

Hornsea Project Three
Offshore Wind Farm



Hornsea Project Three Offshore Wind Farm

Environmental Statement:
Volume 6, Annex 3.1 – Desk Study and Phase 1 Habitat Survey

PINS Document Reference: A6.6.3.1
APFP Regulation 5(2)(a)

Date: May 2018

Hornsea 3
Offshore Wind Farm

Orsted

Environmental Impact Assessment

Environmental Statement

Volume 6

Annex 3.1. – Desk Study and Phase 1 Habitat Survey

Liability

This report has been prepared by RPS, with all reasonable skill, care and diligence within the terms of their contracts with Orsted Power (UK) Ltd.

Report Number: A6.6.3.1

Version: Final

Date: May 2018

This report is also downloadable from the Hornsea Project Three offshore wind farm website at:

www.hornseaproject3.co.uk

Ørsted,

5 Howick Place,

London, SW1P 1WG

© Orsted Power (UK) Ltd., 2018. All rights reserved

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

Prepared by: RPS

Checked by: Sarah Drljaca

Accepted by: Sophie Banham

Approved by: Stuary Livesey

Table of Contents

1. Introduction	1
1.1 Purpose	1
2. Methods	1
2.1 Desk study	1
2.2 Phase 1 habitat survey	2
2.3 Limitations	2
3. Desk study results	2
3.2 Non-statutory designated sites	2
3.3 Protected and other notable species	17
4. Phase 1 habitat survey Results	26
5. References	58
Appendix A Thomson Ecology Additional Phase 1 Habitat Survey Report 2017	59
Appendix B Thomson Ecology Phase 1 Habitat Survey – Assessment Methodology	117
Appendix C Thomson Ecology Phase 1 Habitat Survey – Plant species and abundance	118

List of Tables

Table 2.1: Summary of key desktop sources	1
Table 3.1: Statutory designated sites within 2 km of the onshore elements of Hornsea Three (as defined at PEIR stage)	3
Table 3.2: Non-statutory designated sites within 2 km of the onshore elements of Hornsea Three (as defined at PEIR stage)	8
Table 3.3: Summary of protected and notable plant species recorded within 2 km of the onshore elements of Hornsea Three (as defined at PEIR stage)	17
Table 3.4: Summary of protected and notable invertebrate species recorded within 2 km of the onshore elements of Hornsea Three (as defined at PEIR stage)	18
Table 3.5: Summary of aquatic invertebrate and fish species recorded within 2 km of the onshore elements of Hornsea Three (as defined at PEIR stage)	20
Table 3.6: Summary of herpetofauna species recorded within 2 km of the onshore elements of Hornsea Three (as defined at PEIR stage)	20
Table 3.7: Summary of protected and notable birds recorded within 5 km of the onshore elements of Hornsea Three (as defined at PEIR stage)	21
Table 3.8: Summary of bat records within 5 km of the onshore elements of Hornsea Three (as defined at PEIR stage)	22
Table 3.9: Summary of other protected and notable mammal records within 2 km of the onshore elements of Hornsea Three (as defined at PEIR stage)	23
Table 3.10: Conservation status abbreviations used in Table 3.3 to Table 3.9	24
Table A.1: Habitat types and areas or lengths recorded during the Phase 1 habitat survey of additional areas	62
Table A.2: Phase 1 habitat survey results	63
Table C.1: PHA1	118
Table C.2: PHA3	118

Table C.3: PHA4	118
Table C.4: PHA5	119
Table C.5: PHA6	120
Table C.6: PHA7	121
Table C.7: PHA8	121
Table C.8: PHB3	122
Table C.9: PHB4	122
Table C.10: PHB5	123
Table C.11: PHB6	123
Table C.12: PHB7	123
Table C.13: PHB8	124
Table C.14: PHC1	124
Table C.15: PHE1	125
Table C.16: PHF1	125
Table C.17: PHF2	127
Table C.18: PHF3	129
Table C.19: PHG1	130
Table C.20: PHG2	130
Table C.21: PHG3	131
Table C.22: PHG5	131
Table C.23: PHG6	132
Table C.24: PHG7	132
Table C.25: PHG8	133

List of Figures

Figure 4.1: Location of designated sites	27
Figure 4.2: Protected plant records	36
Figure 4.3: Location of protected or otherwise notable terrestrial invertebrate records	37
Figure 4.4: Location of fish and aquatic invertebrate records	38
Figure 4.5: Location of amphibian and reptile records	39
Figure 4.6: Location of bird records	40
Figure 4.7: Location of bat records	41
Figure 4.8: Location of other mammal records	42
Figure 4.9: Phase 1 habitat survey	43
Figure A.1: PEA Phase 1 habitat survey area	70
Figure A.2: Phase 1 habitat survey areas for the additional areas	71
Figure A.3: Phase 1 habitat survey areas for the additional areas	72
Figure A.4: Phase 1 habitat survey areas for the additional areas	73
Figure A.5: Phase 1 habitat survey areas for the additional areas	74
Figure A.6: Phase 1 habitat survey areas for the additional areas	75
Figure A.7: Phase 1 habitat survey results for additional areas	76
Figure A.8: Phase 1 habitat survey results for additional areas	77
Figure A.9: Phase 1 habitat survey results for additional areas	78

Figure A.10: Phase 1 habitat survey results for additional areas.	79
Figure A.11: Phase 1 habitat survey results for additional areas.	80
Figure A.12: Phase 1 habitat survey results for additional areas.	81
Figure A.13: Phase 1 habitat survey results for additional areas.	82
Figure A.14: Phase 1 habitat survey results for additional areas.	83
Figure A.15: Phase 1 habitat survey results for additional areas.	84
Figure A.16: Phase 1 habitat survey results for additional areas.	85
Figure A.17: Phase 1 habitat survey results for additional areas.	86
Figure A.18: Phase 1 habitat survey results for additional areas.	87
Figure A.19: Phase 1 habitat survey results for additional areas.	88
Figure A.20: Phase 1 habitat survey results for additional areas.	89
Figure A.21: Phase 1 habitat survey results for additional areas.	90
Figure A.22: Phase 1 habitat survey results for additional areas.	91
Figure A.23: Phase 1 habitat survey results for additional areas.	92
Figure A.24: Phase 1 habitat survey results for additional areas.	93
Figure A.25: Phase 1 habitat survey results for additional areas.	94
Figure A.26: Phase 1 habitat survey results for additional areas.	95
Figure A.27: Phase 1 habitat survey results for additional areas.	96
Figure A.28: Phase 1 habitat survey results for additional areas.	97
Figure A.29: Phase 1 habitat survey results for additional areas.	98
Figure A.30: Phase 1 habitat survey results for additional areas.	99
Figure A.31: Phase 1 habitat survey results for additional areas.	100
Figure A.32: Phase 1 habitat survey results for additional areas.	101
Figure A.33: Phase 1 habitat survey results for additional areas.	102
Figure A.34: Phase 1 habitat survey results for additional areas.	103
Figure A.35: Phase 1 habitat survey results for additional areas.	104
Figure A.36: Phase 1 habitat survey results for additional areas.	105
Figure A.37: Phase 1 habitat survey results for additional areas.	106
Figure A.38: Phase 1 habitat survey results for additional areas.	107
Figure A.39: Phase 1 habitat survey results for additional areas.	108
Figure A.40: Photographs of Phase 1 habitat survey results.	109
Figure A.41: Photographs of Phase 1 habitat survey results.	110
Figure A.42: Photographs of Phase 1 habitat survey results.	111
Figure A.43: Photographs of Phase 1 habitat survey results.	112
Figure A.44: Photographs of Phase 1 habitat survey results.	113
Figure A.45: Photographs of Phase 1 habitat survey results.	114
Figure A.46: Photographs of Phase 1 habitat survey results.	115

