
525	51471	PIT, DITCH, PALAEOCHANNEL, FINDSPOT(S)	Lower Palaeolithic to Post Medieval	Post-medieval find and possible prehistoric features	612915	324582	TG 12915 24582	TBC
531	60062	ENCLOSURE, DITCH, PIT(S), FINDSPOT(S)	Lower Palaeolithic to Post Medieval	Undated enclosure, ditches and pits and multi-period finds	620734	328868	TG 2073 2886	TBC
532	60721	FINDSPOT(S)	Lower Palaeolithic to Post Medieval	Prehistoric and post-medieval finds	631049	331614	TG 3104 3161	TBC
538	6956	DITCH, BURNT MOUND, FINDSPOT(S)	Lower Palaeolithic to Post Medieval	Pot boiler concentration, undated possible ditches and multi-period finds	632971	331257	TG 32 31	TBC
539	6964	HOLLOW WAY, FINDSPOT(S)	Lower Palaeolithic to Post Medieval	Mesolithic and Neolithic flints, Neolithic to post medieval pottery sherds	632138	331582	TG 321 315	TBC

RHDHV ID	NHER Pref Ref	Monument Types	Period	Name	Easting	Northing	Grid Ref	Post-consent Initial Informative Stages of Mitigation (e.g. Fieldwalking / Metal Detecting Survey)
544	7013	FINDSPOT(S)	Lower Palaeolithic to Post Medieval	Prehistoric flints, late prehistoric, Early Saxon, medieval and post medieval pottery sherds	632114	331297	TG 321 312	TBC
545	7018	HEARTH, FINDSPOT(S)	Lower Palaeolithic to Post Medieval	Possible Middle to Late Bronze Age hearth, multi-period finds including Late Bronze Age sword fragments	632492	331291	Not displayed	TBC
546	7023	CEMETERY, MOUND, BURNT MOUND, POTTERY KILN, ROUND BARROW, CREMATION, FINDSPOT(S)	Lower Palaeolithic to Post Medieval	Possible Late Bronze Age cremation cemetery, Roman kiln and multi-period finds	632619	330852	TG 32 30	Yes
547	7037	FINDSPOT(S)	Lower Palaeolithic to Post Medieval	Prehistoric flakes and scrapers, medieval to post medieval pottery sherds and brick fragments	632475	331052	TG 3247 3105	TBC
554	58489	FINDSPOT(S)	Upper Palaeolithic to Early Neolithic	Early Upper Palaeolithic and Early Neolithic worked flints	621071	329245	TG 2107 2924	TBC
564	51089	FINDSPOT(S)	Early Mesolithic to Post Medieval	Prehistoric, Roman, Saxon, medieval and post medieval finds	637301	330826	TG 37 30	TBC
573	39934	FINDSPOT	Neolithic	Neolithic flint flake	606392	319798	TG 06 19	TBC
577	7391	FINDSPOT	Neolithic	Neolithic axehead	616530	326807	TG 1653 2680	NT Land. Fieldwalking / Metal Detecting (TBC).
605	7353	FINDSPOT	Neolithic	Neolithic flint find	614317	325330	TG 1431 2533	TBC
623	53933	FINDSPOT	Late Prehistoric	Late Prehistoric flake	630138	331898	TG 30 31	TBC
635	34331	FINDSPOT(S)	Early Neolithic to Post Medieval	Multi-period finds	638316	330272	TG 38 30	TBC
636	36792	FINDSPOT(S)	Early Neolithic to Post Medieval	Multi-period finds	621352	329367	TG 21 29	TBC
641	48922	FINDSPOT(S)	Early Neolithic to Post Medieval	Prehistoric, Roman, medieval and post medieval objects	610179	323876	TG 10 23	TBC
642	49075	FINDSPOT(S)	Early Neolithic to Post Medieval	Multi-period finds	594605	312656	TF 94 12	TBC
644	50117	FINDSPOT(S)	Early Neolithic to Post Medieval	Multi-period finds	637820	330029	TG 37 30	TBC

RHDHV ID	NHER Pref Ref	Monument Types	Period	Name	Easting	Northing	Grid Ref	Post-consent Initial Informative Stages of Mitigation (e.g. Fieldwalking / Metal Detecting Survey)
647	50376	FINDSPOT(S)	Early Neolithic to Post Medieval	Multi-period finds	621385	329730	TG 21 29	TBC
651	51312	FINDSPOT(S)	Early Neolithic to Post Medieval	Prehistoric, Roman, Saxon, medieval and post medieval finds scatter	637347	330239	TG 37 30	TBC
652	51394	FINDSPOT(S)	Early Neolithic to Post Medieval	Multi-period finds	637289	330027	Not displayed	TBC
653	52655	FINDSPOT(S)	Early Neolithic to Post Medieval	Multi-period finds	623161	330898	Not displayed	TBC
654	52736	FINDSPOT(S)	Early Neolithic to Post Medieval	Multi-period finds	636881	330264	TG 36 30	TBC
658	53732	FINDSPOT(S)	Early Neolithic to Post Medieval	Prehistoric flint flake and medieval to post-medieval finds	609474	323978	TG 09 23	TBC
661	53801	FINDSPOT(S)	Early Neolithic to Post Medieval	Multi-period finds	637222	330311	TG 37 30	TBC
664	54214	FINDSPOT(S)	Early Neolithic to Post Medieval	Late prehistoric flint, medieval and medieval/post-medieval metal objects and post-medieval coin	589514	311409	TF 89 11	TBC
670	58979	FINDSPOT(S)	Early Neolithic to Post Medieval	Multi-period finds	639028	329994	TG 39 29	TBC
671	58980	FINDSPOT(S)	Early Neolithic to Post Medieval	Multi-period finds	638740	330276	TG 38 30	TBC
673	60320	FINDSPOT(S)	Early Neolithic to Post Medieval	Late Iron Age to Early Saxon and medieval to post-medieval finds	593246	311469	Not displayed	Metal Detecting (as previously identified by NCC HES)
674	6890	FINDSPOT(S)	Early Neolithic to Post Medieval	Multi-period finds	630562	331925	TG 30 31	TBC
684	49084	FINDSPOT(S)	Late Neolithic to Post Medieval	Late Neolithic core, Roman, medieval and post medieval objects	610289	323982	TG 10 23	TBC
759	31813	FINDSPOT(S)	Early Bronze Age to Post Medieval	Multi-period metal finds	605987	320458	Not displayed	TBC
764	58929	FINDSPOT(S)	Early Bronze Age to Post Medieval	Early Bronze Age, Roman and post-medieval finds	606175	320768	TG 06 20	TBC
766	37268	FINDSPOT(S)	Beaker to Post Medieval	Bronze Age and medieval or post medieval finds	612170	323888	TG 12 23	TBC

RHDHV ID	NHER Pref Ref	Monument Types	Period	Name	Easting	Northing	Grid Ref	Post-consent Initial Informative Stages of Mitigation (e.g. Fieldwalking / Metal Detecting Survey)
773	31765	FINDSPOT(S)	Late Bronze Age to Post Medieval	Multi-period finds scatter	606245	319836	TG 06 19	TBC
776	56476	FINDSPOT(S)	Late Bronze Age to Modern	Multi-period finds.	606320	320359	Not displayed	Metal Detecting (as previously identified by NCC HES)
777	2990	FINDSPOT	Iron Age	Iron Age horse bit	603092	316224	TG 0309 1622	TBC
810	29487	FINDSPOT(S)	Early Iron Age to Post Medieval	Multi-period finds	606506	319599	TG 0650 1959	TBC
815	35972	FINDSPOT(S)	Early Iron Age to Post Medieval	Multi-period metal finds	593931	312037	Not displayed	TBC
827	56756	FINDSPOT(S)	Early Iron Age to Post Medieval	Multi-period finds	623726	330638	TG 23 30	TBC
842	2825	FINDSPOT	Roman	Roman quern	597642	315284	TF 9764 1528	TBC
859	57225	FINDSPOT	Roman	Roman coin hoard	594822	313483	Not displayed	TBC
884	51678	FINDSPOT(S)	Roman to Medieval	Roman, Saxon and Medieval finds	593412	311086	TF 93 11	TBC
885	56483	FINDSPOT(S)	Roman to Medieval	Roman and medieval finds	606458	320973	TG 06 20	TBC
894	30977	FINDSPOT(S)	Roman to Post Medieval	Roman coin, medieval to post medieval objects	612041	324177	TG 12 24	TBC
895	31041	FINDSPOT(S)	Roman to Post Medieval	Roman, medieval and post medieval finds	612200	324504	TG 12 24	TBC
896	31080	FINDSPOT(S)	Roman to Post Medieval	Roman, medieval to post-medieval finds	593676	311584	TF 93 11	TBC
902	36630	FINDSPOT(S)	Roman to Post Medieval	Roman military horse harness pendant, post medieval weight	601711	315357	TG 01 15	TBC
921	49076	FINDSPOT(S)	Roman to Post Medieval	Multi-period finds	594559	312381	TF 94 12	TBC
930	51676	FINDSPOT(S)	Roman to Post Medieval	Roman, Medieval and Post-Medieval finds	593959	312543	TF 93 12	TBC
938	57956	FINDSPOT(S)	Roman to Post Medieval	Roman and Late Saxon to post-medieval finds	638046	330235	TG 38 30	TBC

RHDHV ID	NHER Pref Ref	Monument Types	Period	Name	Easting	Northing	Grid Ref	Post-consent Initial Informative Stages of Mitigation (e.g. Fieldwalking / Metal Detecting Survey)
949	33094	FINDSPOT(S)	Roman to Post Medieval	Multi-period finds scatter	617900	327700	Not displayed	NT Land. Fieldwalking / Metal Detecting (TBC).
950	34332	FINDSPOT(S)	Roman to Post Medieval	Roman and medieval pottery sherds	638700	330460	TG 38 30	TBC
965	56255	FINDSPOT(S)	Early Saxon to Post Medieval	Multi-period finds	609215	323767	TG 09 23	Metal Detecting (as previously identified by NCC HES)
966	56980	FINDSPOT(S)	Early Saxon to Post Medieval	Multi-period metal objects	608751	323427	TG 08 23	Metal Detecting (as previously identified by NCC HES)
985	56104	FINDSPOT(S)	Late Saxon to Post Medieval	Late Saxon, medieval and post-medieval metal objects	606553	319940	TG 0655 1994	TBC
1007	29235	FINDSPOT(S)	Medieval	Medieval pottery	594920	314048	TF 9492 1404	TBC
1030	59849	FINDSPOT(S)	Medieval	Medieval coins	625649	331113	TG 25 31	TBC
1056	31349	FINDSPOT	Medieval	Medieval pilgrim badge	605020	318020	TG 05 18	TBC
1064	36976	FINDSPOT	Medieval	Medieval buckle	603789	317252	TG 03 17	TBC
1069	40475	FINDSPOT(S)	Medieval	Medieval metal finds	628205	331405	TG 28 31	TBC
1117	39992	FINDSPOT(S)	Medieval to Post Medieval	Medieval and post medieval finds	621472	330013	TG 21 30	TBC
1175	50274	FINDSPOT(S)	Medieval to Post Medieval	Medieval coin and post medieval belt mount	638440	330279	TG 38 30	TBC
1185	51667	FINDSPOT(S)	Medieval to Post Medieval	Medieval and post-medieval finds	600290	316354	TG 00 16	TBC
1189	54108	FINDSPOT(S)	Medieval to Post Medieval	Medieval to post-medieval metal objects	609606	323826	TG 09 23	TBC
1190	54211	FINDSPOT(S)	Medieval to Post Medieval	Medieval and post-medieval artefacts	594751	313003	TF 94 13	TBC
1192	55797	FINDSPOT	Medieval to Post Medieval	A medieval or post-medieval discoidal lead weight	589713	311065	TF 89 11	TBC
1194	56324	FINDSPOT(S)	Medieval to Post Medieval	Medieval to post-medieval finds	610299	323794	TG 10 23	TBC

RHDHV ID	NHER Pref Ref	Monument Types	Period	Name	Easting	Northing	Grid Ref	Post-consent Initial Informative Stages of Mitigation (e.g. Fieldwalking / Metal Detecting Survey)
1196	56484	FINDSPOT(S)	Medieval to Post Medieval	Medieval and post-medieval finds	606942	321016	TG 06 21	TBC
1248	57855	FINDSPOT	Medieval to Post Medieval	Medieval or Early Post Medieval vessel	632104	331424	TG 32 31	TBC
1312	53960	FINDSPOT	Post Medieval	Post medieval button	637787	330199	TG 37 30	TBC
1315	56485	FINDSPOT	Post Medieval	Post-medieval coin.	606917	320731	TG 06 20	TBC
1316	58191	POND, CLAY PIT?, EXTRACTIVE PIT?, DITCH, DRAIN, FINDSPOT	Post Medieval	Post-medieval ditches and pits/ponds	588886	310730	TF 8888 1073	TBC
1593	16284	SITE, FINDSPOT(S)	Unknown	Undated cropmarks, multi-period finds scatter	602249	314795	TG 02 14	TBC
1599	29236	SITE, FINDSPOT(S)	Unknown	Medieval and post medieval pottery	595030	314044	TF 9503 1404	TBC
1677	6919	FINDSPOT	Undated	Iron torc	631069	331529	TG 310 315	TBC
1790	61646	FINDSPOT(S)	Prehistoric	Potentially Iron Age pottery sherds and prehistoric worked and/or burnt flints	597323	314804	TF 9732 1480	TBC
1797	61278	FINDSPOT(S)	Medieval to Post Medieval	-	592729	310926	TF 92 10	TBC
1798	61309	FINDSPOT(S)	Medieval to World War Two	Scatter of World War Two ammunition and aluminium debris	592218	311085	TF 92 11	TBC
1802	61230	FINDSPOT	Post Medieval	-	593021	311335	TF 93 11	TBC
1832	39912	FINDPSPOT	Roman	Roman brooch	589921	310987	TF 89 10	TBC
1835	58428	FINDPSPOT	Medieval	Medieval buckle	635699	331125	TG 35 31	TBC

15 APPENDIX 6 WSI: PRIORITY ARCHAEOLOGICAL GEOPHYSICAL SURVEY (TERRESTRIAL ARCHAEOLOGY)

REPORT

Written Scheme of Investigation: Priority Archaeological Geophysical Survey (Terrestrial Archaeology) Norfolk Vanguard Offshore Wind Farm

WSI: Priority Archaeological Geophysical Survey

Client: Norfolk Vanguard Ltd.

Reference: PB4476.003.046

Revision: 0.2/Draft

Date: 12 October 2017

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Project number:	PB4476
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Project related

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Acronyms

Appendix A: Figures (Maps 1 to 24)

Executive Summary

This Written Scheme of Investigation (WSI) has been prepared to provide details and methodologies of the initial phase of Priority Archaeological Geophysical Survey associated with the onshore elements of the Norfolk Vanguard Offshore Wind Farm.

All (non-intrusive) archaeological geophysical survey work will be undertaken in line with the Chartered Institute for Archaeologists (CIfA) standard and guidance for geophysical survey, as well as other specific and relevant heritage guidance documentation, including 'Geophysical Survey in Archaeological Field Evaluation' (English Heritage - now Historic England, 2008).

This WSI document, detailing the proposals for the Priority Archaeological Geophysical Survey work, has been submitted to and approved in advance of commencement by Norfolk County Council (NCC) Historic Environment Service (HES), as the relevant historic environment consultee with respect to the proposed survey work.

The document also provides the methodology, scope of work and other information and requirements that must be strictly adhered to by the appointed archaeological contractor (Headland Archaeology) in undertaking and reporting on the geophysical survey.

The Priority Archaeological Geophysical Survey has been discussed in detail with NCC HES, including the individual areas being proposed for priority survey on an area by area basis, and the methodology broadly follows the same requirements and approaches undertaken on other recent linear schemes of a similar/comparable nature, including in Norfolk.

1 Introduction and Project Background

Norfolk Vanguard Offshore Wind Farm is being developed by Norfolk Vanguard Ltd., with a capacity of 1800MW, enough to power 1.3 million UK households. The offshore elements of the wind farm comprises two distinct areas, Norfolk Vanguard East (NV East) and Norfolk Vanguard West (NV West) and will be connected to the shore by offshore export cables installed within the offshore cable corridor. The project will also require onshore infrastructure in order to connect the offshore wind farm to the Necton National Grid substation. The onshore project area comprises:

- Landfall;
- Cable relay station (only required under the HVAC electrical scenario);
- Buried electrical cables in the onshore cable corridor, from landfall at Happisburgh to the onshore project substation;
- Onshore project substation; and
- Extension to the Necton National Grid substation, including overhead line modification.

The current Development Consent Order (DCO) application programme for the project is as follows:

- Preliminary Environmental Information (PEIR) submission – Q4 2017
- Environmental Statement (ES) and DCO application submission – Q2 2018

Regular and ongoing consultation with the Expert Topic Group (the historic environment consultees) with respect to onshore archaeology and cultural heritage forms an important and central element to the archaeology and cultural heritage assessment, as well as survey and evaluation work to be undertaken as part of the EIA process and beyond.

As noted in previous documentation, it is envisaged that a comprehensive onshore archaeological assessment, survey and evaluation programme is likely to be required (followed by the agreement of appropriate mitigation measures/responses).

The results of the Aerial Photographic (AP) and LiDAR data assessment have now been reviewed alongside the Historic Environment Record (HER) data with a view to identifying areas within the onshore project area in which buried archaeological remains may be present and may require further investigation. The features identified in the AP and LiDAR data assessment have formed the basis of the Priority Archaeological Geophysical Survey areas highlighted (see **Maps 1-24** below), i.e. where these features were mapped as either intersecting or located wholly within the onshore project area boundary. For the majority, these AP/LiDAR features are also encapsulated within the NHER, although there are a number of instances in which the AP/LiDAR features do not correspond to existing, previously recorded HER records.

In addition, as part of this corroboration exercise, areas in which HER records with no corresponding AP/LiDAR feature were also reviewed. Records for assets within or intersecting the onshore project area boundary, considered to be of some importance, and which were considered to warrant and benefit from additional survey (in order to understand the potential risks) have also been included within the Priority Archaeological Geophysical Survey areas.

As a general rule the Priority Archaeological Geophysical Survey will only cover the extent of the recorded AP assets located within the onshore project area boundary. An exception to this approach is the recorded grounds of St Mary's Chapel at Reepham (**AP 24** to **26** – **Map 14**). Due to this asset receiving a lot of

public interest, the proposed priority survey extends beyond the onshore project area boundary in order to capture the full extent of the recorded asset with the aim of satisfying the growing interest in the project and its location in proximity to St. Mary's Chapel.

There are also two areas of potential 'Contingency' geophysical survey associated with **APs 6 / 7** (**Map 17**) and **APs 51 / 52** (**Map 8**). These are related to ongoing routing/re-routing discussions, and geophysical survey will only be undertaken in these areas if viable, feasible re-routes can be established in principle (taking account of other environmental, engineering and land option constraints), and if the Norfolk Vanguard Project Team wishes to explore these options further. They do not in any way represent a firm requirement or formal commitment to establish re-routing in these areas, as a result of potential buried archaeological remains, at this stage.