Glossary

Term	Definition
Biodiversity Action Plan	The UK Government's response to the Convention on Biological Diversity, which the UK signed in 1992 in Rio de Janeiro and ratified in 1994. The Convention on Biological Diversity requires signatory countries to identify, develop and enforce action plans to conserve, protect and enhance biological diversity. The UK BAP addresses this requirement. Local BAPs (LBAPs) have been produced by many counties, to detail measures to conserve, protect and enhance local/county biological diversity.
Birds Directive	Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds.
European Protected Species (EPS)	The animal species listed in Annex IV(a) to the Habitats Directive and the plant species listed in Annex IV(b) to the Habitats Directive.
Habitats Directive	Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora.
Onshore elements of Hornsea Three	Hornsea Three landfill area, onshore cable corridor, the onshore HVAC booster station, the onshore HVDC converter/HVAC substation and the interconnection with the Norwich Main National Grid substation.
Local Biodiversity Action Plan (LBAP)	Local BAPs (LBAPs) have been produced by many counties, to detail measures to conserve, protect and enhance local/county biological diversity.
Local Nature Reserve (LNR)	A local authority designation under the National Parks and Access to the Countryside Act 1949 (as amended), and in consultation with relevant statutory nature conservation agencies.
Local Wildlife Site	Alternative title to Wildlife Site, as defined below. Defined in local and structure plans under the Town and Country Planning system. The designation is a material consideration when planning applications are being determined.
National Nature Reserve (NNR)	Designated under the National Parks and Access to the Countryside Act 1949 (as amended) and Wildlife and Countryside Act 1981 (as amended). Support examples of some of the most important natural and semi-natural ecosystems in Great Britain. Managed to conserve habitats and species within them, and to provide scientific study opportunities.
Non-statutory designated sites	Non-statutory designated sites are sites which have been designated due to their nature conservation interest, typically through the local planning process, which are usually protected by planning policies but not legally protected.
Priority Species	UK Biodiversity Action Plan (UK BAP) priority species were those that were identified as being the most threatened and requiring conservation action under the UK BAP.
Ramsar Convention	The Convention on Wetlands of International Importance especially as Waterfowl Habitat of 2 February 1971 (as amended) which provides the framework for national action and international cooperation for the conservation and wise use of wetlands and their resources.
Ramsar site	Wetlands of international importance, designated under the Ramsar Convention.
Site of Importance for Nature Conservation	Alternative title to Wildlife Site, as defined below. Defined in local and structure plans under the Town and Country Planning system. The designation is a material consideration when planning applications are being determined.
Site of Nature Conservation Importance	Alternative title to Wildlife Site, as defined below. Defined in local and structure plans under the Town and Country Planning system. The designation is a material consideration when planning applications are being determined.

Term	Definition
Sites of Special Scientific Interest	Sites designated by Natural England under the Wildlife and Countryside Act 1981 (as amended) as areas of land of special interest by reason of any of their flora, fauna, or geological or physiographical features.
Special Areas of Conservation	A site of Community importance designated under Council Directive 92/43/EEC of 21 May 1992 on the conservation of natural habitats and of wild fauna and flora through a statutory, administrative and/or contractual act where the necessary conservation measures are applied for the maintenance or restoration, at a favourable conservation status, of the natural habitats and/or the populations of the species for which the site is designated.
Special Protection Area	An area which has been identified as being of international importance and designated under Directive 2009/147/EC of the European Parliament and of the Council of 30 November 2009 on the conservation of wild birds for the breeding, feeding, wintering or the migration of rare and vulnerable bird species found within European Union countries.
Statutory designated sites	Sites which have been designated under UK and in some cases European or international legislation which protects areas identified as being of special nature conservation importance.
Wildlife Site	Local authority designation for sites of local conservation interest. Designation criteria can vary between areas, as can titles which include Local Wildlife Site, Local Nature Conservation Site, Site of Importance for Nature Conservation or Site of Nature Conservation Importance. They are defined in local and structure plans under the Town and Country Planning system and are a material consideration when planning applications are being determined.
Woodland	As described under the Phase 1 habitat survey guidelines (JNCC, 2010); vegetation dominated by trees more than 5 m high when mature, forming a distinct, although sometimes open, canopy. In accordance with Natural England's guidelines for Environmental Stewardship (Natural England, 2013, native woodland is defined as a group of trees with overlapping canopies covering at least 0.1 ha, at least half of which are native species.

Acronyms

Acronyms	Description
BAP	Biodiversity Action Plan
CWS	County Wildlife Site
EIA	Environmental Impact Assessment
EMP	Ecological Management Plan
HVAC	High Voltage Alternating Current
HVDC	High Voltage Direct Current
JNCC	Joint Nature Conservation Committee
LBAP	Local Biodiversity Action Plan
LNR	Local Nature Reserve
NBIS	Norfolk Biodiversity Information Service
NERC	Natural Environment and Rural Communities
NNR	National Nature Reserve

Acronyms	Description
RNR	Roadside Nature Reserves
RSPB	Royal Society for Protection of Birds
SAC	Special Area of Conservation
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
UK BAP	UK Biodiversity Action Plan

Units

Unit	Description
ha	Hectare (area)
km	Kilometre (distance)
m	Metre (distance)

1. Introduction

1.1 Purpose

1.1.1.1 This annex presents the results of the ecology and nature conservation desk study and Phase 1 habitat survey undertaken for the onshore elements of Hornsea Three. It includes the following:

- Data search, including designated sites and protected species records maps; and
- Phase 1 habitat survey maps, combining field survey data collected in 2016 by RPS and 2017 by Thomson Ecology.

1.1.1.2 Although the results of the 2017 survey are incorporated into the main body of this annex as appropriate, Appendix A provides the full Phase 1 Survey Report, specific to the 2017 survey.

1.1.1.3 The information presented in this annex has been used to inform the assessment presented in volume 3, chapter 3: Ecology and Nature Conservation.

2. Methods

2.1 Desk study

2.1.1 Search area

2.1.1.1 For the designated sites desk study, the initial identification of sites that might be affected used a search area of 2 km from the onshore elements of Hornsea Three.

2.1.1.2 For the protected species data search, a search area of 2 km from the onshore elements of Hornsea Three was used for all species other than birds and bats. For birds and bats, this area was increased to 5 km to take into account the greater mobility of these species and hence the greater relevance of records of these groups beyond a 2 km search area.

2.1.2 Data request

2.1.2.1 Information on ecology and nature conservation within the desk study search area was collected through a detailed desktop review of existing studies and datasets.

2.1.2.2 The Natural England GIS dataset of statutory designated sites was consulted for boundary shapefile information on statutory designated sites within 2 km of the onshore elements of Hornsea Three. A search was made for details of Special Areas of Conservation (SACs), Special Protection Areas (SPAs), Ramsar Sites, National Nature Reserves (NNRs), Sites of Special Scientific Interest (SSSIs) and Local Nature Reserves (LNRs).

2.1.2.3 The Joint Nature Conservation Committee (JNCC) website (<http://www.jncc.defra.gov.uk>) was consulted to obtain citations and information on designated features of SACs, SPAs and Ramsar Sites. SSSI citations were obtained from the Natural England website (<https://designatedsites.naturalengland.org.uk>).

2.1.2.4 Data sources contacted for information are summarised in Table 2.1 together with a summary of responses received.

Table 2.1: Summary of key desktop sources.

Title	Month	Year	Summary of response
Natural England	November	2017	Natural England's online datasets on statutory designated sites and Priority Habitats were accessed.
NBIS	July	2016	NBIS provided data on protected species and non-statutory designated sites within the search area.
	February	2017	NBIS provided data on protected species and non-statutory designated sites within the search area.
	November	2017	NBIS provided data on protected species and non-statutory designated sites within the search area.
Norfolk Amphibian & Reptile Group (NARG)	July	2016	No response received.
	February	2017	Norfolk Amphibian & Reptile Group do not hold records.
Amphibian and Reptile Conservation Trust	February	2017	Four records received, March 2017.
	November	2017	Seven records received, November 2017.
Norfolk Badger Protection Group	February	2017	Norfolk Badger Protection Group provided data on badgers within the search area.
Norwich Bat Group	February	2017	Norwich Bat Group submits records to NBIS.
Norfolk Bat Group	February	2017	Norfolk Bat Group submits records to NBIS.
Norfolk Barbastelle Study Group	February	2017	Norfolk Barbastelle Study Group submits records to NBIS.
Norfolk Badger Trust	February	2017	Norfolk Badger Trust provided data on badgers within the search area.
	November	2017	Norfolk Badger Trust provided data on badgers within the search area.
County Badger Recorder	February	2017	County recorders submit records to NBIS.
County Bat Recorder	February	2017	County recorders submit records to NBIS.
Norfolk Bats in Churches	February	2017	County recorders submit records to NBIS.

2.2 Phase 1 habitat survey

- 2.2.1.1 The initial survey area for the Phase 1 habitat survey was based on the route assessed at the Preliminary Environmental Information Report (PEIR) stage. The survey area included the onshore elements of Hornsea Three (namely the Hornsea Three landfall (above Mean High Water Springs (MHWS) and a 500 m survey area containing a 200 m onshore cable corridor, the onshore HVAC booster station, the onshore HVDC converter/HVAC substation and the interconnection with the Norwich Main National Grid substation), as defined at the PEIR stage.
- 2.2.1.2 The initial extended Phase 1 habitat survey was undertaken between July and September 2016 to map all habitats present and to identify any potential for protected species to be present.
- 2.2.1.3 Due to access restrictions in some locations during the 2016 survey and subsequent route refinement, an additional Phase 1 survey was carried out in 2017 to address gaps in the 2016 survey coverage. A full report detailing the additional 2017 Phase 1 surveys is presented in Appendix A.
- 2.2.1.4 All Phase 1 habitat surveys were undertaken by appropriately experienced ecologists following the standard methodology set out by the JNCC in the Handbook for Phase 1 Habitat Survey - a technique for environmental audit (JNCC, 2010).
- 2.2.1.5 All habitats recorded within the Phase 1 habitat survey were mapped onto Ordnance Survey base maps using the JNCC Phase 1 habitat categories. Typical plant species were recorded for each category of habitat.

2.3 Limitations

- 2.3.1.1 The desk study is third party controlled data, purchased for the purposes of the Environmental Impact Assessment (EIA) process only.

2.3.2 Desk study

- 2.3.2.1 For protected and otherwise notable species records, only those records with a 6-figure grid reference resolution or higher are provided, since locations given at a lower resolution do not allow accurate calculation of distance to the onshore elements of Hornsea Three, and therefore cannot be meaningfully interpreted. However, this is not considered to result in a significant limitation in terms of accurately describing the suite of species occurring in the ecological desk study data search area.

2.3.3 Phase 1 surveys

- 2.3.3.1 Where access for the Phase 1 habitat survey was not obtained for either the 2016 or 2017 survey, land was surveyed from Public Rights of Way, where possible, and recent aerial photography was taken into account.

- 2.3.3.2 Additional limitations specific to the Phase 1 habitat survey undertaken in 2017, is described in Appendix A.6.

- 2.3.3.3 Notwithstanding these limitations, the baseline Phase 1 surveys are considered to be appropriate to inform a robust assessment of the onshore elements of Hornsea Three within volume 1, chapter 3: Ecology and Nature Conservation.

3. Desk study results

- 3.1.1.1 Locations of designated sites within 2 km of the onshore elements of Hornsea Three, including compounds and storage areas, are shown on Figure 4.1. Locations in which Horizontal Directional Drilling (HDD) is proposed under designated sites are also shown on Figure 1.

- 3.1.1.2 There are 16 onshore statutory designated sites located within 1 km of the onshore elements for Hornsea Three, and three additional statutory designated sites are located between 1 and 2 km. These are listed in Table 3.1 and shown on Figure 4.1. The designated sites consist of four SACs, one SPA, one Ramsar site, four LNRs and nine SSSIs. North Norfolk Coast is designated as a SPA, SAC, Ramsar site and SSSI.

3.2 Non-statutory designated sites

- 3.2.1.1 There are 60 non-statutory designated sites located within 1 km of the onshore elements of Hornsea Three and another 47 non-statutory designated sites located between 1 and 2 km. These are listed in Table 3.1 and Table 3.2 and shown on Figure 4.1. They consist of 102 County Wildlife Sites (CWS) and five Roadside Nature Reserves (RNR).

Table 3.1: Statutory designated sites within 2 km of the onshore elements of Hornsea Three (as defined at PEIR stage).