The total area identified as requiring/benefitting from Priority Archaeological Geophysical Survey equates to approximately **750** hectares (ha) out of a total onshore project area of approximately **1680ha**. These areas are based on the onshore project area boundary (see **Maps 1-24**).

The potential 'Contingency Areas' equate to an additional approximately **33**ha.

Data collected from the archaeological geophysical survey within the Norfolk Vanguard onshore project area boundary will ultimately directly inform archaeological trial trench locations and a survey-specific WSI for trial trenching. Trial trenching is, however, proposed to be undertaken post-consent when for example land access rights are more strongly in favour of required intrusive project surveys being granted access.

Table 1.1: Potential Heritage Assets (recorded features and anomalies) identified as requiring Priority Geophysical Survey

APS / RHDHV / NHER Pref Ref ID(s)	Brief Description
AP 69 / RHDHV 1547 / NHER 38785 **AP 71** / RHDHV 1508 / NHER 38781 **AP 78** / RHDHV 1135 & RHDHV 1144 / NHER 38743 & 38777 **AP 79** / RHDHV 715 / NHER 38775 **AP 80** / RHDHV 814 / NHER 36495 **AP 81** / RHDHV 714 / NHER 38774 **AP 84** / RHDHV 1143 / NHER 38773 **AP 86** / RHDHV 1529 / NHER 15918 **AP 87** / RHDHV 1142 / NHER 38772 **AP 88** / RHDHV 1627 / NHER 38776 **AP 90** / RHDHV 1566 / NHER 15917 **AP 91** / RHDHV 828 / NHER 16015 **AP 118** / RHDHV 712 / NHER 38768 **AP 119** / RHDHV 908 / NHER 36765 **AP 120** / RHDHV 915 / NHER 38769 **AP 125** / RHDHV 1134 / NHER 38740 **AP 126** / RHDHV 710 / NHER 38736 **AP 127** / RHDHV 709 / NHER 38735 **AP 128** / RHDHV 1133 / NHER 38738 **AP 129** / RHDHV 708 / NHER 38731 **AP 130** / RHDHV 1131 / NHER 38732 **AP 131** / RHDHV 818 / NHER 38739 **AP 249** / RHDHV 707 / NHER 38729 **AP 250** / RHDHV 784 / NHER 38730 **AP 253** / RHDHV 1127 / NHER 38720 **AP 254** / RHDHV 621 / NHER 38728 **AP 255** / RHDHV 1132 / NHER 38737 **AP 256** / RHDHV 1136 / NHER 38748	Features/possible features identified as being of possible archaeological interest are numerous across the proposed landfall area and moving immediately westwards. The majority of features comprise evidence of former field systems, including trackways, field boundaries, enclosures, ditches and pits. Many of these features are currently undated, although date ranges between the Iron Age and Post-Medieval have been assigned variously. Notable features include possible Bronze Age round barrows (**AP 79, AP 81, AP 118, AP 126, AP 127, AP 129, AP 249, AP 250** and **AP 254**). Other features of interest include a possible Iron Age round house (**AP 250**) and possible Saxon grubenhauser (sunken house) (**AP 91**). Features not representative of former field systems and related settlement are predominantly WWII in date, relating to defensive measures employed in the 20th century: e.g. **AP 69, AP 71, AP 86** and **AP 90**). Find spots in this area are numerous and represent a broad date range from the prehistoric to modern day. (**Maps 1 & 2**)
AP 132 / RHDHV 783 / NHER 38716	Probable Iron Age or Roman trackway. (**Map 2**)
AP 150 / RHDHV 1284 / NHER 38758 **AP 151** / RHDHV 1285 / NHER 38759 **AP 152** / RHDHV 836 / NHER 21775	Area containing enclosures, field boundaries and ditches with dates assigned as unknown, Roman and / or Post-Medieval. (**Maps 2 & 3**)

APS / RHDHV / NHER Pref Ref ID(s)	Brief Description
AP 135 / RHDHV 1139 / NHER 38757	Cropmarks of probable medieval to post medieval bank and a ditch. (**Maps 2 & 3**)
AP 115 / RHDHV 1624 / NHER 38702	Undated ditches. (**Map 2**)
AP 136 / RHDHV 1146 / NHER 38842 **AP 137** / RHDHV 807 / NHER 21835 RHDHV 1673	Area containing ditches, trackways, enclosures and boundaries assigned variously as undated, Iron Age, Roman, Medieval and Post-Medieval. The NHER also records low banks in this area (**RHDHV 1673**). (**Map 3**)
AP 153 / RHDHV 1631 / NHER 38853	Multi-period field boundaries. (**Map 3**)
AP 155 / RHDHV 1148 / NHER 38859	Medieval or post medieval boundary bank. (**Map 3**)
AP 154 / RHDHV 789 / NHER 38861	Undated enclosure and pit, possible Iron Age / Roman date. (**Map 3**)
AP 157 / RHDHV 1632 / NHER 38860	Undated ditch. (**Map 3**)

APS / RHDHV / NHER Pref Ref ID(s)	Brief Description
AP 219 / RHDHV 1212 / NHER 7071 **AP 220** / RHDHV 1166 / NHER 27241 **AP 221** / RHDHV 918 / NHER 38872 **AP 222** / RHDHV 730 / NHER 27240 **AP 223** / RHDHV 1149 / NHER 38864 **AP 224** / RHDHV 846 / NHER 38866 **AP 225** / RHDHV 854 / NHER 27242 **AP 226** / RHDHV 747 / NHER 27243 **AP 227** / RHDHV 1290 / NHER 39031 **AP 231** / RHDHV 822 / NHER 27237 **AP 232** / RHDHV 717 / NHER 38874 **AP 233** / RHDHV 792 / NHER 39041 **AP 234** / RHDHV 795 / NHER 7014 **AP 237** / RHDHV 1019 / NHER 39111 **AP 238** / RHDHV 953 / NHER 39028 **AP 239** / RHDHV 1635 / NHER 39026 **AP 240** / RHDHV 791 / NHER 39032 RHDHV 539 / RHDHV 2955 / RHDHV 400 / RHDHV 1456 / RHDHV 457 / RHDHV 1028 / RHDHV 547 / RHDHV 771 / RHDHV 546, RHDHV 1212, RHDHV 589	Area containing complex multi-period features. **AP 219** represents the site of a Medieval/Post-medieval post mill. **AP 220 – 227** comprise multi-period enclosures assigned as being of unknown date, Bronze Age, Iron Age, Roman, Medieval and Post-medieval. Features include ditches, trackways and pit features, a possible Bronze Age settlement (**AP 222**) and a Post-Medieval road (**AP 223**). **AP 231 – 234** are dated as unknown, Bronze Age, Iron Age, Roman and Post-Medieval. Features are representative of former field systems, with field boundaries, enclosures, ditches and pit features present, as well as a possible Bronze Age round barrow (**AP 232**). **AP 237 – 240** comprise field boundaries, ditches, trackways and roads of unknown, Iron Age, Roman, Saxon, Medieval and Post-Medieval date. The NHER records a Late Bronze Age or Early Iron Age Hearth in this area (**RHDHV 771**) and a possible Late Bronze Age cremation cemetery, Roman kiln and multi-period finds (**RHDHV 546**). Finds in the area are multi-period, dating between the prehistoric and Post-Medieval period, including prehistoric lithics (**RHDHV 539, 547, 589**). (**Maps 3 & 4**)
RHDHV 1604 / NHER 32172 RHDHV 1675 / NHER 52898	Possible prehistoric hearths (**RHDHV 1604**) and undated pits (**RHDHV 1675**). (**Map 4**)
AP 160 / RHDHV 1150 / NHER 39002 **AP 161** / RHDHV 719 / NHER 39006 **AP 162** / RHDHV 1151 / NHER 39003 **AP 163** / RHDHV 1586 / NHER 39000 **AP 164** / RHDHV 1152 / NHER 39007 **AP 261** RHDHV 623 RHDHV 674 RHDHV 1321	An area of multi-period features, including field boundaries, enclosures, ditches and pits. Such features may be of medieval / Post-Medieval date although they are currently undated. Features include a military camp dating to WWII and a possible Bronze Age ring-ditch. A Post-Medieval brickworks site is recorded in this area (**RHDHV 1321**). Finds from the area include prehistoric lithic discoveries (**RHDHV 623, 674**). Boundaries, which may be linked to similar features in the vicinity recorded by the NMP. (**Maps 4 & 5**)
AP 262 / RHDHV 1608 / NHER 36504	Enclosures and boundaries of possible Iron Age / Roman date. (**Map 5**)

APS / RHDHV / NHER Pref Ref ID(s)	Brief Description
AP 259 / RHDHV 1574 / NHER 32551 **AP 260** **AP 270** / RHDV 1609 / NHER 36505 RHDHV 1377 / RHDHV 1069 / RHDHV 973 / RHDHV 1408	WW2 pill box, defensive structure. An area of undated ditches and boundaries indicative of a former field system and possible enclosures. Features include a possible ring-ditch of possible Bronze Age date. Finds discovered in the area have been dated to the Late Saxon / Medieval period. Also in the area is the former Old Quaker burial ground. (**Maps 5 & 6**)
AP 54 **AP 55** / RHDHV 435 / RHDHV 762 / NHER 12821 / NHER 37987 **AP 56** **AP 57** / RHDHV 435 / NHER 12821 RHDHV 1230 RHDHV 1030	Area of undated field boundaries, trackways, ditches and possible enclosures. Includes possible Bronze Age ring ditch. Features are undated or multi-period. Finds in the area recorded in the NHER date to the Medieval / Post-Medieval period. (**Maps 6 & 7**)
AP 51 / RHDHV 1607 / NHER 36499 **AP 53** / RHDHV 1612 / NHER 35549 RHDHV 937 RHDHV 827	Area with possible field system including square enclosures and a ring-ditch. Finds in the area are multi-period, dating between the Romano-British and Post-Medieval period. (**Maps 7 & 8**)
AP 50	Area with multi period ditched features which may form part of a wider field system and track ways and disturbed ground with possible archaeological features. (**Map 8**)
AP 48 and **49** / RHDHV 1615 / NHER 36454 RHDHV 554 / NHER 58489 RHDHV 636 / NHER 36792	A series of ditches, former field boundaries and trackways. Associated enclosure with possible pits. Findspots in the area are multi-period, ranging from the Early Upper Palaeolithic to Post-Medieval. (**Map 8**)
AP 42 / RHDHV 1038 / NHER 7403 **AP 43** / RHDHV 1616 / NHER 36453 **AP 44** / RHDHV 531 / NHER 60062 **AP 45** / RHDHV 531 / NHER 3370 **AP 46** / RHDHV 531 and RHDHV 1614 / NHER 60062 and NHER 36456 RHDHV 679 / NHER 12772 RHDHV 755 / NHER 18530	Area containing a possible former moated manor of Medieval / Post-Medieval date and a series of undated and /or multi-period field boundaries, ditches and enclosures. Features include a causewayed ring ditch, assigned a Late Neolithic to Late Bronze Age date in the NHER. (**Map 9**)

APS / RHDHV / NHER Pref Ref ID(s)	Brief Description
AP 40 / RHDHV 1589 / NHER 12975 **AP 41** / RHDHV 692 / NHER 12785	Area containing former field boundaries, possible Post-Medieval in date, and earlier features including ditches and a possible ring ditch which may natural in origin. (**Map 10**)
AP 39 / RHDHV 1588 / NHER 12974	Field system with associated trackways and enclosures. (**Map 10**)
AP 38 RHDHV 578	Possible enclosure, ditches and former field boundaries. A Neolithic axehead is also recorded to have been discovered in this area. (**Map 11**)
AP 37	Undated possible enclosures and ditches. (**Map 11**)
AP 36 / RHDHV 1600 / NHER 29565	Undated trackway and ditches. (**Map 11**)
AP 30 / RHDHV 1597 / NHER 22903	An undated enclosure. It is possible that this site is related to the extensive Roman features to the south. (**Maps 11 & 12**)
AP 34	Linear ditches of unknown date, although possibly associated with an extensive roman settlement recorded to the south-east. (**Map 12**)
RHDHV 1266 / NHER 23276	Site of Post-Medieval brickworks. (**Map 12**)
AP 35	Linear ditches of unknown date, although possibly associated with an extensive roman settlement recorded to the east. (**Map 12**)
AP 28 / RHDHV 1183 and 968 / NHER 51469 and 21848	Linear ditches of unknown date, possibly part of a field system and enclosures. Medieval / Post-medieval finds have been reported in the area, including multi-period pottery of Saxon to Medieval date. (**Map 12**)
AP 27	Undated former field boundaries and ditches. *Crossing point with Hornsea P3*. (**Map 13**)

APS / RHDHV / NHER Pref Ref ID(s)	Brief Description
AP 24 / RHDHV 977 / NHER 57967 **AP 25** / RHDHV 812 / NHER 3150 **AP 26**	Site of chapel with associated round tower, thought to be the site of St Mary's Chapel. Area containing a range of features, including the site of a Saxon-Medieval chapel, medieval moat, possible Iron Age enclosure and ditches and a series of undated former field boundaries and ditches. (**Map 14**)
AP 32	Former field boundaries of unknown date, possibly Post-Medieval. (**Map 14**)
AP 31	Former field boundaries of unknown date. (**Map 14**)
AP 23 RHDHV 963	Possible ditched features in area in which medieval and post-medieval find spots are recorded. (**Map 16**)
AP 14 / RHDHV 1104 / NHER 3024	Post-Medieval field boundaries. (**Map 16**)
AP 10 / RHDHV 735 / NHER 50641	Possible ring ditch of unknown date. (**Maps 16 & 17**)
AP 11 / RHDHV 701 / RHDHV 734 / NHER 3053 **AP 12** / RHDHV 1309 / NHER 50640	Area containing three likely Bronze Age round barrows and a series of former field boundaries of unknown date. (**Maps 16 & 17**)
AP 6 / RHDHV 811 / NHER 2999 **AP 7** / RHDHV 763 / NHER 50874	Extensive area of multi-period field boundaries with proximity to a ring-ditch of unidentified origin. (**Map 17**)
AP 16 / RHDHV 688 / NHER 12296	Curvilinear ditched enclosures which survive as earthworks in grassland. Photographed from the air on multiple occasions. (**Maps 17 & 18**)
AP 159 / RHDHV 1180 / NHER 50699	Medieval road. (**Map 20**)
RHDHV 1255 / NHER 12948	Area of a recorded 16th / 17th century pottery kiln. (**Map 20**)
AP 5	Possible former field system of unknown date. (**Map 21**)
AP 19	Slight embanked features of unknown origin. (**Map 21**)

APS / RHDHV / NHER Pref Ref ID(s)	Brief Description
AP 4	Post enclosure field boundaries which were extant in the 1940s and are now removed and visible only as marks in crops. (**Maps 22 & 23**)
AP 3	Series of field systems and drains of unknown date – possible post-medieval and / or modern. (**Maps 22 & 23**)
AP 1 / RHDHV 1015 / NHER 4190 RHDHV 1316 / NHER 58191	Medieval moat and associated ditch boundaries/enclosures with proximity to possible post-medieval clay extraction pits. (**Map 24**)

2 Archaeological and Historical Background

An Onshore Archaeological Desk Based (Baseline) Assessment has been produced as part of the Preliminary Environmental Information Report (PEIR) for the Norfolk Vanguard Offshore Wind Farm (RHDHV, 2017c). This document and its associated appendices will be thoroughly reviewed by the appointed archaeological contractor (Headland Archaeology) prior to commencing the priority geophysical survey programme.

The archaeological evidence reflects a human presence from the earliest evidence of hominin activity in the UK (Happisburgh) to the present day.

The onshore project area has been examined in detail as part of the aerial photographic and LiDAR data assessment, and found to contain a high potential for the further discovery of buried archaeological sites/features (see **Section 1** and **Table 1.1** above). This assessment confirmed and revealed a series cropmarks, including extensive and complex looking cropmark sites, indicative of a complex multi-period buried archaeological landscape dating from the earlier prehistoric through to modern periods.

Cropmark features were more abundant in the northern sector of the cable corridor, thought to be due to the ease with which crops respond to soil moisture deficits in this area. By comparison, cropmark features are less plentiful in the southern section of the cable corridor, although it is noted that well drained soils may mask the appearance of buried features in certain instances.

The potential for buried remains to be present across the onshore project area is considered to be high. Following the programme of Priority Archaeological Geophysical Survey, it is anticipated that the remainder of the onshore project area will also need to be subject to survey, either pre or post consent.

3 Geology and Topography

The British Geological Survey (BGS) online viewer shows that the solid geology beneath the onshore project area in respect to the onshore cable corridor compromises White Chalk and Crag Group deposits, which dip gently to the south-east.

The Chalk is a white or grey limestone, which principally outcrops as a low, rolling plateau in west Norfolk, along the north Norfolk coast and near Norwich where the Rivers Yare and Wensum have cut down through overlying beds to expose it. The Crag Group deposits are a sequence of sandy, marine deposits which outcrop in the eastern parts of the onshore project area.

The solid deposits are overlain predominantly by glacial till dating from the Anglian glaciation, interspersed with sheets of glacial sands and gravels. Small isolated pockets or channels of superficial deposits exist over the Glacial Till Alluvium where watercourses are crossed.

The majority of the onshore project area is agricultural land, interspersed with predominantly small rural settlements, including the towns of North Walsham, Aylsham, Reepham and Dereham, as well as watercourses, areas of woodland and hedgerows.

(Note: the above high-level information has been referenced from PEIR Chapters 19 - Ground Conditions and Contamination; and 21 - Land Use and Agriculture). This will be supplemented further as part of the archaeological geophysical survey reporting by the appointed contractor (Headland Archaeology).

4 Survey Aims and Objectives

The aims and objectives of the archaeological geophysical (magnetometer - gradiometer) survey are to:

- Undertake an initial programme of priority (targeted) detailed magnetometry across the areas highlighted in **Appendix A** – **Maps 1** to **24**.
- Corroborate, identify and characterise sub-surface anomalies that may have an archaeological origin (including defining the spatial limits of already known or suspected heritage assets).
- Discount areas within the survey area that are found to have been subject to previous 'modern' disturbance, for example where the geophysical survey data indicate the presence of 'made' or previously heavily disturbed ground.
- Provide an interpretation of all recorded geophysical anomalies in order to inform the design of a scheme-wide programme of archaeological evaluation trial trenching, proposed to be undertaken post-consent.
- Prepare a fully illustrated report on the results of the geophysical survey that is compliant with all relevant standards, guidance and good practice (see **Sections 5** and **10** below).

5 Methodology

All archaeological geophysical survey work will be carried out in accordance with accepted good practice, including 'Standard and guidance for archaeological geophysical survey' prepared by the Chartered Institute for Archaeologists (CIfA) and the CIfA 'Code of Conduct' (CIfA, 2014a / 2014b), as well as Historic England's guide to 'Geophysical Survey in Archaeological Field Evaluation' (English Heritage, 2008).

The fieldwork and reporting will also be undertaken in adherence to 'The Use of Geophysical Techniques in Archaeological Evaluations: IfA Paper 6' (Gaffney et. al., 2002), regional guidelines in 'Standards for Field Archaeology in the East of England' (Gurney, 2003) and regionally specific research aims. See **Section 10** for relevant references.