Site name	Designation	Distance from onshore elements of Hornsea Three (km)	Description
River Wensum	SAC	0.00	<p>The River Wensum is an enriched, calcareous lowland river.</p> <p><u>Annex I habitats that are a primary reason for selection of this site</u></p> <p>Water courses of plain to montane levels with the <i>Ranunculon fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation.</p> <p><u>Annex II species that are a primary reason for selection of this site</u></p> <p>White-clawed (or Atlantic stream) crayfish <i>Austropotamobius pallipes</i>.</p> <p><u>Annex II species present as a qualifying feature, but not a primary reason for site selection</u></p> <ul style="list-style-type: none"> • Desmoulin's whorl snail <i>Vertigo moulinsiana</i>; • Brook lamprey <i>Lampetra planeri</i>; and • Bullhead <i>Cottus gobio</i>.
Norfolk Valley Fens	SAC	0.28	<p>This site comprises a series of valley-head spring-fed fens.</p> <p><u>Annex I habitats that are a primary reason for selection of this site</u></p> <p>Alkaline fens.</p> <p><u>Annex I habitats present as a qualifying feature, but not a primary reason for selection of this site</u></p> <ul style="list-style-type: none"> • Northern Atlantic wet heaths with <i>Erica tetralix</i>; • European dry heaths; • Semi-natural dry grasslands and scrubland facies on calcareous substrates (<i>Festuco-Brometalia</i>) (* important orchid sites); • Molinia meadows on calcareous, peaty or clayey-silt-laden soils (<i>Molinion caeruleae</i>); • Calcareous fens with <i>Cladium mariscus</i> and species of the <i>Caricion davallanae</i> (* Priority feature); and • Alluvial forests with <i>Alnus glutinosa</i> and <i>Fraxinus excelsior</i> (<i>Alno-Padion</i>, <i>Alnion incanae</i>, <i>Salicion albae</i>) (* Priority feature). <p><u>Annex II species that are a primary reason for selection of this site</u></p> <ul style="list-style-type: none"> • Narrow-mouthed whorl snail <i>Vertigo angustior</i>; and • Desmoulin's whorl snail <i>Vertigo moulinsiana</i>.
North Norfolk Coast	SAC	0.45	<p>North Norfolk Coast is a low-lying barrier coast of extensive intertidal sand- and mud-flats, saltmarshes, shingle and sand dunes, together with areas of freshwater grazing marsh and reedbed, which has developed in front of rising land.</p> <p><u>Annex I habitats that are a primary reason for selection of this site</u></p> <ul style="list-style-type: none"> • Coastal lagoons (* Priority feature) • Perennial vegetation of stony banks • Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticosi</i>) • Embryonic shifting dunes • Shifting dunes along the shoreline with <i>Ammophila arenaria</i> (white dunes) • Fixed coastal dunes with herbaceous vegetation (grey dunes) (* Priority feature) • Humid dune slacks <p><u>Annex II species that are a primary reason for selection of this site</u></p> <p>Narrow-mouthed whorl snail <i>Vertigo angustior</i>.</p> <p><u>Annex II species present as a qualifying feature, but not a primary reason for site selection</u></p> <ul style="list-style-type: none"> • Otter <i>Lutra lutra</i>; and • Petalwort <i>Petalophyllum ralfsii</i>.

Site name	Designation	Distance from onshore elements of Hornsea Three (km)	Description
The Wash & North Norfolk Coast	SAC	0.56	<p>The Wash is the largest embayment in the UK and is connected via sediment transfer systems to the north Norfolk coast. Together, the Wash and North Norfolk Coast form one of the most important marine areas in the UK and European North Sea coast.</p> <p><u>Annex I habitats that are a primary reason for selection of this site:</u></p> <ul style="list-style-type: none"> • Sandbanks which are slightly covered by sea water all the time; • Mudflats and sandflats not covered by seawater at low tide; • Large shallow inlets and bays; • Reefs; • Salicornia and other annuals colonising mud and sand; • Atlantic salt meadows (<i>Glauco-Puccinellietalia maritimae</i>); • Mediterranean and thermo-Atlantic halophilous scrubs (<i>Sarcocornetea fruticos</i>); and • Coastal lagoons (* Priority feature). <p><u>Annex II species that are a primary reason for selection of this site:</u></p> <ul style="list-style-type: none"> • Harbour seal <i>Phoca vitulina</i>; and • Otter <i>Lutra lutra</i>.

Site name	Designation	Distance from onshore elements of Hornsea Three (km)	Description
North Norfolk Coast	SPA	0.32	<p>North Norfolk Coast is a low-lying barrier coast of extensive intertidal sand- and mud-flats, saltmarshes, shingle and sand dunes, together with areas of freshwater grazing marsh and reedbed, which has developed in front of rising land.</p> <p>This site qualifies under Article 4.1 of the Directive (79/409/EEC) by supporting populations of European importance of the following species listed on Annex I of the Directive:</p> <p><u>During the breeding season:</u></p> <ul style="list-style-type: none"> • Avocet <i>Recurvirostra avosetta</i>; • Bittern <i>Botaurus stellaris</i>; • Common Tern <i>Sterna hirundo</i>; • Little tern <i>Sterna albigrons</i>; • Marsh harrier <i>Circus aeruginosus</i>; • Mediterranean gull <i>Larus melanocephalus</i>; • Roseate tern <i>Sterna dougallii</i> and • Sandwich tern <i>Sterna sandvicensis</i>. <p><u>Over winter:</u></p> <ul style="list-style-type: none"> • Avocet <i>Recurvirostra avosetta</i>; • Bar-tailed godwit <i>Limosa lapponica</i>; • Bittern <i>Botaurus stellaris</i>; • Golden plover <i>Pluvialis apricaria</i>; • Hen harrier <i>Circus cyaneus</i>; and • Ruff <i>Philomachus pugnax</i>. <p>This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory species:</p> <p><u>During the breeding season:</u></p> <ul style="list-style-type: none"> • Redshank <i>Tringa totanus</i>; and • Ringed plover <i>Charadrius hiaticula</i>. <p><u>On passage:</u></p> <ul style="list-style-type: none"> • Ringed plover <i>Charadrius hiaticula</i>. <p><u>Over winter:</u></p> <ul style="list-style-type: none"> • Dark-bellied brent goose <i>Branta bernicla bernicla</i>; • Knot <i>Calidris canutus</i>; • Pink-footed goose <i>Anser brachyrhynchus</i>; • Pintail <i>Anas acuta</i>; • Redshank <i>Tringa totanus</i>; and • Wigeon <i>Anas penelope</i>. <p>The area qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl. Over winter, the area regularly supports 91,249 individual waterfowl including: Shelduck <i>Tadorna tadorna</i>, Avocet <i>Recurvirostra avosetta</i>, Golden plover <i>Pluvialis apricaria</i>, Ruff <i>Philomachus pugnax</i>, Bar-tailed godwit <i>Limosa lapponica</i>, Pink-footed goose <i>Anser brachyrhynchus</i>, Dark-bellied brent goose <i>Branta bernicla bernicla</i>, Wigeon <i>Anas penelope</i>, Pintail <i>Anas acuta</i>, Knot <i>Calidris canutus</i>, Redshank <i>Tringa totanus</i>, Bittern <i>Botaurus stellaris</i>, White-fronted goose <i>Anser albifrons albifrons</i>, Dunlin <i>Calidris alpina alpina</i>, Gadwall <i>Anas strepera</i>, Teal <i>Anas crecca</i>, Shoveler <i>Anas clypeata</i>, Common Scoter <i>Melanitta nigra</i>, Velvet scoter <i>Melanitta fusca</i>, Oystercatcher <i>Haematopus ostralegus</i>, Ringed plover <i>Charadrius hiaticula</i>, Grey plover <i>Pluvialis squatarola</i>, Lapwing <i>Vanellus vanellus</i>, Sanderling <i>Calidris alba</i>, Cormorant <i>Phalacrocorax carbo</i>.</p>