The anticipated commencement of the priority archaeological geophysical survey work is October 2017.

Archaeological geophysical (magnetometer - gradiometer) survey will subsequently (programme to be confirmed) be undertaken across the whole Norfolk Vanguard onshore project area. The priority archaeological geophysical survey works account for approximately 45% of the total Norfolk Vanguard onshore project area at this stage.

In addition to this survey-specific WSI, Headland Archaeology have produced a separate health and safety focused Risk Assessment Method Statement (RAMS) document with respect to the geophysical survey for review by Royal HaskoningDHV (RHDHV) and Norfolk Vanguard Ltd.

Due to the linear nature of the project, predominantly arable fields and the need to regularly move from plot to plot (field to field), in order to continue survey work across the outlined areas, the instrumentation to be used will be hand-held gradiometers, rather than a cart-based system.

5.1 Geophysical Survey Methodology (hand-held)

The geophysical (magnetometer - gradiometer) survey will be carried out across the footprint of the onshore project area highlighted for priority archaeological geophysical survey, an area of up to 783 hectares (including contingency areas identified at this stage).

The survey will be undertaken using four Bartington Grad601 sensors mounted at 1m intervals (allowing for a 1m traverse interval) onto a rigid carrying frame. The system will be programmed to take readings at a frequency of 10Hz (allowing for a 10-15cm sample interval) on roaming traverses spaced 4m apart. These readings will be stored on an external weatherproof laptop and later downloaded for processing and interpretation. MLGrad601 and MultiGrad601 (Geomar Software Inc.) software will be used to collect and export the data. Terrasurveyor V3.0.32.4 (DWConsulting) software will be used to process and present the data.

The magnetometer system will be linked to a Trimble R8s Real Time Kinetic (RTK) differential Global Positioning System (dGPS) and a Trimble R2 receiver outputting in NMEA mode to ensure a high positional accuracy of each data point.

A series of temporary sight markers will be established within each survey area using a Trimble dGPS system. The markers will guide the operator and ensure full coverage with the magnetometer system within the survey corridor within each plot.

The survey will be carried out by experienced surveyors (site-based geophysicists) in order to provide quality, consistent results with regard to pattern recognition and to initially screen out any noise produced by local magnetic 'pollution' and/or any recent ferrous disturbance.

At the completion of each day of survey a 30m traverse from the start of the final area (field/plot) covered that day will be repeated prior to leaving site in order to demonstrate the repeatability of the results.

On completion of each day's site operations, the survey results will be processed and reviewed.

A record will be maintained of surface conditions and of possible sources of modern geophysical interference that may have a bearing on subsequent interpretation of field data. The surveyors on site will have access to and will have read all relevant previous archaeological desk-based reporting in order to ensure an informed data review and ultimately interpretation of the results.

The interpretation of the survey data will be undertaken by an experienced archaeological geophysicist. This specialist will also be knowledgeable of the prevailing conditions across the large survey area that could affect the interpretation of the results. See **Section 7** for further information on staffing and resources. Reference to the underlying geological conditions should also be made.

Any areas where it is considered to be unsafe to work will be excluded from the survey. If any problems are encountered during the geophysical survey these will be reported immediately to the Norfolk Vanguard Ltd. Land Agents (Landowner Team) and RHDHV.

Due to access restrictions/constraints it is unlikely that the priority survey areas will occur sequentially from one end of the survey route to the other, and as a result interim reports may be required. The most appropriate approach to reporting will be agreed with Headland Archaeology in consultation with Norfolk Vanguard Ltd., RHDHV and NCC HES.

5.2 Access

Access will initially be arranged through the Norfolk Vanguard Ltd. Land Agents (Landowner Team) and will be from public access points or from private access points previously agreed with the landowner and/or land occupier (tenant). Headland Archaeology will also be required to progress specific access arrangements on a day to day and week to week basis, including direct contact (phone calls) with landowners, prior to gaining access.

Vehicles must be parked off the road, safely and appropriately within and at designated locations. No vehicles are to be parked across field accesses or blocking any other form of access route. A surveyor's vehicle sheet must be placed in the windscreen of any vehicle on site during surveying work, which should include a contact name and number.

Contact details, including names, company address and vehicle registration, of those attending site must be provided to the Norfolk Vanguard Ltd. Land Agents in advance of the site survey.

5.3 Monitoring

RHDHV will monitor the archaeological geophysical survey fieldwork progress on behalf of Norfolk Vanguard Ltd.

A minimum of one week's notice will be given to NCC HES (who hold curatorial responsibility for the geophysical survey), in advance of survey works commencing.

If required, arrangements for NCC HES to visit site and monitor the geophysical survey in progress will be made through RHDHV in the first instance.

5.4 Reporting

Verbal progress reports and brief written weekly progress reports will be provided to RHDHV and Norfolk Vanguard Ltd. during the course of the survey, and also at any juncture upon request.

Raw greyscale imagery and draft interim plots (greyscales and interpretations), including brief summaries of results (as they become available) will be submitted to RHDHV, Norfolk Vanguard Ltd. and NCC HES on a regular basis.

'Headlines' and in particular any results of a significant nature will be communicated in a timely manner.

The formal draft report on the geophysical survey will be submitted to RHDHV for review within six working weeks of the completion of fieldwork. The report will consist of a fully illustrated text and accompanying figures containing the following information:

- Site code/project number; dates for fieldwork visits; grid references; location plan, and a plan showing the limits of the survey area (accurately located to the national grid);
- A non-technical summary of the reason, aims and main results of the survey;
- An introduction to outline the circumstances leading to the commission of the project and any restrictions encountered;
- Aims and objectives of the survey;
- Site location and description;
- Geology, soils and land use;
- Planning background;
- Archaeological and historical background;
- The methodology used;
- Detailed survey results of individual fields (plots) and interpretation;
- Plans showing detailed and summary interpretation of results, including both processed and unprocessed data (at appropriate scales). Figures will also include cross reference to and correlation with relevant HER, LiDAR and aerial photographic data, where appropriate. The summary and synthesis of the archaeological results in relation to the methods used shall be supported by survey location plans and plots of minimally processed (X-Y traceplot) and fully processed (greyscale) data at a minimum scale of 1:2500 with larger scale (1:1000) plots of all areas of archaeological significance. Each plan/plot will have a scale bar and accurately oriented north arrow;
- An assessment of the importance of anomalies (potential features) within the survey area against a background of national, regional or local importance;
- Recommendations regarding the future treatment of the potential remains and/or any further archaeological work necessary on site in advance of, or during, construction;
- References to all primary and secondary sources consulted; and
- A review of the effectiveness of the methodology, within different areas, locations and 'landscapes' (i.e. differing geology and topography encountered).

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6 Archive Preparation and Deposition

The project will be archived in-house (at Headland Archaeology's Offices) in accordance with recent good practice guidelines (http://guides.archaeologydataservice.ac.uk/g2gp/Geophysics_3). The data will be stored in an indexed archive and migrated to new formats when necessary.

The archive will consist of the final priority archaeological geophysical survey report within which documentary, raw and processed digital data records generated during the fieldwork will be presented. This will include a georeferenced .dxf or MapInfo .tab file copy of the interpretation of the results for the NHER.

The documentation and records generated by the project will also be assembled in accordance with the national guidelines in 'Archaeological Archives: A guide to best practice in creation, compilation, transfer and curation' (AAF, 2007) and in accordance with regional guidelines set out in 'Standards for Field Archaeology in the East of England' (Gurney, 2003).

The archiving requirements for this phase of work are to be discussed by Headland Archaeology with the Norfolk Museums and Archaeology Service ahead of works and an accession number and deposition date will be requested, as necessary.

Headland Archaeology will also contact the NHER in advance of survey to obtain an HER Event number specific to the survey. The HER can be contacted via (heritage@norfolk.gov.uk). GIS shapefiles of the priority archaeological geophysical survey areas are to be supplied with the event number request.

In addition to including a copy of the geophysical survey results and reporting (as available at the time) within the DCO application submission documents, copies of the final geophysical survey report will be supplied separately to the NHER. This will consist of one unbound hardcopy and a PDF/A on CD upon the completion of the survey, and following relevant internal reviews and Norfolk Vanguard Ltd. sign off, as well as external reviews by NCC HES.

In addition, Headland Archaeology will make their work accessible to the wider research community by submitting digital data and copies of the report on line to OASIS (Online Access to the Index of Archaeological Investigations) at - http://www.oasis.ac.uk/, upon approval by Norfolk Vanguard Ltd.

7 Resources

The appointed archaeological contractor (Headland Archaeology) will adhere to all national, regional and local standards and guidance as identified throughout this document and referenced below in **Section 10**.

Headland Archaeology will ensure that:

- All personnel involved in the project are suitably qualified and experienced professionals.
- All equipment, instrumentation and tools required (and to be supplied by the archaeological contractor) are in good working and functioning order.

Headland Archaeology will ultimately be responsible for the compliant delivery of this survey-specific WSI.

As noted above in **Section 5** all work will conform with Historic England's guide to 'Geophysical Survey in Archaeological Field Evaluation' (English Heritage, 2008), and with respect to staffing the minimum experience will be met as outlined on page 5 Section 2.8 of the guidance.

The works will be staffed by a geophysical survey team of at least 4 surveyors for the initial stages, with numbers increasing depending on access arrangements and the requirement to respond quickly to land availability and programme.

Headland Archaeology will be directly responsible for all setting out and the surveying in of all grid points, as appropriate, and for ensuring that the correct (and only the required) survey areas within the Norfolk Vanguard onshore project area are subject to survey.

Pen portrait (concise short-form style) CVs will be provided for Headland Archaeology's survey personnel to NCC HES in advance of survey work commencing.

A standard working day will involve driving to site, condition surveys of the survey area, survey area setting out and detailed geophysical survey. Data will be sent back to the Head Archaeology Office on a regular basis and regular progress reports provided to Norfolk Vanguard Ltd., RHDHV and NCC HES, as noted above in Section 5.4.

Key Contacts for Headland Archaeology, include:

Alistair Webb, Regional Manager	0113 387 6430
Sam Harrison, Manager	0113 387 6432
Eddie Bailey, Health and Safety Coordinator	0131 467 7748
David Harrison, Senior Geophysicist	[redacted]

Survey team leaders:	Ross Bishop	[redacted]
	Mark Evans	[redacted]

Additional survey support is to be supplied by Barlett-Clarke Consultancy, to be directly managed, coordinated and overseen by Headland Archaeology for the project. Barlett-Clarke is run by Alister Bartlett, a very experienced archaeological geophysicist based out of Oxford.

8 Health and Safety

The archaeological contractor (Headland Archaeology) have produced and will strictly adhere to their own (RHDHV and Norfolk Vanguard Ltd. reviewed) Health and Safety focused Risk Assessment Method Statement (RAMS) documentation, specific to the archaeological geophysical survey works. Headland Archaeology will also strictly follow any site specific health and safety requirements and protocols as outlined by RHDHV and/or Norfolk Vanguard Ltd.

Point of Work (Dynamic) Risk Assessments will be carried out by Headland Archaeology's survey team once on site and when moving between/changing work locations.

All geophysical survey personnel must adhere to the Norfolk Vanguard Ltd. site safety policies at all time and shall wear/use the correct (most appropriate) safety clothing and equipment. The following Personal Protective Equipment (PPE) is anticipated to be considered mandatory during site survey work:

- High visibility vest / jacket;
- Hard hat (to be available and worn, as appropriate);
- Non-metallic boots with ankle support, or wellington boots at the archaeological contractors survey personnel's own risk;
- Light eye protection and gloves should be available and used wherever necessary; and
- Due to surveying restrictions and in order to maintain the effectiveness of the instrumentation (no metal is to be present on the survey team during survey).

In undertaking the work all geophysical survey personnel are to abide by all statutory provisions and by-laws relating to the work in question, and in particular the Health and Safety at Work Act 1974.

No lone working will be permitted at any time.

All field teams (survey staff) must have at least one qualified first aider trained to HSE First Aider at Work or St John's Ambulance First Aid at Work (3 day course) standard. If sub-teams are working separately (in different fields/plots, or areas of the cable corridor) each sub-team will require a separate qualified first aider.

An Automated External Defibrillator (AED) must be carried by all field teams (survey staff) with personnel trained in the use of the device.

Further specifics and details of the HSE requirements and approaches will be documented in the Headland Archaeology's RAMS documentation, which will be reviewed in advance of survey commencement by Norfolk Vanguard Ltd. and RHDHV.

9 General Provisions

The archaeological contractor (Headland Archaeology) will leave all work sites and areas accessed for survey in a tidy and workmanlike condition. Headland Archaeology shall remove any material brought onto site, including grid pegs and other markers. The use of spray paint or similar means of marking will not be permitted.

In the event of any enquiries by the public, Headland Archaeology will refer all enquiries to the Norfolk Vanguard Ltd. Landowner Team and RHDHV without making any unauthorised statements or comments.

Headland Archaeology will not disseminate information or images associated with the project for publicity or information purposes, without the prior consent of Norfolk Vanguard Ltd.

Project specific business cards will be provided by RHDHV to be carried by surveyors and should they be approached by members of the public, surveyors will be sufficiently briefed in advance, remaining courteous at all times, and can hand out such cards upon request.

10 References

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Royal HaskoningDHV (2017a). Norfolk Vanguard Offshore Wind Farm Environmental Impact Assessment Onshore Archaeology and Cultural Heritage Method Statement Draft

Royal HaskoningDHV (2017b). Norfolk Vanguard Offshore Wind Farm Written Scheme of Investigation: Archaeological Desk Based Assessment (Terrestrial Archaeology)

Royal HaskoningDHV (2017c). Norfolk Vanguard Offshore Wind Farm Onshore Archaeological Desk Based (Baseline) Assessment (DBA)

The Chartered Institute for Archaeologists (2014a). Standard and guidance for archaeological geophysical survey, CIfA, Reading

The Chartered Institute for Archaeologists (2014b). Code of Conduct, CIfA, Reading

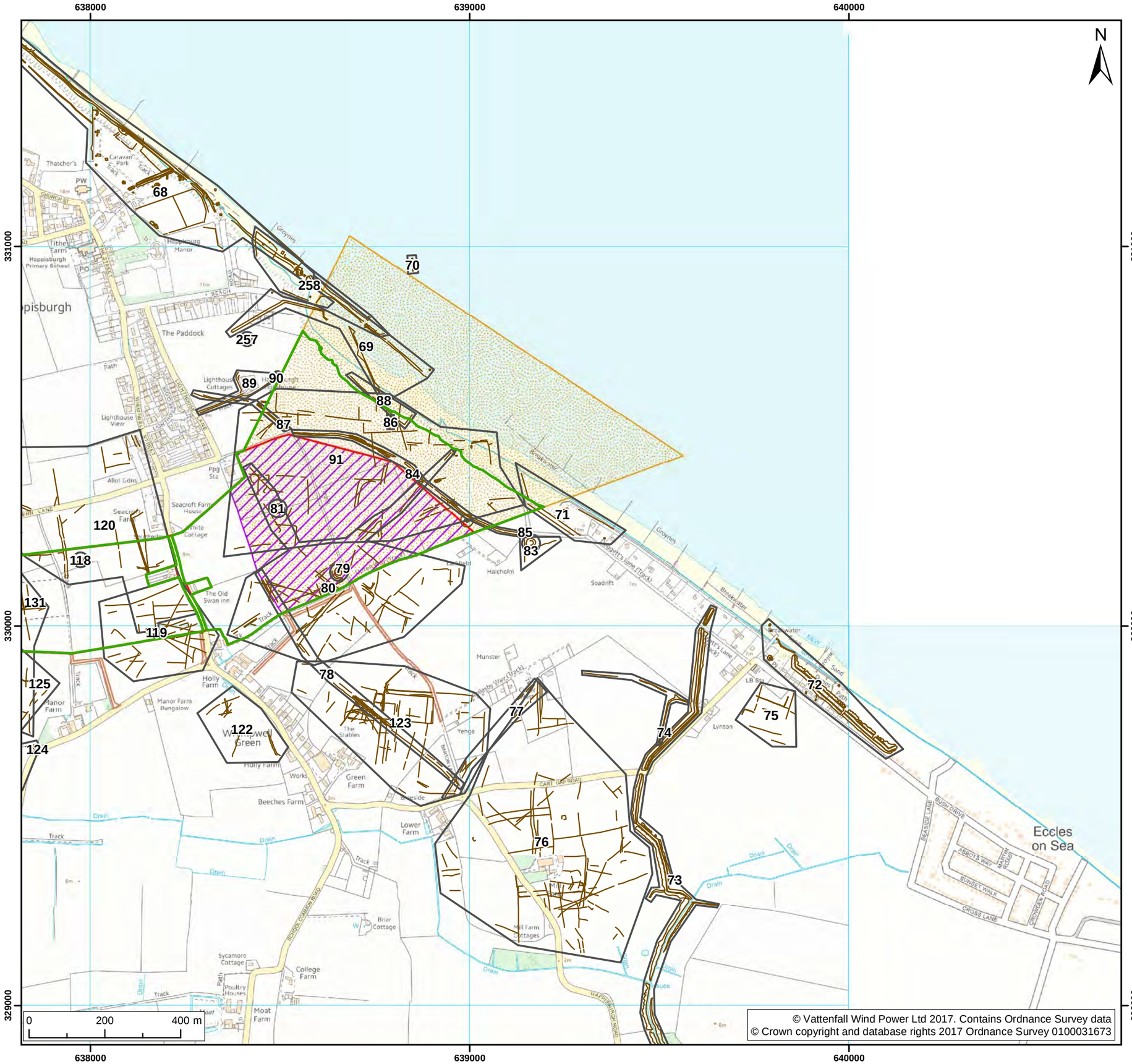
The Planning Inspectorate (2016). Scoping Opinion; Proposed Norfolk Vanguard Offshore Wind Farm. Planning Inspectorate Reference: EN010079

Acronyms

Acronym	Acronym description
ADS	Archaeology Data Service
AED	Automated External Defibrillator
BGS	British Geological Survey
CIfA	The Chartered Institute for Archaeologists
DBA	Desk Based Assessment
DCO	Development Consent Order
DGPS	Differential Global Positioning System
EIA	Environmental Impact Assessment
ES	Environmental Statement
ITT	Invitation to Tender
GIS	Geographic Information System
LiDAR	Light Detection and Ranging
NCC HES	Norfolk County Council Historic Environment Service
NHER	Norfolk Historic Environment Record
NV	Norfolk Vanguard
OASIS	Online Access to the Index of Archaeological Investigations
OD	Ordnance Datum
OS	Ordnance Survey

PEIR	Preliminary Environmental Information Report
PPE	Personal Protective Equipment
RAMS	Risk Assessment Method Statement
WSI	Written Scheme of Investigation

Appendix A: Figures (Maps 1 to 24)



Legend:

Norfolk Vanguard onshore project area

- Landfall zone
- Onshore cable corridor (200m)
- Indicative Cable Route Alignment (100m)
- Trenchless crossing technique (e.g. HDD)
- Onshore infrastructure side accesses
- Priority Geophysical Survey Areas
- Monument extent[1]
- Monument feature[1]

DRAFT

[1] Air Photo Services, 2017.

Project:	Report:
Norfolk Vanguard	Onshore Archaeology: Priority Geophysical Survey

Title:

Location of recommended areas for geophysical survey (map 1 of 24)

Figure: 1 | Drawing No: PB4476-003-000-001

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

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Legend:

Norfolk Vanguard onshore project area

- Cable Relay Station Search Zone
- Cable Relay Station
- Cable Relay Station temporary construction compound
- Onshore cable corridor (200m)
- Indicative Cable Route Alignment (100m)
- Onshore infrastructure side accesses
- Priority Geophysical Survey Areas
- Monument extent[1]
- Monument feature[1]

DRAFT

[1] Air Photo Services, 2017.

Project:	Report:
Norfolk Vanguard	Onshore Archaeology: Priority Geophysical Survey

Title:

Location of recommended areas for geophysical survey (map 2 of 24)

Figure:	1	Drawing No:	PB4476-003-000-001			
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02	04/09/2017	LB	FS	A3	1:10,000	

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

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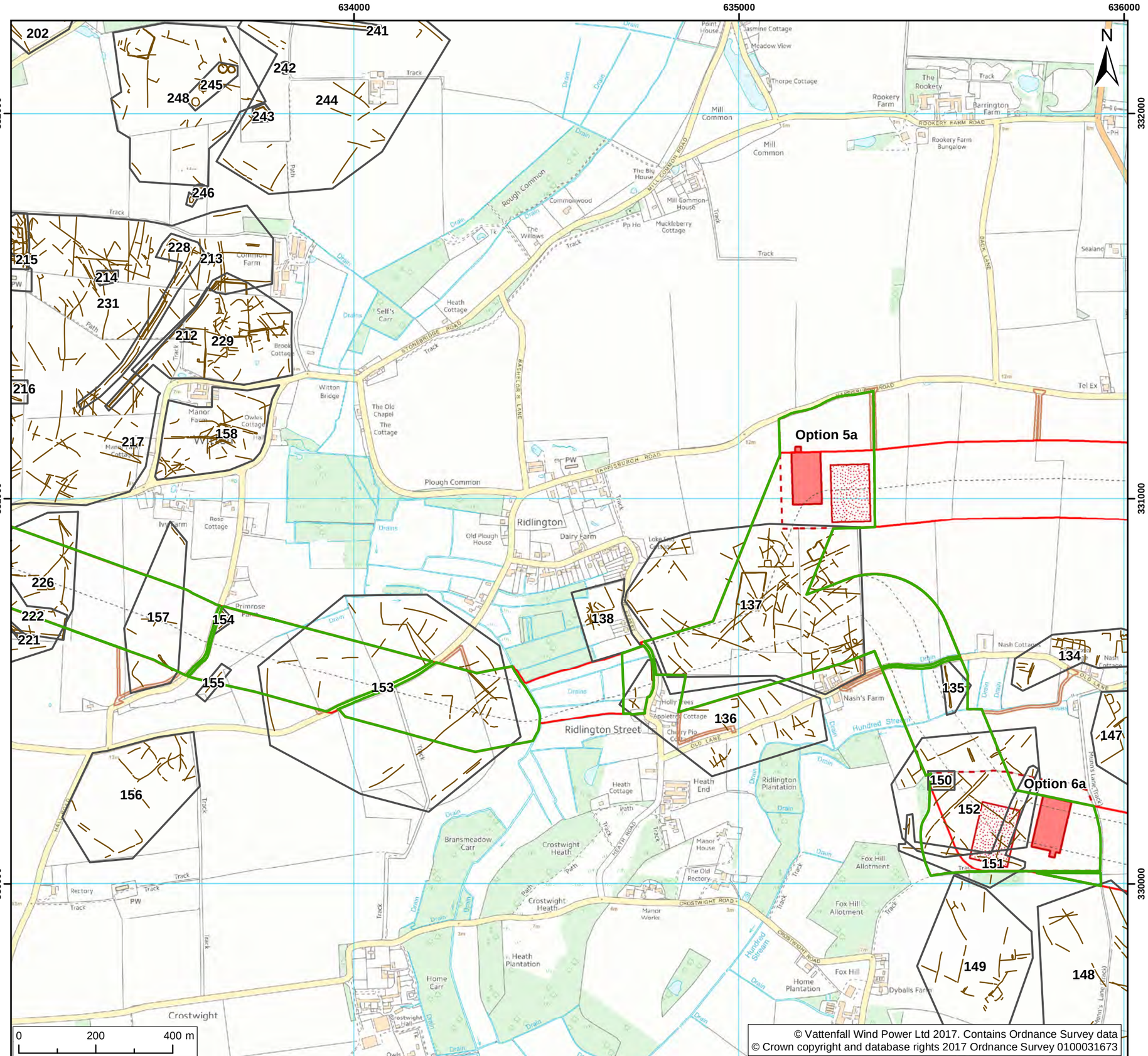

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Legend:

Norfolk Vanguard onshore project area

- Cable Relay Station Search Zone
- Cable Relay Station
- Cable Relay Station temporary construction compound
- Onshore cable corridor (200m)
- Indicative Cable Route Alignment (100m)
- Onshore infrastructure side accesses
- Priority Geophysical Survey Areas
- Monument extent[1]
- Monument feature[1]

DRAFT

[1] Air Photo Services, 2017.

Project:	Report:
Norfolk Vanguard	Onshore Archaeology: Priority Geophysical Survey

Title:

Location of recommended areas for geophysical survey (map 3 of 24)

Figure: 1 | Drawing No: PB4476-003-000-001

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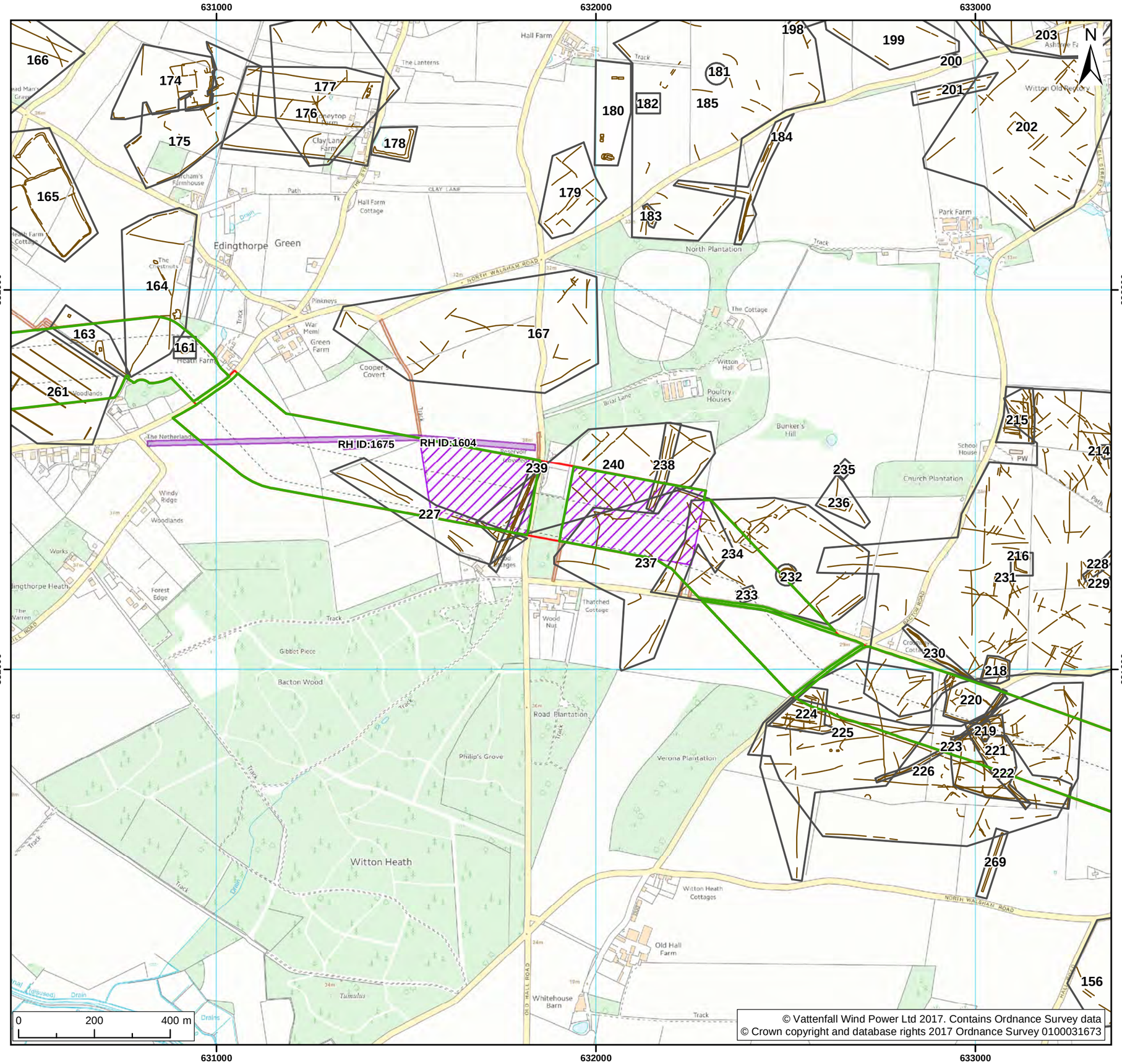

Legend:

Norfolk Vanguard onshore project area

- Onshore cable corridor (200m)
- Indicative Cable Route Alignment (100m)
- Trenchless crossing technique (e.g. HDD)
- Onshore infrastructure side accesses
- Priority Geophysical Survey Areas
- Monument extent[1]
- Monument feature[1]
- Monument feature[1]
- Historic Environment Record (HER) targeted for geophysical survey[2]

DRAFT

[1] Air Photo Services, 2017.

Project:	Report:
Norfolk Vanguard	Onshore Archaeology: Priority Geophysical Survey

Title:

Location of recommended areas for geophysical survey (map 4 of 24)

Figure: 1 | Drawing No: PB4476-003-000-001

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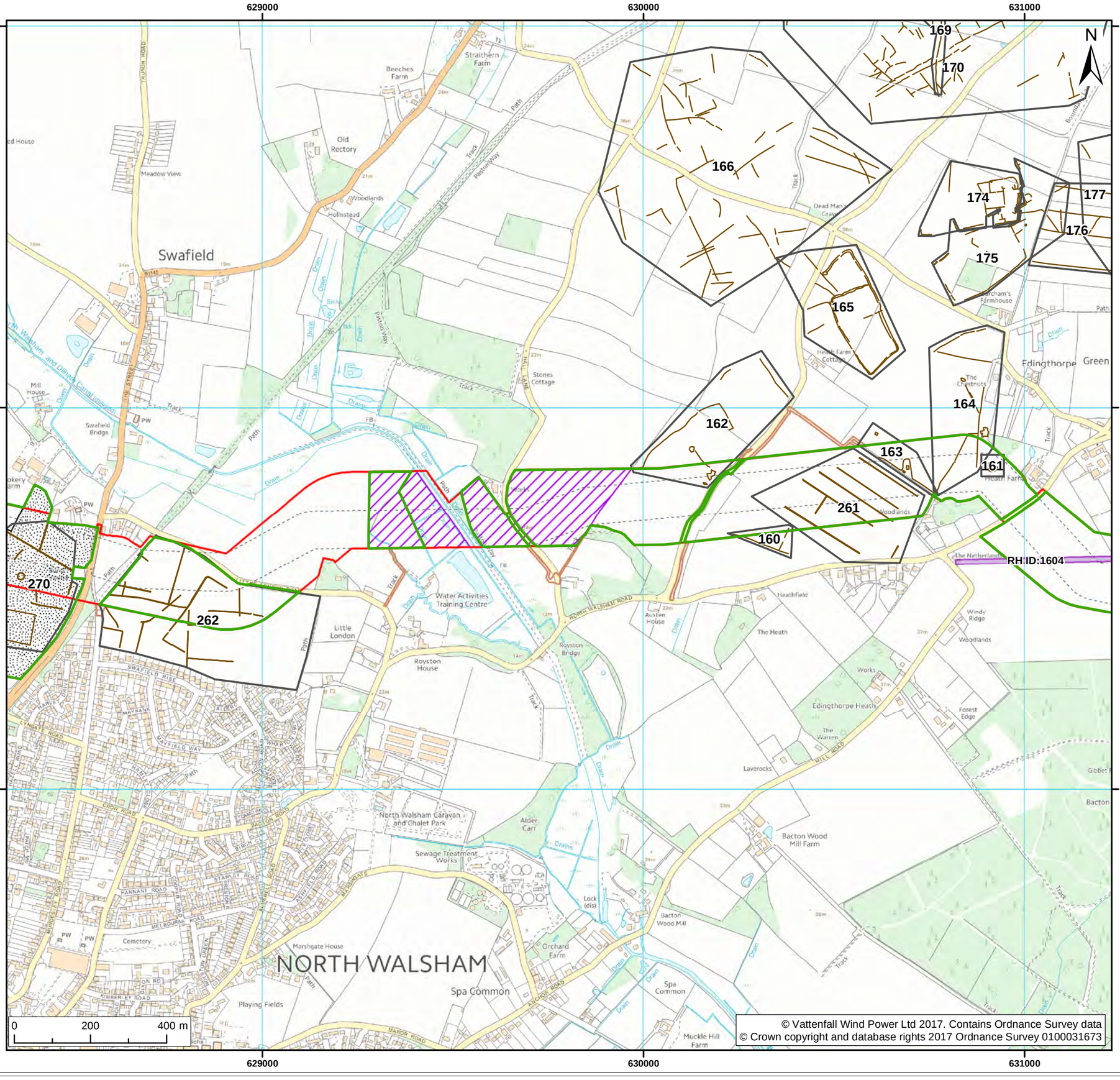

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Legend:

Norfolk Vanguard onshore project area

- Onshore cable corridor (200m)
- Indicative Cable Route Alignment (100m)
- Trenchless crossing technique (e.g. HDD)
- Mobilisation zone
- Onshore infrastructure side accesses
- Priority Geophysical Survey Areas
- Monument extent[1]
- Monument feature[1]
- Monument feature[1]
- Historic Environment Record (HER) targeted for geophysical survey[2]

DRAFT

[1] Air Photo Services, 2017.

Project:	Report:
Norfolk Vanguard	Onshore Archaeology: Priority Geophysical Survey

Title:

Location of recommended areas for geophysical survey (map 5 of 24)

Figure:	1	Drawing No:	PB4476-003-000-001		
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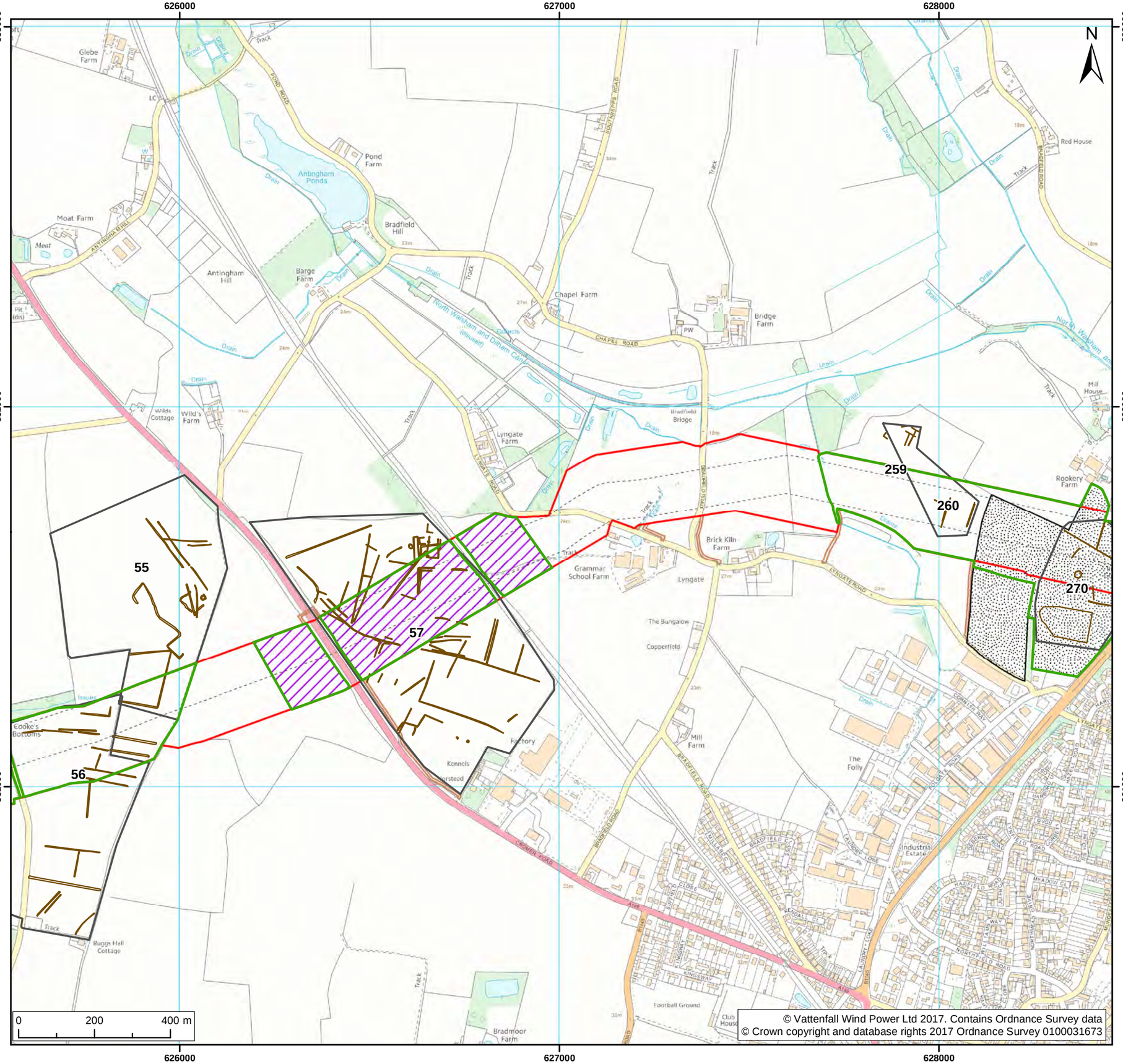

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Legend:

Norfolk Vanguard onshore project area

- Onshore cable corridor (200m)
- Indicative Cable Route Alignment (100m)
- Trenchless crossing technique (e.g. HDD)
- Mobilisation zone
- Onshore infrastructure side accesses
- Priority Geophysical Survey Areas
- Monument extent[1]
- Monument feature[1]

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[1] Air Photo Services, 2017.