Site name	Designation	Distance from onshore elements of Hornsea Three (km)	Description
North Norfolk Coast	Ramsar	0.32	<p>A stretch of low-lying barrier coastline consisting of shingle beaches, dunes, saltmarsh, intertidal mud and sand flats, brackish lagoons, reedbeds, and grazing marshes. The site supports nationally and internationally important numbers of various species of breeding or wintering waterbirds.</p> <p><u>Ramsar criterion 1</u></p> <p>The site is one of the largest expanses of undeveloped coastal habitat of its type in Europe. It is a particularly good example of a marshland coast with intertidal sand and mud, saltmarshes, shingle banks and sand dunes. There are a series of brackish-water lagoons and extensive areas of freshwater grazing marsh and reed beds.</p> <p><u>Ramsar criterion 2</u></p> <p>Supports at least three British Red Data Book and nine nationally scarce vascular plants, one British Red Data Book lichen and 38 British Red Data Book invertebrates.</p> <p><u>Ramsar criterion 5</u></p> <p>Assemblages of international importance:</p> <p>Species with peak counts in winter: 98462 waterfowl.</p> <p><u>Ramsar criterion 6 – species/populations occurring at levels of international importance.</u></p> <p>Qualifying Species/populations (as identified at designation):</p> <p><u>Species regularly supported during the breeding season:</u></p> <ul style="list-style-type: none"> • Sandwich tern, <i>Sterna (Thalasseus) sandvicensis sandvicensis</i>; • Common tern, <i>Sterna hirundo hirundo</i>; and • Little tern, <i>Sterna albifrons albifrons</i>. <p><u>Species with peak counts in spring/autumn:</u></p> <ul style="list-style-type: none"> • Red knot, <i>Calidris canutus islandica</i>. <p><u>Species with peak counts in winter:</u></p> <ul style="list-style-type: none"> • Pink-footed goose, <i>Anser brachyrhynchus</i>; • Dark-bellied brent goose, <i>Branta bernicla bernicla</i>; • Eurasian wigeon, <i>Anas penelope</i>; and • Northern pintail, <i>Anas acuta</i>. <p><u>Species/populations identified subsequent to designation for possible future consideration under criterion 6.</u></p> <p><u>Species with peak counts in spring/autumn:</u></p> <ul style="list-style-type: none"> • Ringed plover, <i>Charadrius hiaticula</i>; • Sanderling, <i>Calidris alba</i>; and • Bar-tailed godwit, <i>Limosa lapponica lapponica</i>.
Alderford Common	SSSI	0.00	<p>Situated on gently undulating ground and supports a wide range of habitats developed in response to variations in soils and topography. A thin layer of glacial sands and gravels cover the underlying chalk which is exposed in abandoned marl workings. A diverse chalk flora has developed in the old pits and the site forms the only remaining example of species-rich chalk grassland in East Norfolk. A bat roost and an outstanding assemblage of breeding birds provide additional interest. The habitats represented include scrub, woodland, bracken heath, marshy grassland and ponds. Chalk grassland occurs in the bottom of the marl-pits and many herb-species associated with the grassland are present. Damp hollows, on low-lying ground, have characteristic flora. Secondary woodland, open bracken heath and dense scrub surround the marl workings. Ponds are used as breeding sites by several species of amphibians including a small population of the scarce Great Crested Newt (<i>Triturus cristatus</i>) and a small marshy area has developed around one. The thick scrub provides suitable nesting sites for a wide range of breeding birds including the largest population of nightingales in East Norfolk. An old lime-kiln is used by bats both as a winter hibernating site and as a daytime roost during the summer.</p>
River Wensum	SSSI	0.00	<p>The River Wensum is an enriched, calcareous lowland river with over one hundred species of plants, a rich invertebrate fauna and a relatively natural corridor. The upper reaches are fed by springs that rise from the chalk and by run-off from calcareous soils rich in plant nutrients, giving rise to dense beds of submerged and emergent vegetation. Much of the adjacent land is still traditionally managed for hay crops and by grazing, giving a wide spectrum of grassland habitats some of which are seasonally inundated. The mosaic of meadow and marsh habitats provides niches for a wide variety of specialised plants and animals.</p>

Site name	Designation	Distance from onshore elements of Hornsea Three (km)	Description
Kelling Heath	SSSI	0.00	A geomorphological site of national importance with steep ice-contact slopes dissected by deep dry valleys. Oceanic heathland has developed on the sands and gravels. The site is crossed by a railway line whose embankments support a heathland community. A wide variety of heathland birds nest on the site, which also provides a good reptile habitat. Small areas of acidic grassland form a mosaic with the heath in two places. A band of secondary woodland is present along a steep escarpment at the eastern margin of the site. There is an ancient 'flaking' site on the heath.
Edgefield Little Wood	SSSI	0.25	Edgefield Little Wood is situated on acidic glacial sands and gravels on an outlier of the Cromer Ridge. The wood consists of lowland sessile pedunculated oak wood. The structure is coppice-with-standards. Ancient boundary banks surround the wood and the woodland is of ancient, probably primary, origin.
Booton Common	SSSI	0.28	Booton Common lies in the valley of a tributary of the River Wensum. The species-rich fen and wet heathland contain several rare plants. The principal interest of the site is associated with a mosaic of wet calcareous fen grassland and acid heath communities which have developed due to the naturally undulating ground. Areas of tall fen and a strip of valley alder woodland occupy the lower ground adjacent to the stream. A variety of breeding birds are present including snipe, woodcock, grasshopper warbler and lesser whitethroat.
North Norfolk Coast	SSSI	0.32	A stretch of low-lying barrier coast that extends for 40 km and includes a great variety of coastal habitats such as intertidal sand and mud flats, saltmarshes, shingle and sand dunes, brackish lagoons, together with areas of freshwater grazing marsh and reedbed, which has developed in front of rising land. Maritime pasture is present at Cley and extensive areas of grazing marsh are present all along the coast. The grazing marsh at Holkham has a network of clear water dykes holding a rich diversity of aquatic plant species. The site supports nationally and internationally important numbers of various species of breeding or wintering waterbirds.
Weybourne Cliffs	SSSI	0.37	Cliffs east of Weybourne show the pre-Cromerian deposits of the Cromer Forest bed with Pleistocene sections of national importance. Additional biological interest is provided by colonies of sand martins in the cliff-face and of fulmars on the cliff ledges.
Weybourne Town Pit	SSSI	0.82	Weybourne Town Pit is the type locality for the Pleistocene 'marly drift', a chalk-rich glacial till of supposed Anglian age.
Swannington Ugate Common	SSSI	1.19	The site supports a wide variety of habitat types within a small area. Glacial sands and gravels cover much of the common giving way to shallow peats on low-lying ground with impeded drainage by a stream. A wide range of semi-natural vegetation includes dry acidic heathland, wet heathland with acidic flushes, fen, birch and alder woodland, scrub, bracken, rough grassland and ponds. These plant communities are distributed in such a manner that interesting transitions between the different associations are clearly seen. There are several ponds on the common and they support a rich assemblage of water-plants and provide suitable breeding conditions for several species of amphibian, including the scarce Great Crested Newt. The variety of habitats also supports a wide range of breeding birds including teal, woodcock, lesser whitethroat, sedge warbler and redpoll.
Marston Marshes	LNR	0.16	This site comprises floodplain grazing marshes on the northern side of the River Yare. The western end of the site is separated by a railway. There are numerous dykes throughout the site, and it is managed through grazing and mowing. Along the eastern edge of the site is a strip of higher, better drained grass. Also included in the site are some small areas of damp woodland and scrub. The marshy grassland is in places extremely wet with seasonal standing water.
Dunston Common	LNR	0.40	This is a varied area lying mostly on acid soils. The site is a mosaic of woodland and grassland and is well used by the public to the south of the common.
Eaton Common	LNR	1.13	Lying adjacent to the River Yare this site largely comprises grazed neutral grassland which is marshy in places, many of the former ditches now being marked by shallow depressions. In addition, there are smaller areas of tall herb and broad-leaved woodland.
Danby Wood	LNR	1.93	This site comprises floodplain grazing marshes on the northern side of the River Yare. The western end of the site is separated by a railway. There are numerous dykes throughout the site, and it is managed through grazing and mowing. Along the eastern edge of the site is a strip of higher, better drained grass. Also included in the site are some small areas of damp woodland and scrub. The marshy grassland is in places extremely wet with seasonal standing water.