Project:	Report:
Norfolk Vanguard	Onshore Archaeology: Priority Geophysical Survey

Title:

Location of recommended areas for geophysical survey (map 6 of 24)

Figure:	1	Drawing No:	PB4476-003-000-001		
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Co-ordinate system: British National Grid **EPSG:** 27700

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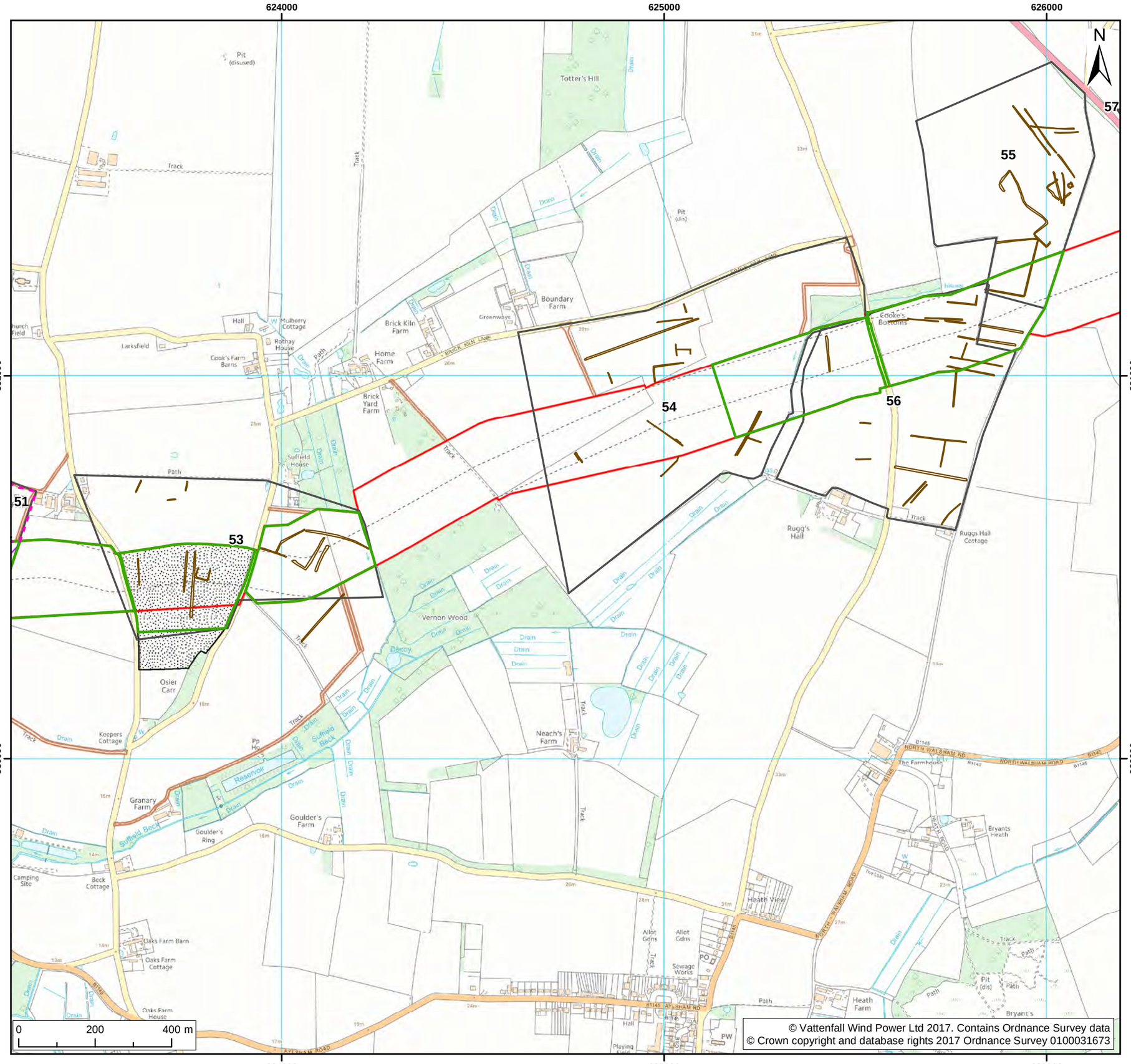

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Legend:

Norfolk Vanguard onshore project area

- Onshore cable corridor (200m)
- Indicative Cable Route Alignment (100m)
- Trenchless crossing technique (e.g. HDD)
- Mobilisation zone
- Onshore infrastructure side accesses
- Priority Geophysical Survey Areas
- Contingency Area - TBC
- Monument extent[1]
- Monument feature[1]

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[1] Air Photo Services, 2017.

Project:	Report:
Norfolk Vanguard	Onshore Archaeology: Priority Geophysical Survey

Title:

Location of recommended areas for geophysical survey (map 7 of 24)

Figure:	1	Drawing No:	PB4476-003-000-001		
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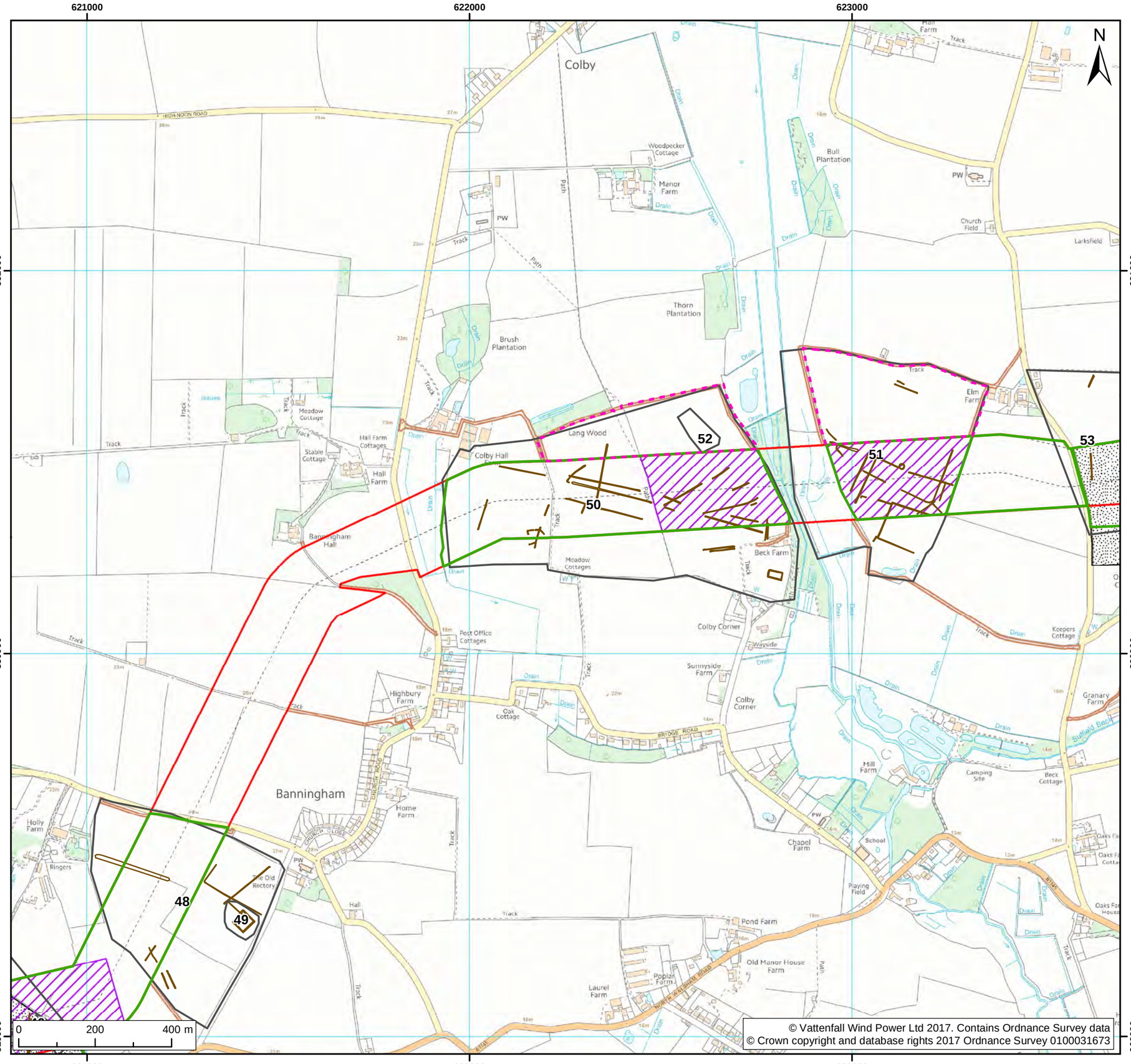

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Legend:

Norfolk Vanguard onshore project area

- Onshore cable corridor (200m)
- Indicative Cable Route Alignment (100m)
- Trenchless crossing technique (e.g. HDD)
- Mobilisation zone
- Onshore infrastructure side accesses
- Priority Geophysical Survey Areas
- Contingency Area - TBC
- Monument extent[1]
- Monument feature[1]

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[1] Air Photo Services, 2017.

Project:	Report:
Norfolk Vanguard	Onshore Archaeology: Priority Geophysical Survey

Title:

Location of recommended areas for geophysical survey (map 8 of 24)

Figure: 1 | Drawing No: PB4476-003-000-001

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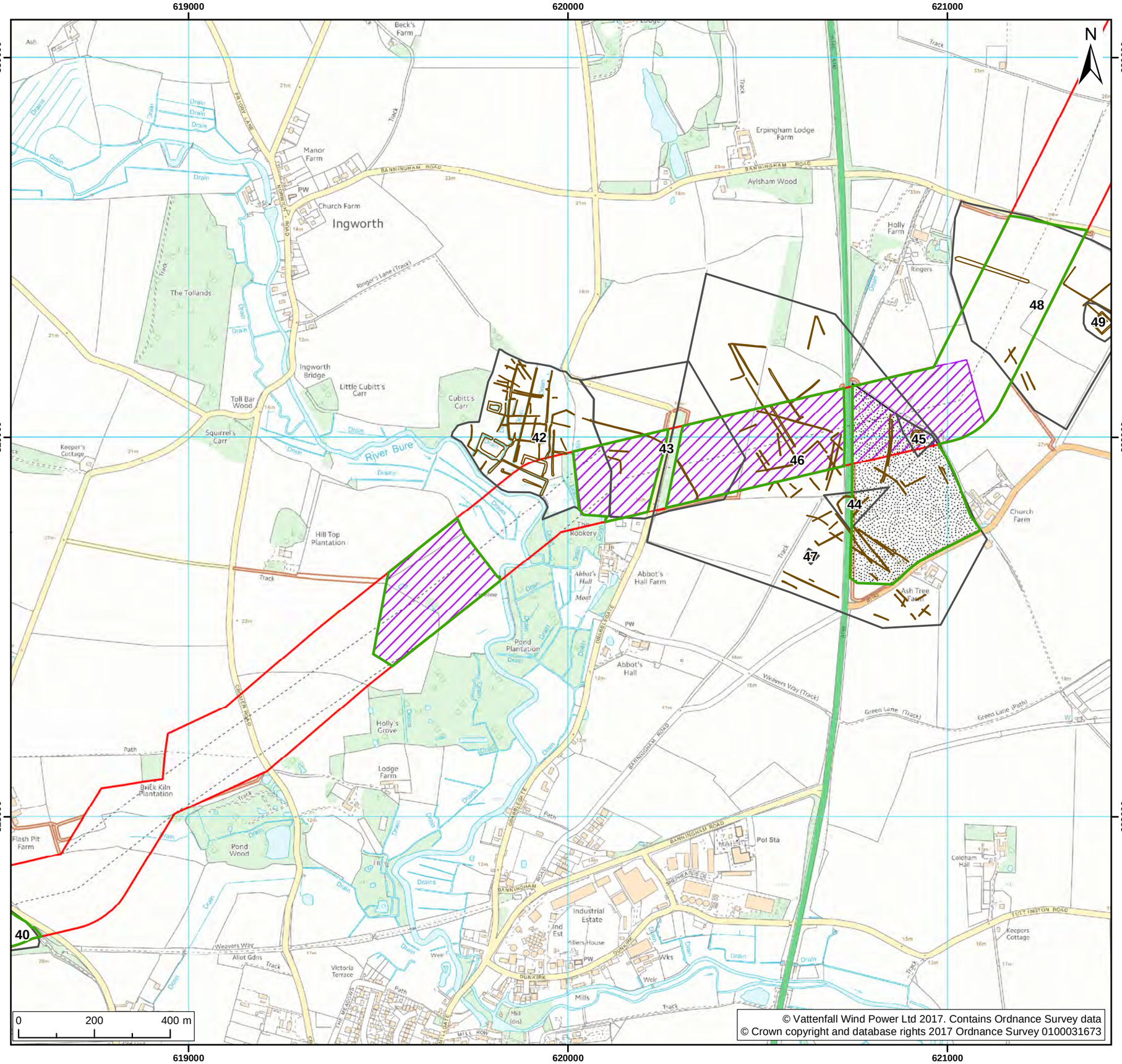

Legend:

Norfolk Vanguard onshore project area

- Onshore cable corridor (200m)
- Indicative Cable Route Alignment (100m)
- Trenchless crossing technique (e.g. HDD)
- Mobilisation zone
- Onshore infrastructure side accesses
- Priority Geophysical Survey Areas
- Monument extent[1]
- Monument feature[1]

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[1] Air Photo Services, 2017.

Project:	Report:
Norfolk Vanguard	Onshore Archaeology: Priority Geophysical Survey

Title:

Location of recommended areas for geophysical survey (map 9 of 24)

Figure: 1 | Drawing No: PB4476-003-000-001

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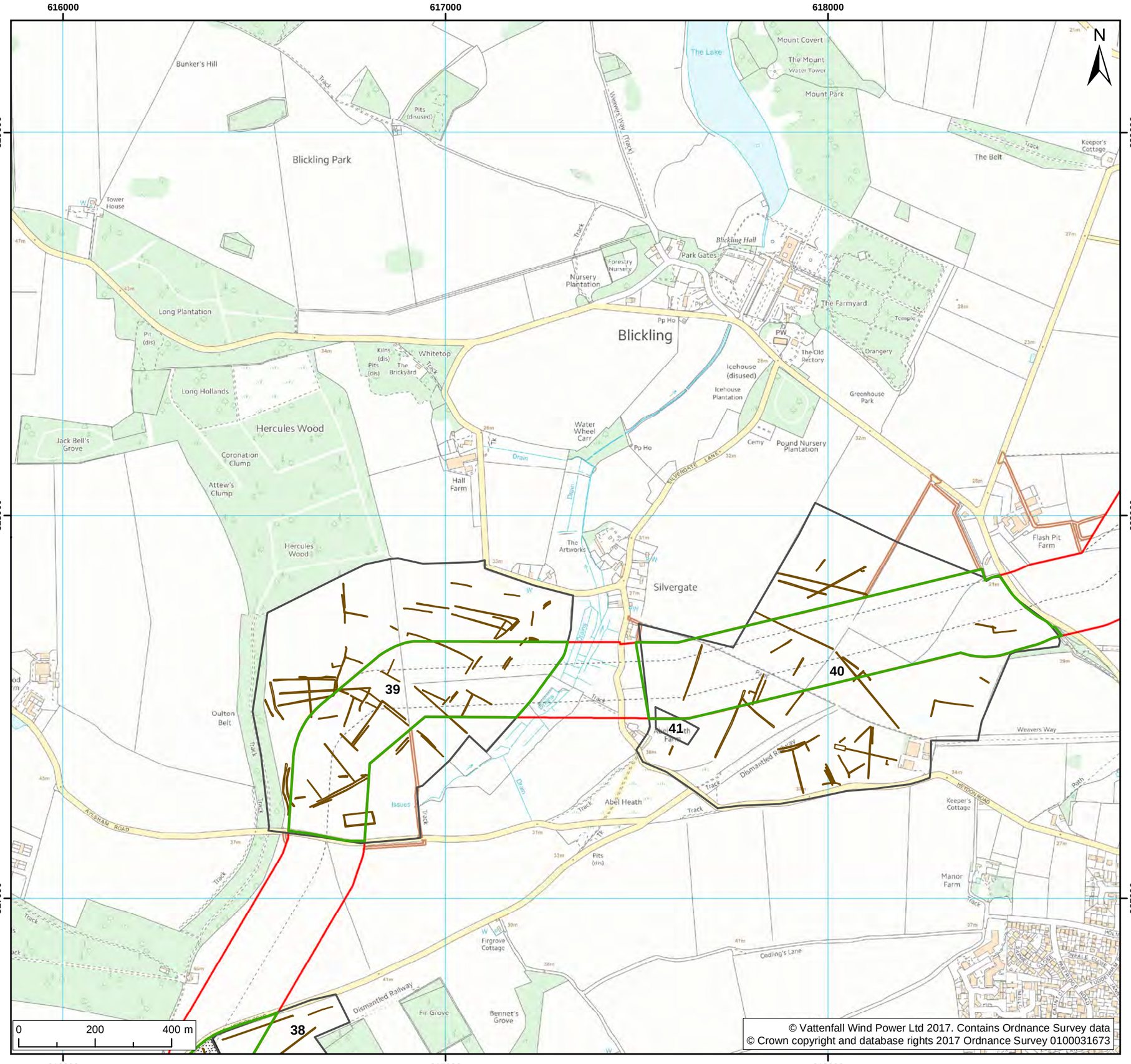

Legend:

Norfolk Vanguard onshore project area

- Onshore cable corridor (200m)
- Indicative Cable Route Alignment (100m)
- Mobilisation zone
- Onshore infrastructure side accesses
- Priority Geophysical Survey Areas
- Monument extent[1]
- Monument feature[1]

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[1] Air Photo Services, 2017.

Project:	Report:
Norfolk Vanguard	Onshore Archaeology: Priority Geophysical Survey

Title:

Location of recommended areas for geophysical survey (map 10 of 24)

Figure: 1 | Drawing No: PB4476-003-000-001

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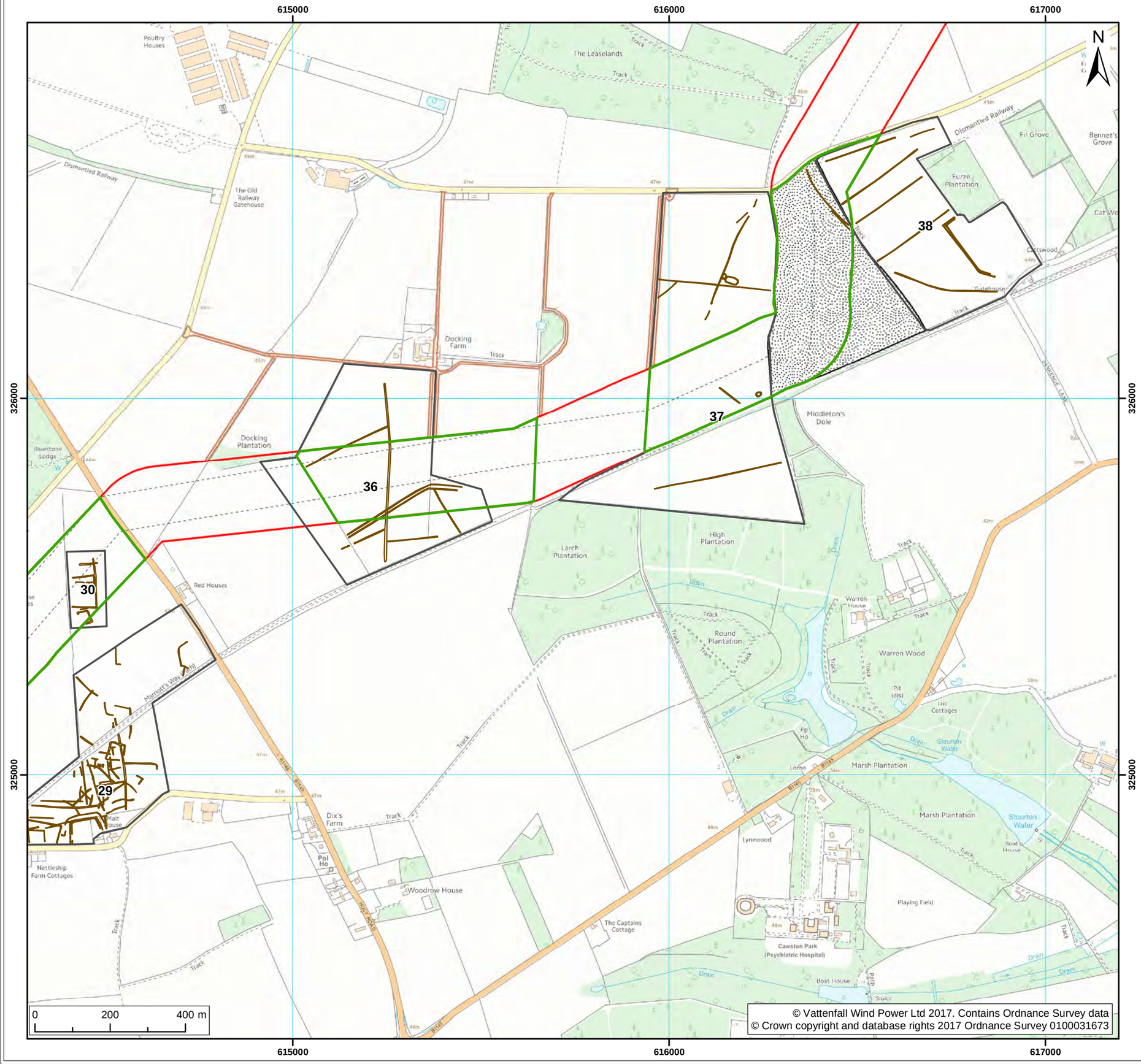

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Legend:

Norfolk Vanguard onshore project area

- Onshore cable corridor (200m)
- Indicative Cable Route Alignment (100m)
- Mobilisation zone
- Onshore infrastructure side accesses
- Priority Geophysical Survey Areas
- Monument extent[1]
- Monument feature[1]

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[1] Air Photo Services, 2017.

Project:	Report:
Norfolk Vanguard	Onshore Archaeology: Priority Geophysical Survey

Title:

Location of recommended areas for geophysical survey (map 11 of 24)

Figure: 1 Drawing No: PB4476-003-000-001

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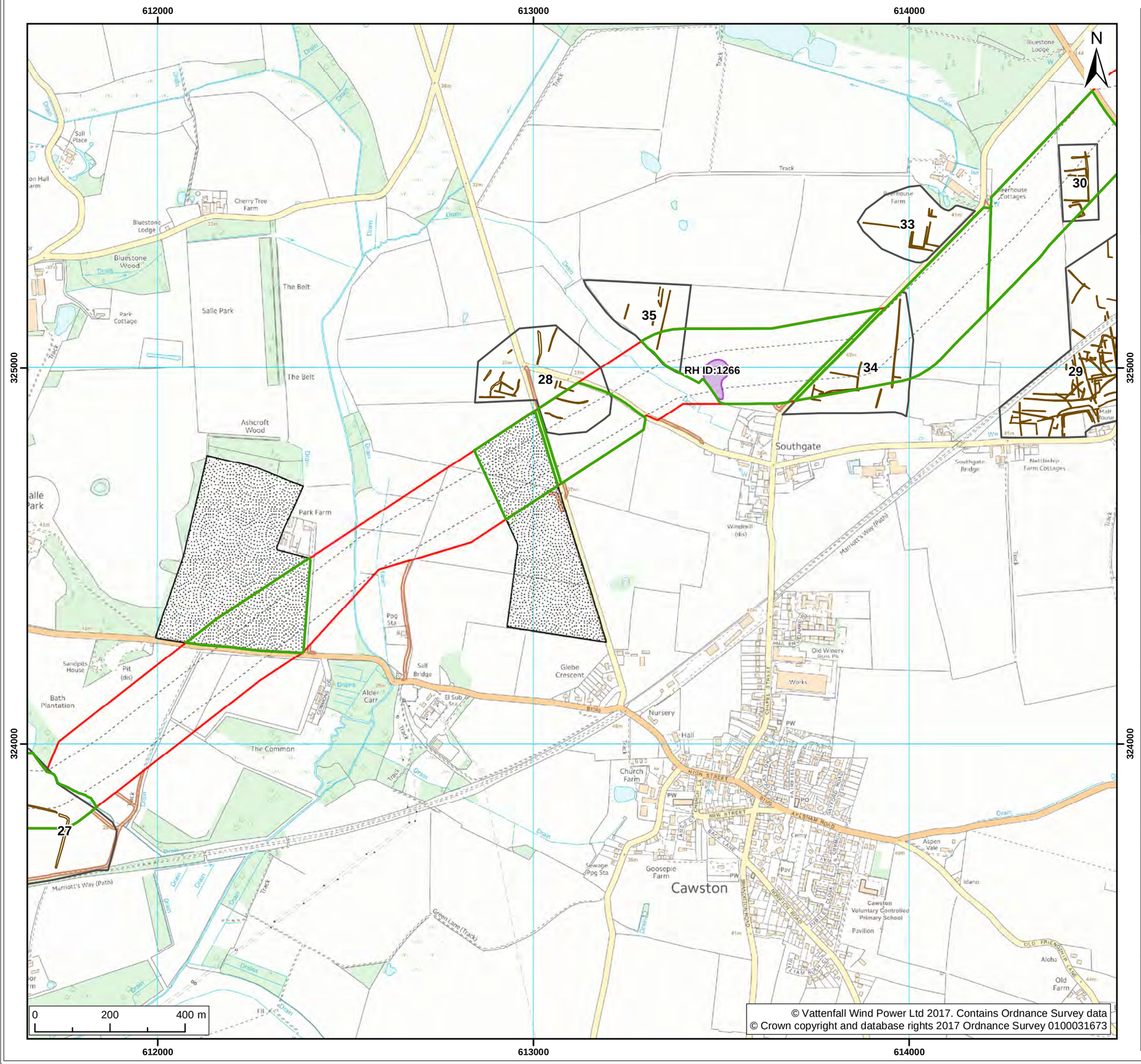

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Legend:

Norfolk Vanguard onshore project area

- Onshore cable corridor (200m)
- Indicative Cable Route Alignment (100m)
- Mobilisation zone
- Onshore infrastructure side accesses
- Priority Geophysical Survey Areas
- Monument extent[1]
- Monument feature[1]
- Historic Environment Record (HER) targeted for geophysical survey[2]

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[1] Air Photo Services, 2017.

Project:	Report:
Norfolk Vanguard	Onshore Archaeology: Priority Geophysical Survey

Title:

Location of recommended areas for geophysical survey (map 12 of 24)

Figure: 1 Drawing No: PB4476-003-000-001

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Legend:

Norfolk Vanguard onshore project area

- Onshore cable corridor (200m)
- Indicative Cable Route Alignment (100m)
- Onshore infrastructure side accesses
- Priority Geophysical Survey Areas
- Monument extent[1]
- Monument feature[1]

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[1] Air Photo Services, 2017.

Project:	Report:
Norfolk Vanguard	Onshore Archaeology: Priority Geophysical Survey

Title:

Location of recommended areas for geophysical survey (map 13 of 24)

Figure: 1 Drawing No: PB4476-003-000-001

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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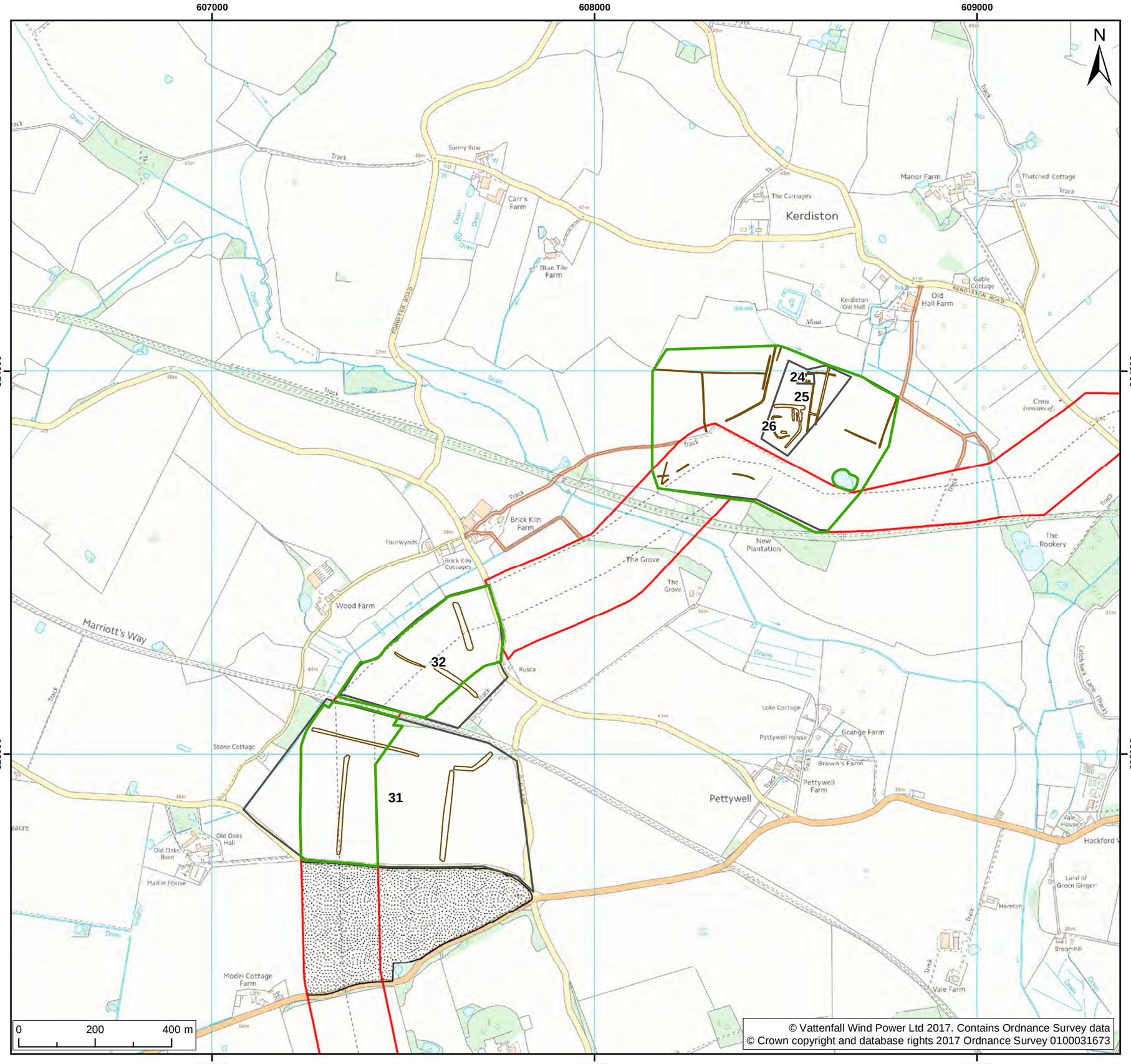

Legend:

Norfolk Vanguard onshore project area

- Onshore cable corridor (200m)
- Indicative Cable Route Alignment (100m)
- Mobilisation zone
- Onshore infrastructure side accesses
- Priority Geophysical Survey Areas
- Monument extent[1]
- Monument feature[1]

DRAFT

[1] Air Photo Services, 2017.

Project:	Report:
Norfolk Vanguard	Onshore Archaeology: Priority Geophysical Survey

Title:

Location of recommended areas for geophysical survey (map 14 of 24)

Figure: 1 | Drawing No: PB4476-003-000-001

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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Co-ordinate system: British National Grid **EPSG:** 27700

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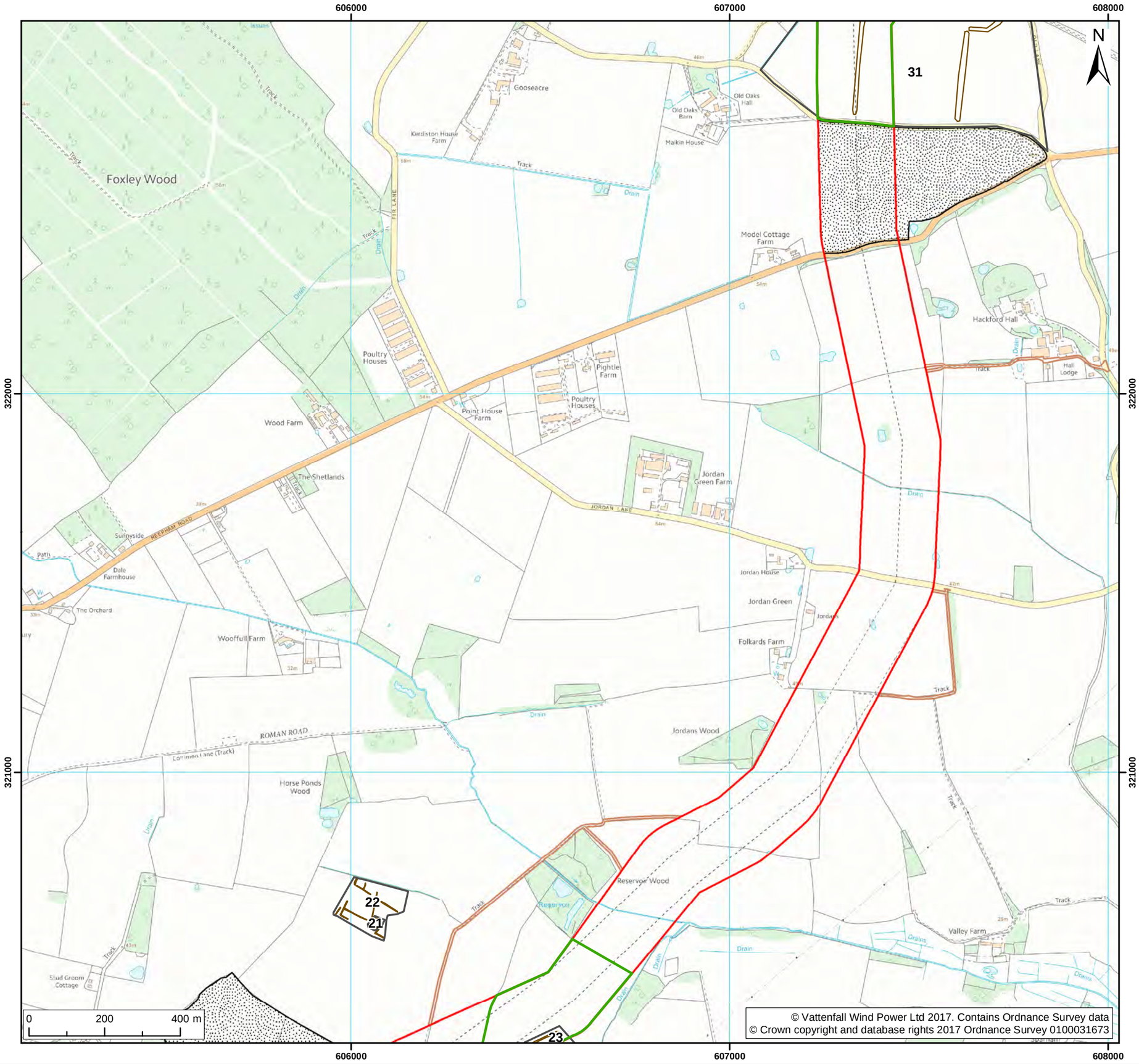

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Legend:

Norfolk Vanguard onshore project area

- Onshore cable corridor (200m)
- Indicative Cable Route Alignment (100m)
- Mobilisation zone
- Onshore infrastructure side accesses
- Priority Geophysical Survey Areas
- Monument extent[1]
- Monument feature[1]

DRAFT

[1] Air Photo Services, 2017.

Project:	Report:
Norfolk Vanguard	Onshore Archaeology: Priority Geophysical Survey

Title:

Location of recommended areas for geophysical survey (map 15 of 24)

Figure: 1 Drawing No: PB4476-003-000-001

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

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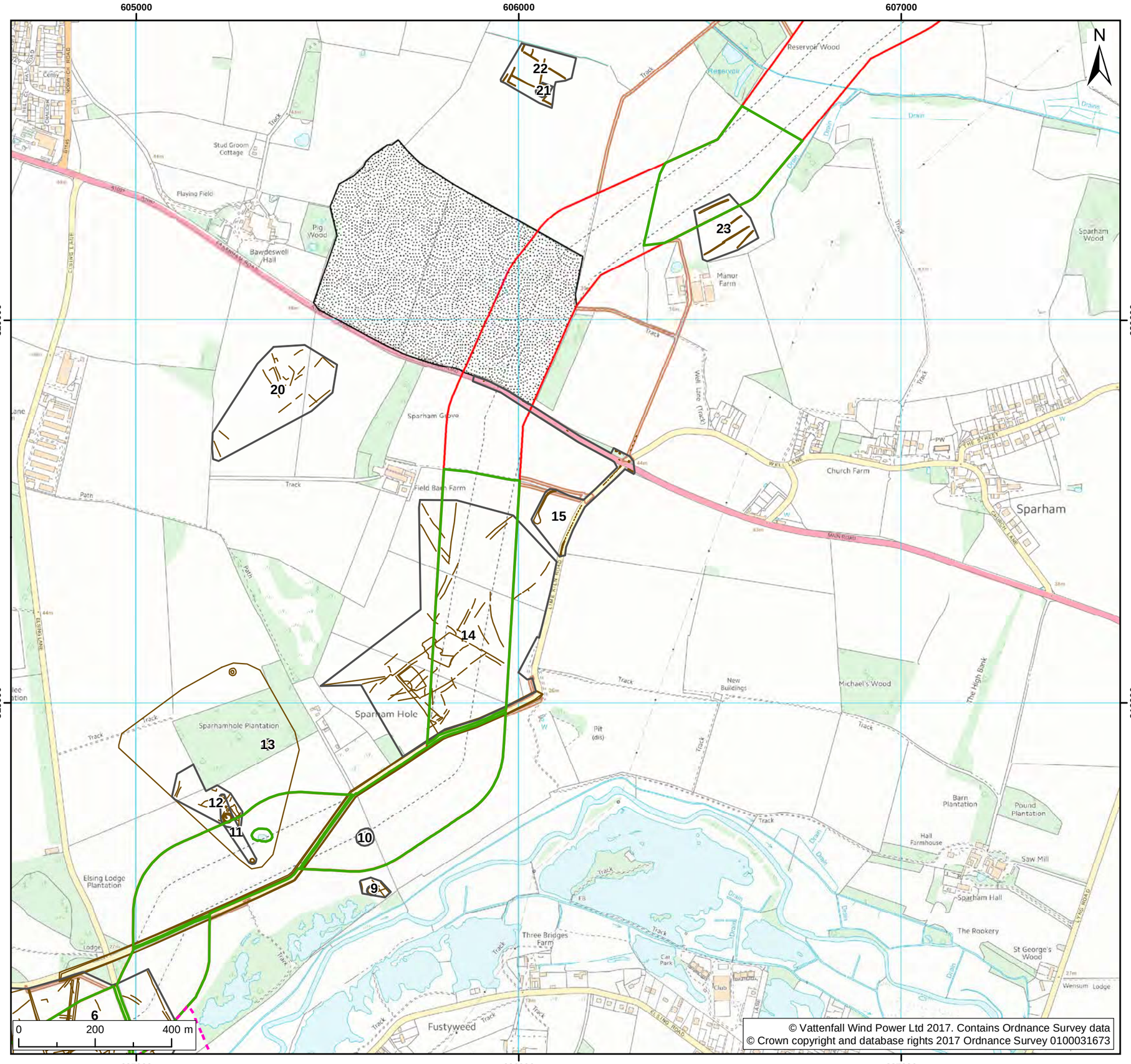

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Legend:

Norfolk Vanguard onshore project area

- Onshore cable corridor (200m)
- Indicative Cable Route Alignment (100m)
- Mobilisation zone
- Onshore infrastructure side accesses
- Priority Geophysical Survey Areas
- Contingency Area - TBC
- Monument extent[1]
- Monument feature[1]
- Monument feature[1]

DRAFT

[1] Air Photo Services, 2017.