Table 3.2: Non-statutory designated sites within 2 km of the onshore elements of Hornsea Three (as defined at PEIR stage).

Site Name	Designation	Distance to onshore elements of Hornsea Three (km)	Site Description
Algarsthorpe Marshes	CWS	0.00	The site consists of three separate parcels of grassland which lie adjacent to the River Yare. They comprise of grazing marsh and semi-improved neutral grassland crossed by wet ditches, some of which are permanently wet and spring fed.
River Yare at Marlingford	CWS	0.00	This site is listed for its species-rich marginal and riverine flora, presence of 10 species of fish, including European eel and relatively natural physical features. The river has a fairly natural appearance, meandering through grazing marshes. Trees and scrub stand in the eastern third and at the western end.
Foxburrow Meadow	CWS	0.00	A small L-shaped area of marshy grassland, patches of tall herb fen, scrub and scattered trees. The north part is bisected by a tributary stream of the River Yare which flows into a drain along the northern boundary and forms the eastern boundary in the south of the site.
Low Common	CWS	0.00	This is a small mosaic of grassland, fen and woodland around a stream which has been artificially widened towards the centre of the site. The grassland is damp and rank with abundant scrub and trees.
Harman's Grove	CWS	0.00	Semi-natural ancient woodland managed as coppice with standards and for pheasant shooting. A large pheasant release pen is present in the centre of the woodland.
Land adjoining River Tud	CWS	0.00	The site lies directly south of the River Tud at Lower Easton and consists of rough pasture and a large area of wet meadow overgrown with greater pond sedge. Several drainage ditches traverse the site and these hold the main botanical interest. The rough pasture lies mainly to the south of the main ditch and at the west end of the site. It consists mostly of dry, species-poor grassland. Some lengths of ditch have become overgrown but elsewhere the vegetation in the ditches and along the banks is generally species-rich.
Old Hall Meadow	CWS	0.00	This site consists of a series of small semi-improved fields with associated ponds and small blocks of scrub and trees. The site is well sheep-grazed and contains orchids. The ponds all have quite distinct vegetation. The pond near to the centre of the site is largely silted-up and overgrown by scrub and the pond to the north-west has open water.
Yare Valley (Marlingford)	CWS	0.00	This site consists of a diversity of habitats situated on flat land either side of the River Yare. Much of the grassland within the site is grazed but the woodland areas, marsh and tall fen are all apparently unmanaged. Areas of marshy grassland are generally found close to the river. Several drains cross through the grassland and where the grassland areas are grazed a more varied flora has developed, particularly close to the drains. Further from the river are areas of grassland which have been improved. Fen vegetation is found to the north of the site.
Bush Meadow Plantation	CWS	0.00	This site is a mature semi-natural woodland and a small shaded pond with marginal vegetation. The site is south of Alderford Common and near to the Marriot's Way. The woodland is predominantly Oak and some Field Maple some of which are coppiced along with Hazel and occasional Spindle.
Marriott's Way	CWS	0.00	Marriott's Way follows a disused railway line (closed in 1985) and is now used by walkers, cyclists and horse-riders. Much of the site is on acidic ground with light, sandy soil but plants also found in neutral and basic soils seem to occur alongside one another. Trees and scrub are the dominant vegetation along Marriott's Way, forming an almost continuous corridor as far as Reepham, with a more scattered coverage eastward to Aylsham. Aspects vary along the path, with cuttings and embankments, different soils and the influence of water on the vegetation. Cuttings and embankments often have a more diverse flora or wetland plants and trees which may grow in damp or wet ground, often at the base of an embankment. Often loose stones, cinders and coal lie on embankment slopes, and, in places, fallen trees and shrubs help in the diversification of woodland habitats. New Plantation at Reepham is included within the County Wildlife Site. It is a semi-natural broad-leaved woodland with grassland and forbs growing within it form the greatest component of the vegetation. Badger setts occur and bats are known to roost beneath bridges and use the route for commuting and foraging.
Dismantled Railway	CWS	0.00	Length of disused railway where the habitats vary from woodland through to scattered trees and scrub over a fairly species-rich recolonised grassland. Part of the line is a footpath and there is no discernible management. There is a very large rabbit population. To the most western end of the site is a line of scattered scrub and young trees on a low bank on either side of a dry and sandy fairly species-rich neutral grassland. Some of the track is extremely dry and there are some areas of bare ground. Further east are more wooded areas on a steep-sided embankment, lined by dense birch and alder sapling with more mature woodland behind. This area grades into mature oak dominated woodland. Further east is grassland with a variety of grasses and herbs. Past Heath Road bridge oak woodland develops again which terminates in a scrub patch.
New Covert	CWS	0.00	This site is a broad-leaved semi-natural woodland, presently and historically used for game rearing and cover. Sloping down into the valley to the north, the changes in canopy cover reflect the habitat on the opposite side of the valley across the track. The newly felled area at the north of the site allows an increase in the frequency of some ground flora species. There is some evidence of historical management by coppicing.