Project:	Report:
Norfolk Vanguard	Onshore Archaeology: Priority Geophysical Survey

Title:

Location of recommended areas for geophysical survey (map 16 of 24)

Figure: 1 | Drawing No: PB4476-003-000-001

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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Co-ordinate system: British National Grid **EPSG:** 27700

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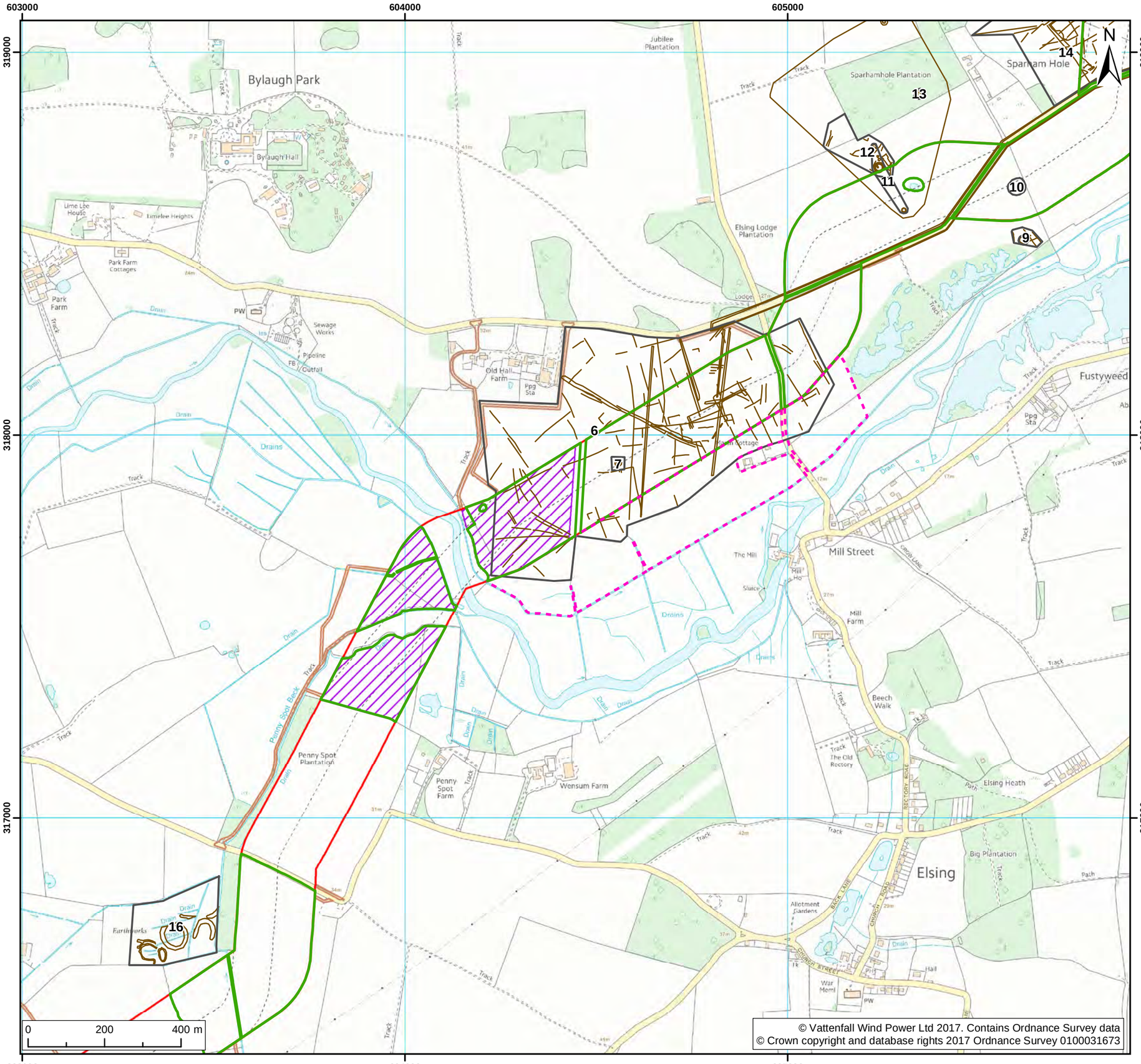

Legend:

Norfolk Vanguard onshore project area

- Onshore cable corridor (200m)
- Indicative Cable Route Alignment (100m)
- Trenchless crossing technique (e.g. HDD)
- Onshore infrastructure side accesses
- Priority Geophysical Survey Areas
- Contingency Area - TBC
- Monument extent[1]
- Monument feature[1]
- Monument feature[1]

DRAFT

[1] Air Photo Services, 2017.

Project:	Report:
Norfolk Vanguard	Onshore Archaeology: Priority Geophysical Survey

Title:

Location of recommended areas for geophysical survey (map 17 of 24)

Figure: 1 | Drawing No: PB4476-003-000-001

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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Co-ordinate system: British National Grid **EPSG:** 27700

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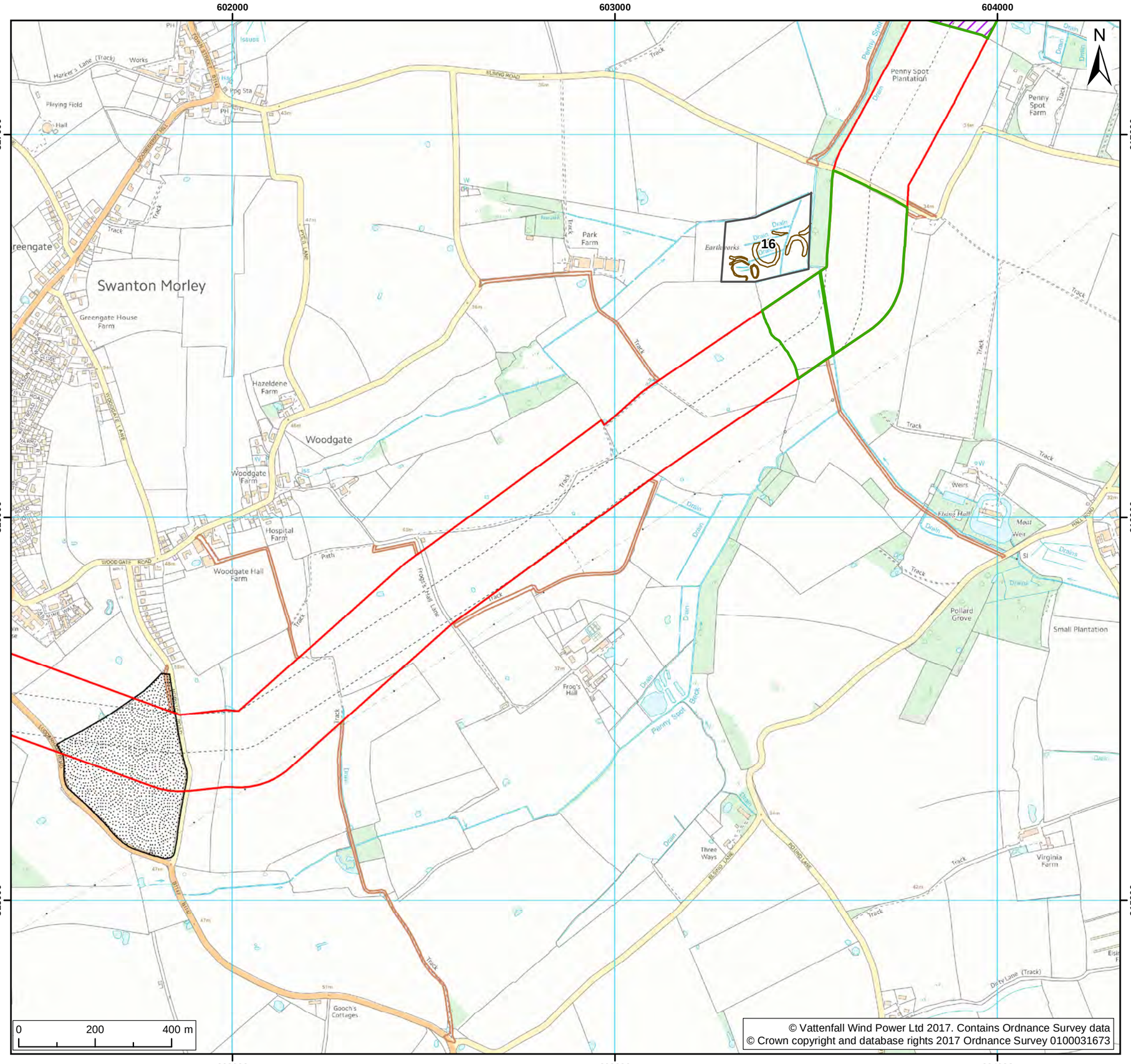

Legend:

Norfolk Vanguard onshore project area

- Onshore cable corridor (200m)
- Indicative Cable Route Alignment (100m)
- Trenchless crossing technique (e.g. HDD)
- Mobilisation zone
- Onshore infrastructure side accesses
- Priority Geophysical Survey Areas
- Monument extent[1]
- Monument feature[1]

DRAFT

[1] Air Photo Services, 2017.

Project:	Report:
Norfolk Vanguard	Onshore Archaeology: Priority Geophysical Survey

Title:

Location of recommended areas for geophysical survey (map 18 of 24)

Figure: 1 | Drawing No: PB4476-003-000-001

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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02	04/09/2017	LB	FS	A3	1:10,000

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

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600000

601000

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0 200 400 m

Legend:

Norfolk Vanguard onshore project area

- Onshore cable corridor (200m)
- Indicative Cable Route Alignment (100m)
- Trenchless crossing technique (e.g. HDD)
- Mobilisation zone
- Onshore infrastructure side accesses
- Priority Geophysical Survey Areas

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[1] Air Photo Services, 2017.

Project:	Report:
Norfolk Vanguard	Onshore Archaeology: Priority Geophysical Survey

Title:

Location of recommended areas for geophysical survey (map 19 of 24)

Figure: 1 | Drawing No: PB4476-003-000-001

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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Co-ordinate system: British National Grid **EPSG:** 27700

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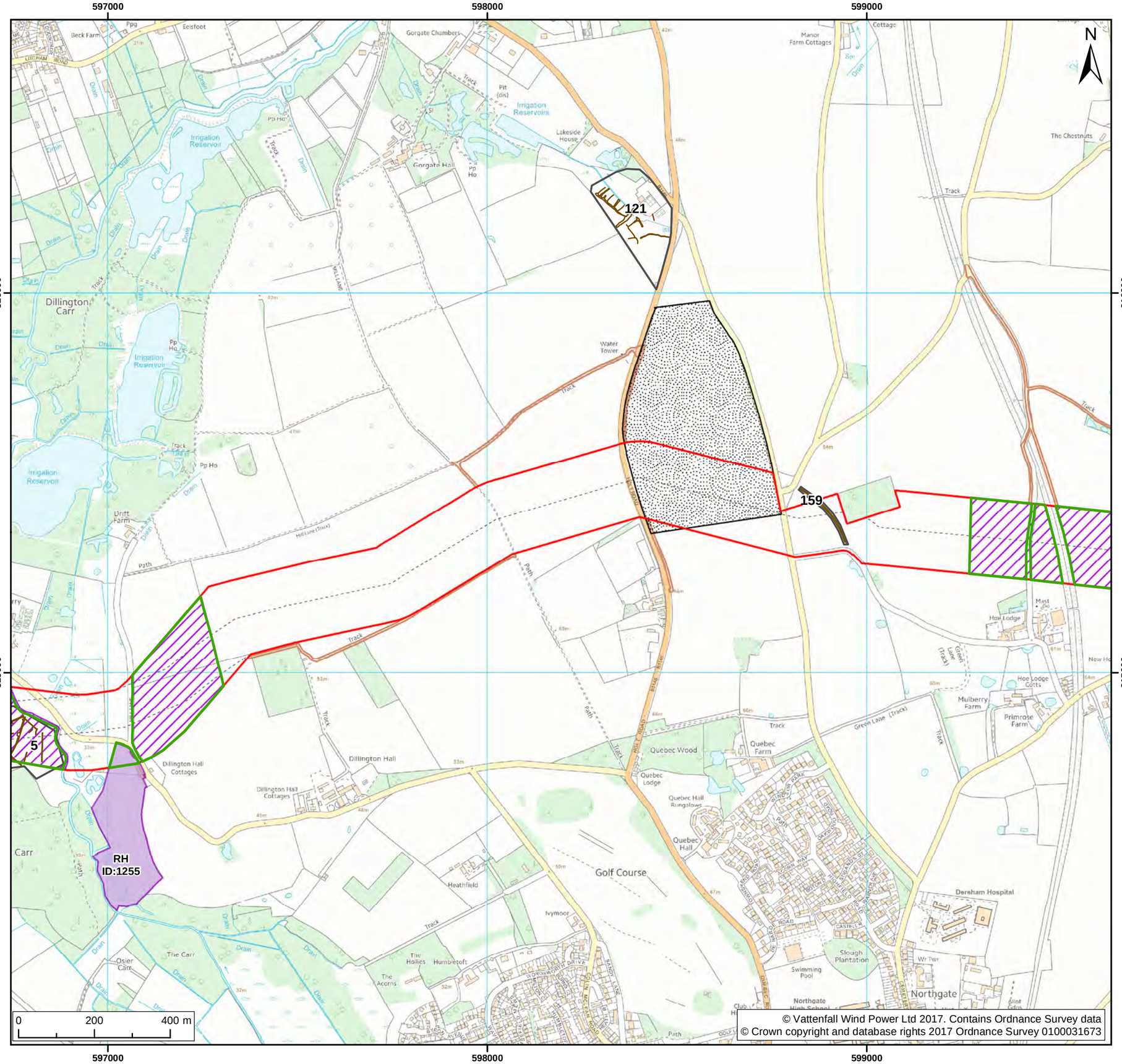

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Legend:

Norfolk Vanguard onshore project area

- Onshore cable corridor (200m)
- Indicative Cable Route Alignment (100m)
- Trenchless crossing technique (e.g. HDD)
- Mobilisation zone
- Onshore infrastructure side accesses
- Priority Geophysical Survey Areas
- Monument extent[1]
- Monument feature[1]
- Monument feature[1]
- Historic Environment Record (HER) targeted for geophysical survey[2]

DRAFT

[1] Air Photo Services, 2017.

Project:	Report:
Norfolk Vanguard	Onshore Archaeology: Priority Geophysical Survey

Title:

Location of recommended areas for geophysical survey (map 20 of 24)

Figure:	1	Drawing No:	PB4476-003-000-001		
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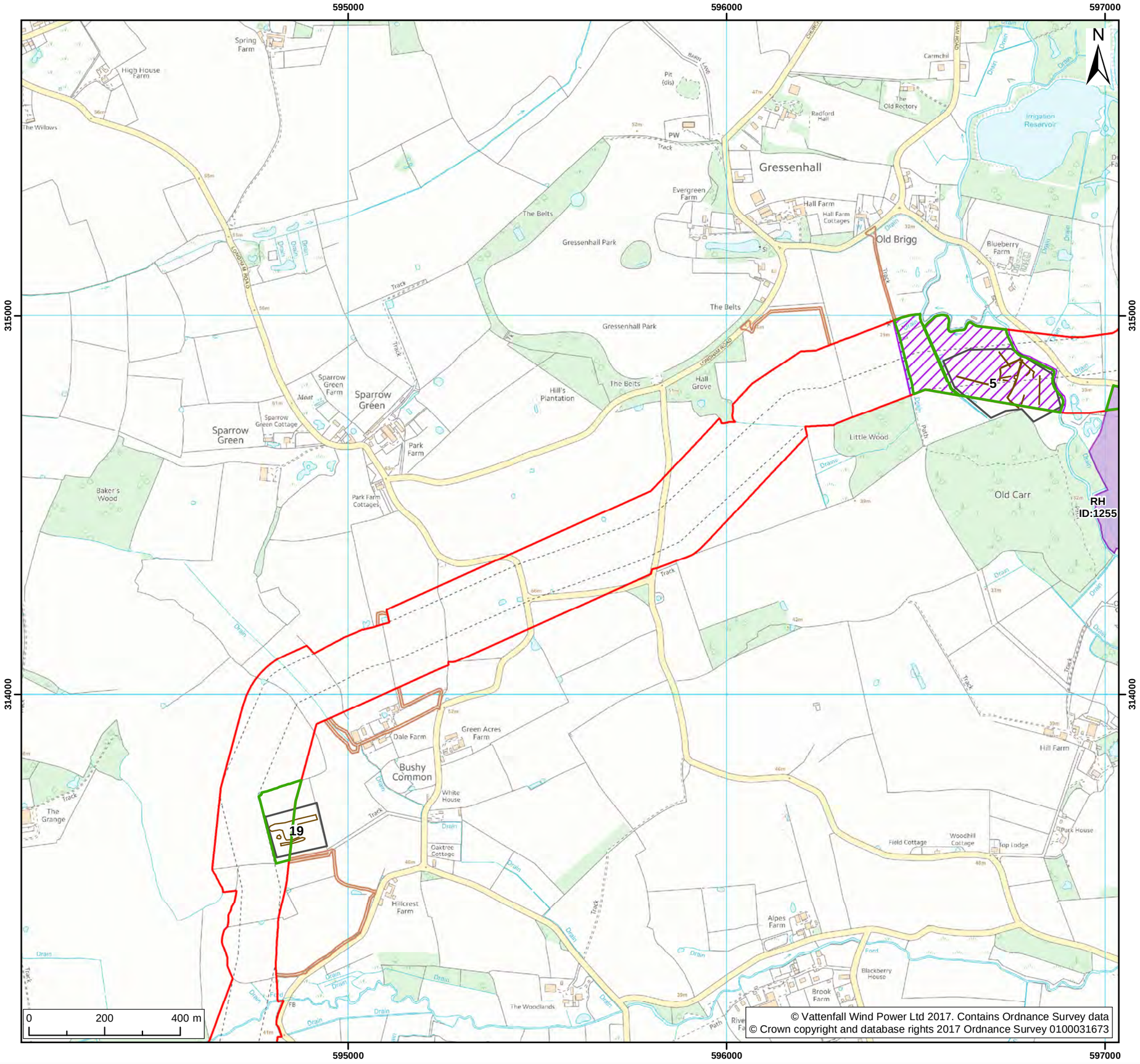

Legend:

Norfolk Vanguard onshore project area

- Onshore cable corridor (200m)
- Indicative Cable Route Alignment (100m)
- Trenchless crossing technique (e.g. HDD)
- Onshore infrastructure side accesses
- Priority Geophysical Survey Areas
- Monument extent[1]
- Monument feature[1]
- Historic Environment Record (HER) targeted for geophysical survey[2]

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[1] Air Photo Services, 2017.