Site Name	Designation	Distance to onshore elements of Hornsea Three (km)	Site Description
Muckleburgh Hill	CWS	0.01	Muckleburgh Hill is a remnant heathland, forming an important landscape feature in the North Norfolk Area of Outstanding Natural Beauty. The three exposed low hilltops in the centre of the site still support acidic grassland and heathland with the remaining areas dominated by bracken, scrub and secondary woodland. The areas of unimproved acidic grassland and remnant heathland restricted to the hilltops and path edges are kept open by a combination of frequent use and intense rabbit grazing. Bryophytes are locally dominant on some of the wider paths where bell heather is also very occasionally present. Much of the remainder of the site is now entirely dominated by bracken. As the land rises, the stands become shorter and sparser until the bracken is replaced by grassland. Associated with these areas is much acidic scrub. Secondary broad-leaved woodland is also frequent, although only well established in the south. Much of the site is bounded by a mature hawthorn hedge.
Salle Park	CWS	0.03	Set within the grounds of Salle Park with managed hedgerows, there are many small clumps of planted trees in the area and the surrounding land is arable. A variety of mature trees (including oaks, ash and beech) are scattered throughout the site in groups and individually. The grassland is poor and some reseeding has likely been done as the herbage is poor.
Melton Beck	CWS	0.08	This site comprises neutral marshy grassland with a number of ponds, wet depressions and a small stream which forms the northern boundary. The site contains a diverse range of both aquatic and semi-aquatic flora.
Fir & Nineways Plantation	CWS	0.12	An area of broad-leaved high forest plantation woodland with a small area of coppice, situated on the sides and brow of two hills, adjacent to the former 'Plumstead Heath'. The canopy cover throughout most of the site is not wholly continuous, especially in the western wing of the wood. The ground flora is fairly species-poor and typical of such woodland. The soils are sandy and acidic.
Braymeadow	CWS	0.12	This is a wet unimproved neutral grassland containing an area of basic flush to the east and a pond which is fed by a dyke to the west. The western half of the meadow is generally drier than the east and supports a low sward with equal proportions of grasses and forbs.
Pack Lane Meadow	CWS	0.12	The site consists of an area of semi-improved marshy grassland which is moderately species rich. Its southern boundary is formed of a hedgerow which runs parallel with Pack Lane and its northern boundary by a tributary stream of the River Yare. A wet ditch borders the eastern boundary and semi-natural woodland and scrub the western boundary.
The Belt	CWS	0.13	This dry site consists of a thin strip of replanted woodland running approximately 1 km from east to west, with shorter 'arms' at each end at right angles. The wood is largely old Beech coppard along much of the edges. Inbetween the coppards, mature oak and some Scot's pine give a fairly high and open canopy in places. Occasional dense copses of holly occur and bramble is frequent in the lighter areas. There is a lot of new planting, mostly of holly with a variety of other mixed species. The western half has some areas of relic ancient woodland species and within the site there is some deadwood (in the form of standing deadwood) fallen trunks and branches and stumps. The site is surrounded by arable fields aside from the north-eastern field which is a young deciduous plantation.
Barningham Green Plantation	CWS	0.15	This site is a fragment of relict lowland heath that has been used in recent years as a commercial conifer plantation. The site is on a sandy and free draining south-facing slope, with a large central hollow and sunken footpath that forms the eastern boundary. The northern section shows evidence of recent tree felling and re-planting, with much bare ground still evident. Heather is abundant in this area, including patches of young Heather regenerating on bare ground. The most mature stands of Heather on the site are found in this area. To the south the ground rises steeply out of the hollow, then slopes gently southwards again. The southern part of the site does not appear to have re-planted, but there is much evidence of disturbance.
Corpusty Fen	CWS	0.18	This site is an area of tall fen vegetation on the northern bank of the River Bure. East and west boundaries are formed by mature poplar plantations, the northern boundary by arable land.
Jennis' Wood	CWS	0.22	This is a small area of semi-natural, ancient woodland situated on the Ringland Estate, west of Norwich. The wood has been partly replanted in the past with conifer and both native and ornamental broad-leaved species. Most conifers have now been removed, leaving a large open area in the centre of the wood. The woodland is contiguous on its south side with a large, semi-natural woodland which has been extensively replanted with conifer. The main interest in the woodland is a line of veteran small-leaved lime trees, including some ancient coppice stools, which are present along part of the northern perimeter of the wood.
Beach Lane, Weybourne	CWS	0.22	This site is an area of reedbed occupying a shallow silty pool situated just inland from the shingle sea defences at Weybourne Hope. The pool is brackish towards the north but is fed by a small, overgrown freshwater stream entering from the east. Reed swamp occupies a large part of the site. The stand is dominated by uniform common reed and has evidently not been cut for some time. Occasional willow also occurs, becoming dense in a slightly raised, drier patch adjacent to Beach Lane. In the west, the common reed is gradually extending around the boundary of the adjacent sewage works. Open brackish water occurs at the northern extreme of the site below a wall supporting the base of the sea defences, and extending some way along the eastern boundary. This is generally clear, showing the shingle substrate, which rapidly becomes more silty into the reedbed. To the south, Reed grades into a drier tall herb community around the level of the small inflowing stream. The sward is generally tall, including frequent coarse grasses.

Site Name	Designation	Distance to onshore elements of Hornsea Three (km)	Site Description
Kelling Heath Park & Hundred Acre Wood	CWS	0.24	This is a large site comprising semi-natural broad-leaved woodland and dry heath with associated scrub. The primary use of this site is as a caravan park. Hundred Acre Wood is an extensive area of continuous broad-leaved woodland. A sparse field layer has locally dense bracken interspersed with bare leaf litter. Occasionally heather persists in the field layer, an indication as to the previous nature of the site. Along the northern boundary, wooded slopes support a canopy of fairly mature oak and sycamore. Typical bracken - bramble field layer includes less dense areas where there is a local cover of bryophytes with frequent male fern. A small steep-sided, shallow fish pond in the damp valley bottom is surrounded by coppiced goat willow and ash with a small area of managed alder carr to the south. Occasional remnant hazel coppice and holly occur on the drier ridge slopes with broad buckler fern. As the land flattens out to the west, birch dominated secondary woodland grades to heathland on the Kelling Heath Caravan Park. Heathland in the centre of the caravan site comprises mainly of mature heather. Heath vegetation is also found bordering the many sandy tracks where regular mowing allows a greater number of species to flourish.
Swardeston Common	CWS	0.26	An area of common land that has been left relatively unmanaged resulting in the development of coarse grassland and dense scrub. Recent clearance work has left a mosaic of this with disturbed ground with tall ruderal vegetation.
Kelling Hard	CWS	0.27	This site comprises a mosaic of unimproved, slightly calcareous and neutral grassland, common reed dominated swamp vegetation, and marshy grassland. A coastal influence is evident in all communities, although particularly noticeable in a short, sparse sward present where topsoil has been removed. To the west lies unimproved, slightly calcareous grassland occurring in two contrasting areas, each varying in species composition. The larger area to the extreme west lies on a gentle west facing slope. Here the largely ungrazed sward is relatively species-rich. Towards the peripheries the sward becomes ranker. A much sparser, shorter sward reminiscent of maritime cliff top communities occur in a central southern area of the site where topsoil has been removed, an area partially enclosed by banks. A metalled track separates this area from unimproved neutral grassland to the east which includes nettle and bramble with some black knapweed. A high rabbit population helps maintain a short-grazed sward in places. In the north-east, the sandy soil becomes more clayey, with a high water level. The presence of sea arrowgrass suggests a saline influence. The reed vegetation is surrounded by an area of marshy grassland.
Old Decoy, Selbrigg Pond, The Lows	CWS	0.29	This coppice with standards woodland lies adjacent to the High Kelling to Hempstead road. The majority of the area is wet wood merging into pure reed bed at the top end of the lake. There are many pools and boggy areas and a very rich and diverse ground flora. Selbrigg Pond has very clear water. Fringing the pond is a good marginal reed bed dominated by common reed with encroaching alder. In the wet area next to the road, alder and crack willow are present. To the east is a semi-marshy area with more diverse ground flora. A strip in the south east is the most interesting area, being very diverse, wet carr type woodland. Two drier areas grade into the wet area.
Pasture at Easton College	CWS	0.32	This is a large area of water meadows with wet ditches lying north of the River Yare between the river and the road from Bawburgh to Marlingford. The site is owned by Easton College and no artificial fertilisers or pesticides have been applied since 1993; having been in an ESA scheme since 1998. The soils are dark and silty. The site varies though is generally damp or wet. The two westernmost fifths of the site are the most botanically diverse. North of the east-west ditch vegetation grows in variable patches. The area between the two east-west ditches on the second fifth from the west has an area of tall vegetation. The most easterly fifth is a very wet, wide area, with much standing water. The northern edge bordering the road is relatively dry and species-poor. There is a network of wet ditches across the site, some more botanically diverse than others. Most of the ditches are fringed with a wide border of tall vegetation, often two or three plants. The River Yare is a broad and high watercourse here, bordered with a wide tangled band of grey willow. Some of the ground is very wet, though drier parts also occur. Some of the trees have blown over, with a clump of five joined fallen poplars in the centre of the site. A long hedge borders the road as well as tall shrubs. Frequent signs of otter have been reported and signs of water vole have been found in the past.
Oak Grove	CWS	0.33	An area of woodland with two distinct woodland types, namely alder coppice, and an area of semi-natural deciduous woodland. It is evident that there is a very large rabbit population. Bordered by arable farmland to the east and by fairly poor, neutral grasslands to the west. A small area to the west of the site at the base of a steep slope is alder coppice. The alder is fairly scattered and of a similar age structure. The remainder of the site is a fairly mature oak dominated wood with a dense sycamore understorey.
Wensum Pastures at Morton Hall	CWS	0.34	A moderately large, open area of predominately improved cattle-grazed pasture adjacent to the River Wensum SSSI, crossed by a network of drains supporting a species-rich flora associated with aquatic habitats. The site lies within the Broads ESA and constitutes part of the Morton Estate. It lies on the flat Wensum floodplain and is subject to periodic flooding. Parts of the site are undulating in relief and ephemeral ponds form in some of the hollows. Low lying neutral grassland is dominated by coarse grasses to a short sward. At the peripheries, the vegetation is frequently taller and less intensively grazed and there are patches of damper grassland where finer herbs are frequent. The grassland is wetter towards the south-eastern end of the site and there are tree lines and occasional trees and scrub scattered across the site. A low-lying loop adjacent to the river holds standing surface water and a flowing, tributary drain bisects the site, running parallel with the river, from which stems a network of lateral and sub-lateral drains. The drains hold standing surface water and support a species-rich marginal aquatic flora.
River Tud (west)	CWS	0.34	The site runs through agricultural land in a predominantly grassland corridor. Within lies a weir and sluice which creates a barrier to fish. Natural features include submerged berms of sand and silt with trees grows along much of the riverside. Emergent vegetation is abundant on the edges of the channel providing some more quiet areas of water. There are variable light levels with frequent trees along the western half of the stretch and fewer towards the east. Fish records include trout, bullhead, dace, eel, gudgeon and stone loach. otter and water vole have been recorded.