Project:	Report:
Norfolk Vanguard	Onshore Archaeology: Priority Geophysical Survey

Title:

Location of recommended areas for geophysical survey (map 21 of 24)

Figure: 1 Drawing No: PB4476-003-000-001

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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Co-ordinate system: British National Grid **EPSG:** 27700

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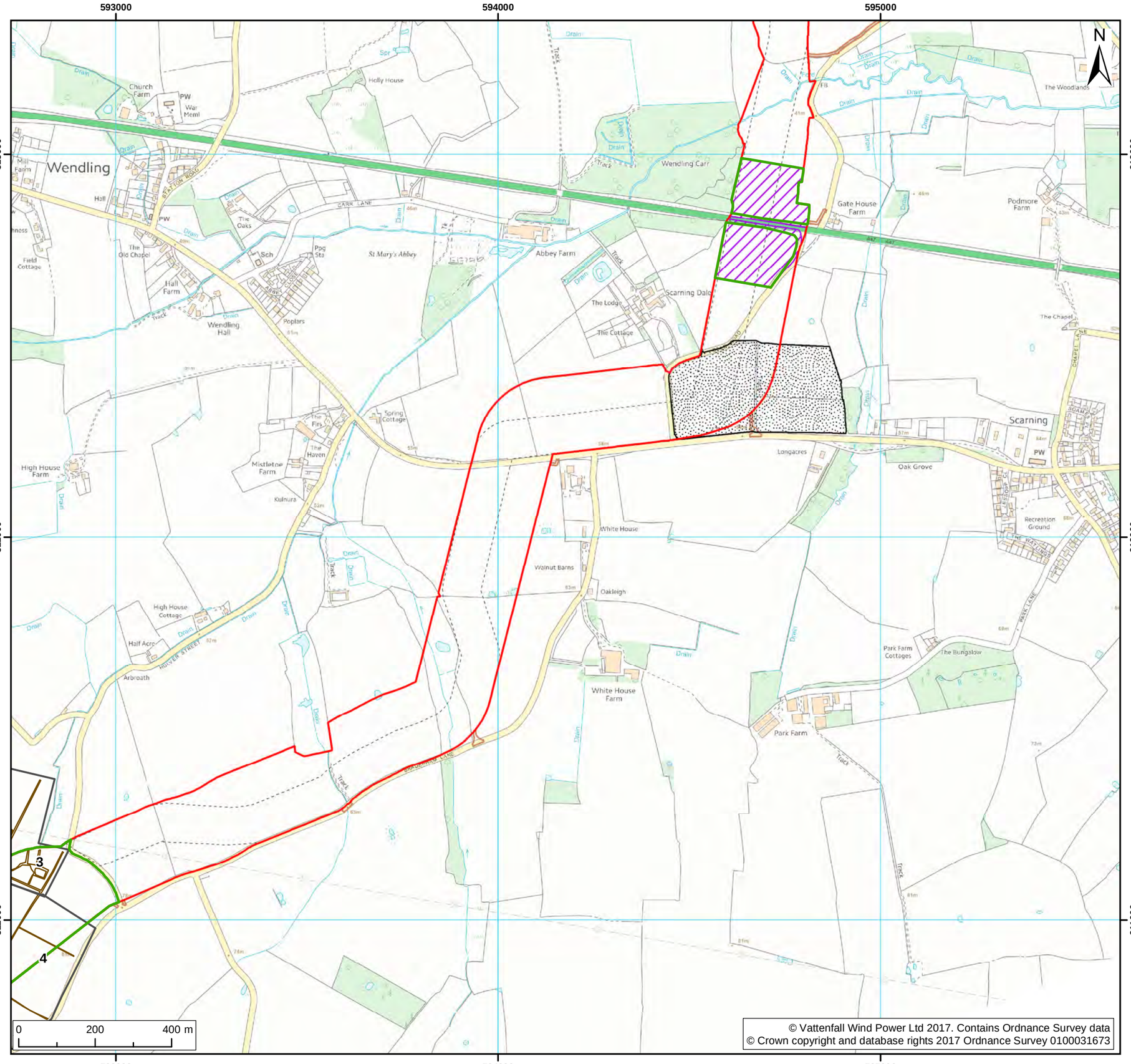

Legend:

Norfolk Vanguard onshore project area

- Onshore cable corridor (200m)
- Indicative Cable Route Alignment (100m)
- Trenchless crossing technique (e.g. HDD)
- Mobilisation zone
- Onshore infrastructure side accesses
- Priority Geophysical Survey Areas
- Monument extent[1]
- Monument feature[1]

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[1] Air Photo Services, 2017.

Project:	Report:
Norfolk Vanguard	Onshore Archaeology: Priority Geophysical Survey

Title:

Location of recommended areas for geophysical survey (map 22 of 24)

Figure: 1 | Drawing No: PB4476-003-000-001

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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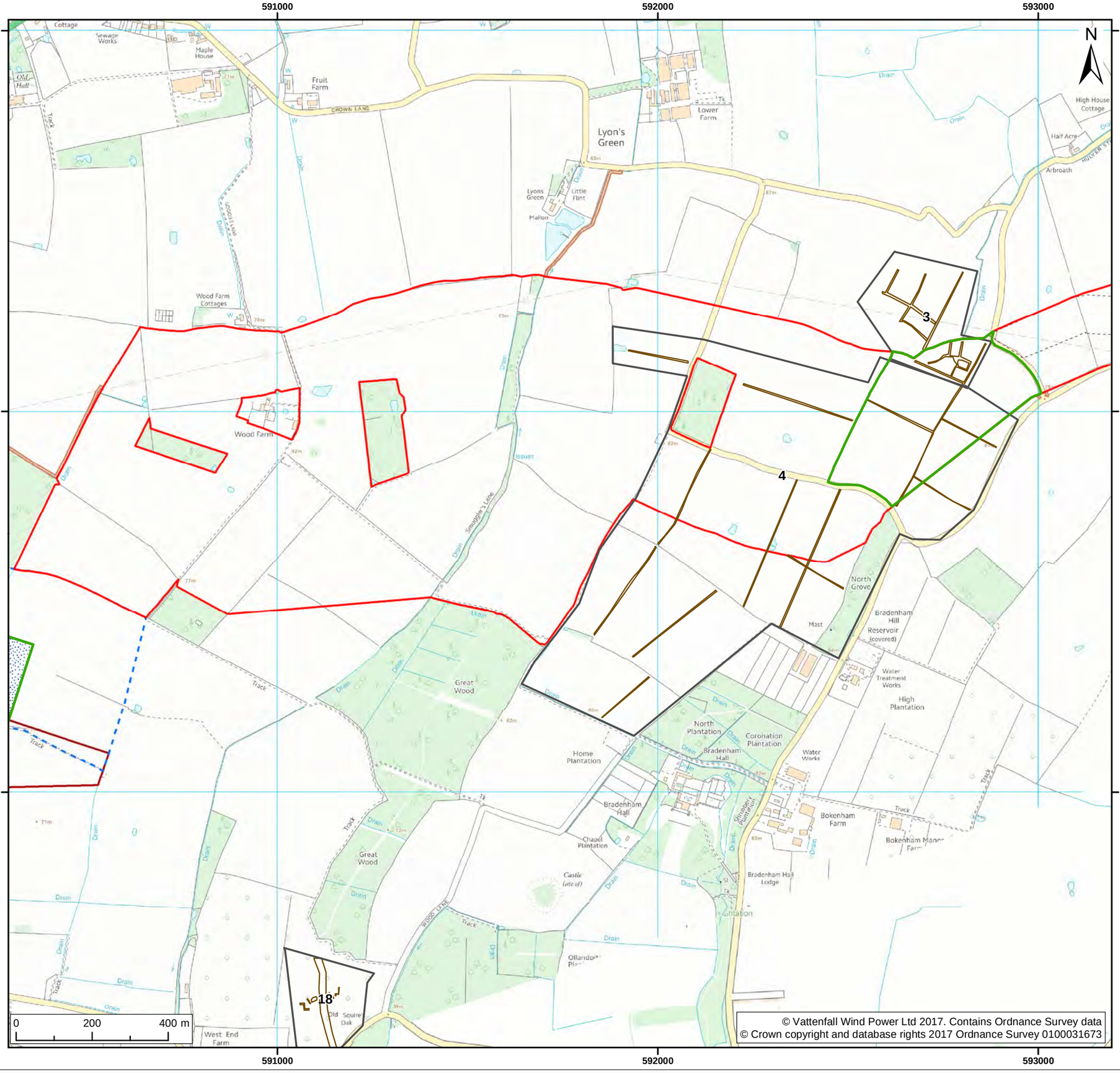

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Legend:

Norfolk Vanguard onshore project area

- Onshore cable corridor (200m)
- Indicative Cable Route Alignment (100m)
- Onshore infrastructure side accesses
- Onshore project substation search zone
- Onshore project substation temporary construction compound
- 400kV onshore cable corridor
- Priority Geophysical Survey Areas
- Monument extent[1]
- Monument feature[1]

DRAFT

[1] Air Photo Services, 2017.

Project:	Report:
Norfolk Vanguard	Onshore Archaeology: Priority Geophysical Survey

Title:

Location of recommended areas for geophysical survey (map 23 of 24)

Figure: 1 | Drawing No: PB4476-003-000-001

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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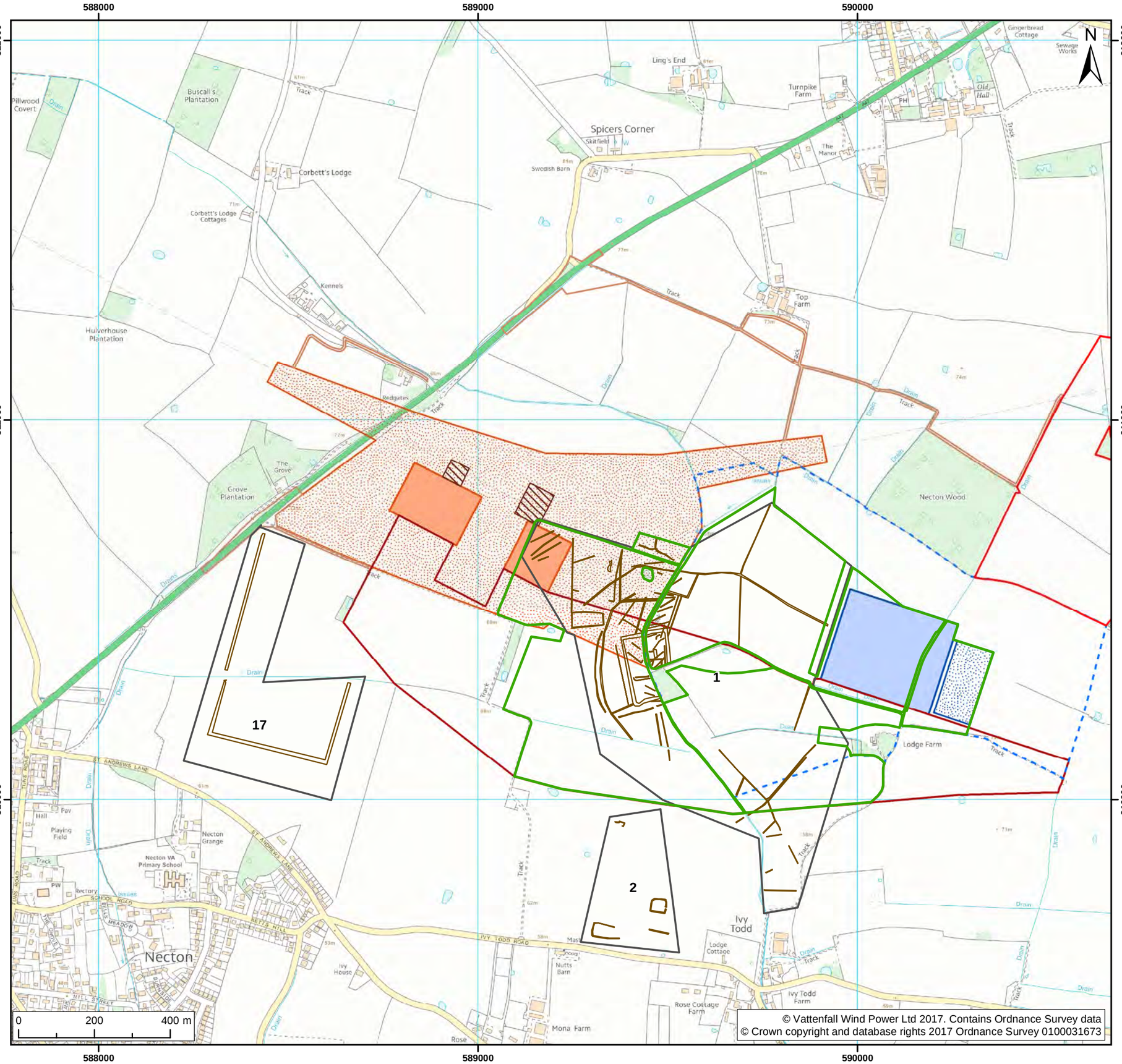

Legend:

Norfolk Vanguard onshore project area

- Onshore cable corridor (200m)
- Onshore infrastructure side accesses
- Onshore project substation search zone
- Onshore project substation
- Onshore project substation temporary construction compound
- 400kV onshore cable corridor
- National Grid Overhead Line Works
- National Grid substation extension
- National Grid temporary works
- Priority Geophysical Survey Areas
- Monument extent[1]
- Monument feature[1]

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[1] Air Photo Services, 2017.

Project:	Report:
Norfolk Vanguard	Onshore Archaeology: Priority Geophysical Survey

Title:

Location of recommended areas for geophysical survey (map 24 of 24)

Figure: 1 | Drawing No: PB4476-003-000-001

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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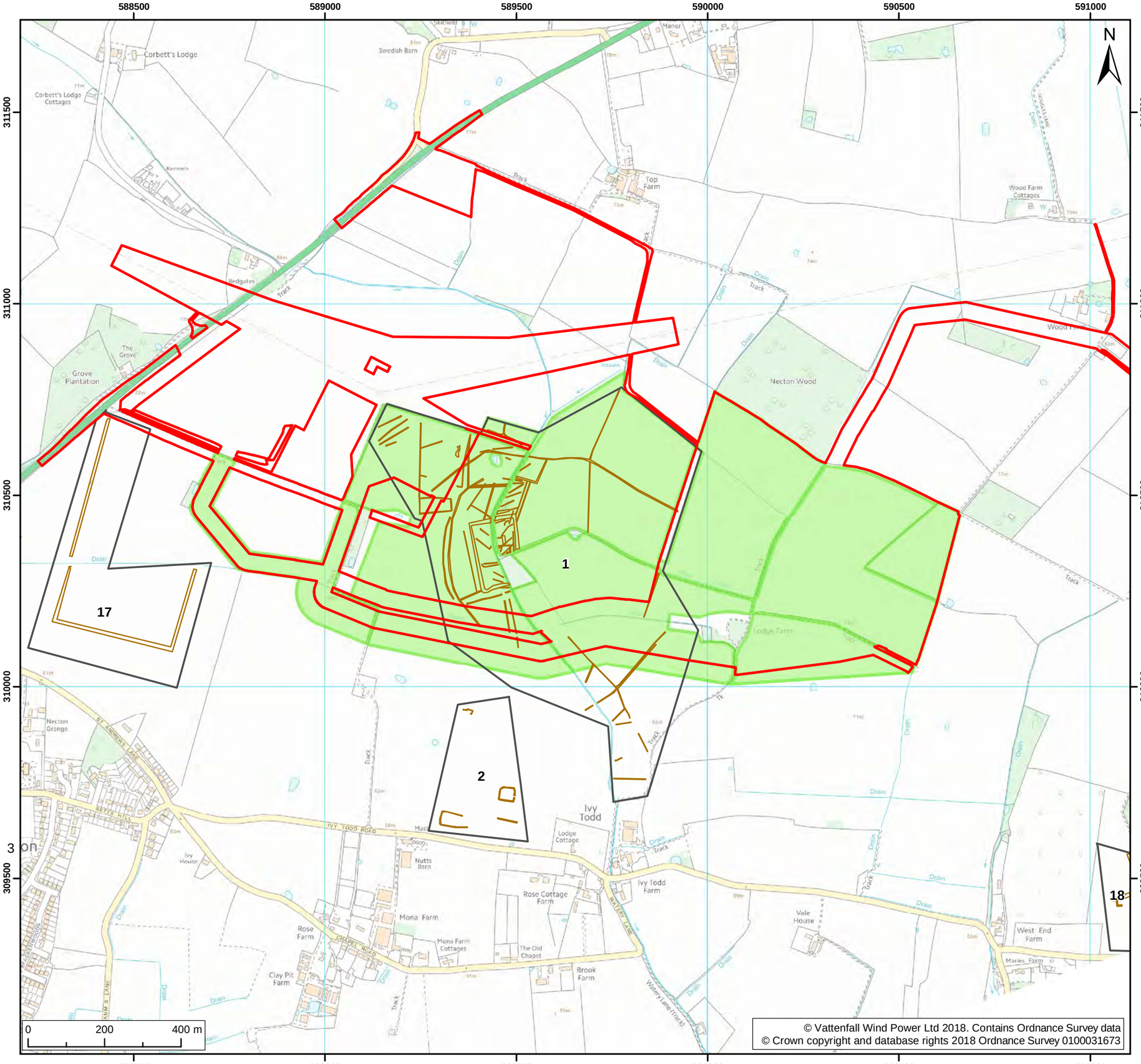

Legend:

- Norfolk Boreas red line boundary
- Priority geophysical survey area

APS Data[1]

- Monument extent
- Monument feature

[1] Air Photo Services, 2017.

Project:	Report:
Norfolk Boreas	Onshore Archaeology: Substation Priority Geophysical Survey

Title:

Substation Areas of Priority Geophysical Survey

Figure: 1 | Drawing No: PB5640-003-009-001

Revision:	Date:	Drawn:	Checked:	Size:	Scale:
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Co-ordinate system: British National Grid **EPSG:** 27700

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