Site Name	Designation	Distance to onshore elements of Hornsea Three (km)	Site Description
Pond Hills	CWS	0.36	This site is an area of oak dominated broad-leaved woodland part of which has been replanted. There is a mesotrophic pond with a small area of marshy grassland. The majority of the site is mature Oak dominated woodland. The ground flora is dominated over large areas by bracken with rhododendron dense in areas. The pond to the north-west has floating white water-lily and common duckweed. Marginal vegetation is quite varied and seasonally dense in areas. Common reed is frequent. The pond is backed by a small area of marshy grassland which is fairly species-rich. To the east the woodland becomes scattered and is partly on steep slopes. The shrub layer comprises mature dense rhododendron in areas.
Dunston Common	CWS	0.40	This is a varied area lying mostly on acid soils. The site is a mosaic of woodland and grassland and is well used by the public to the south of the common.
Beckhithe Meadow	CWS	0.43	A small meadow sloping down to the west, towards a beck that flows into the River Wensum. The low-lying grassland in the west of the site is largely unimproved or semi-improved and crossed by small ditches that appear to be dry for much of the year, but retaining some dampness. The grassland is characteristic of a degraded spring line, or of fen vegetation that has suffered from some drying. The grassland here is tussocky and contains damp-loving species. Two small ponds, which dry out seasonally, lie on the central ditch. A notable feature of the site is the large veteran oaks which show signs of having been pollarded in the past. The slope on the eastern part of the site is ranker than the damp grassland in the west and much of the site is surrounded by tall, mature hedgerows that are included in the County Wildlife Site.
Church Farm Marsh	CWS	0.48	This site is comprised of areas of species-rich, unimproved marshy grasslands, some of which are enclosed. They vary from being fairly heavily grazed to dense tall vegetation. There are some higher areas of drier unimproved neutral grasslands. A hedge bisects the main part of the site. A large area to the north of the hedge and a small area to the south east consist of wet marshy grassland which is improved and species-rich. To the east of the site is a series of small enclosed grasslands which are generally neutral in character, moderately improved but with a good degree of species richness. One hedge dissects the site from east to west. To the south of the hedge is an unimproved though rather neglected area of mainly tall ruderal. There are some small species-rich patches. Drier, improved grasslands occur to the south east which contain some large patches of bramble and blackthorn.
Old Wood	CWS	0.49	This site is a broad-leaved plantation on a mixture of acidic and sandy soil, becoming more acidic to the south of the site. The site is possibly used for game cover as there are a number of very overgrown areas.
Harold's Grove	CWS	0.50	This site is a coppice with standards woodland surrounded by arable land.
Grassland at Saxthorpe	CWS	0.50	This is an area of marshy grassland situated along the north bank of the River Bure, in the heart of Saxthorpe village. The meadows vary from slightly damp to wet, with a fen meadow flora in the wettest and most diverse areas. The site is crossed by a number of shallow ditches and a small stream which flows west to east through the middle of the site and into a pond near the south-east corner. The stream has a sandy, stony bed and the pond, also fed by drains within the site, flows out towards the main river via a continuation of the stream.
Salle Common & Adjacent Land	CWS	0.50	A varied site of mixed habitat types, mostly tall fen vegetation but also including an area of scrub and woodland with mature trees. Situated halfway along the Sall-Cawston road, between the road and the railway line with a nearby spring. The surrounding land is arable with small section of hedgerows. In the north-west corner there is a continuous cover of neutral scrub, predominantly alder and willow. Part of the site is registered common land.
Church Hill Common	CWS	0.53	The majority of the site is dominated by virtually continuous dense bracken with scattered to densely scattered scrub and young trees with a few small patches of open acid grassland. A silver birch dominated woodland, which is acidic in character, occupies the north-west corner of the site. It is dense with young trees, and a few mature specimens. Gorse is scattered throughout. There is a small oak/sycamore dominated wood in and surrounding a deep, steep-sided pit.
Hall Hills/ Ringland Covert	CWS	0.57	A large woodland (listed as ancient woodland) lying between the river valleys of the Tud and the Wensum is composed largely of standards, with small areas of coppice. The site is bisected by a track, running south-east to north west, dividing the site into Hall Hills to the south and Ringland Covert to the north. The Hall Hills area is mainly high forest, dominated by sycamore in the west. The canopy is almost closed and the understorey dominated by sycamore seedlings. To the south, exotic species have been planted around a pheasant release pen. Scot's pine dominates the central section of the wood. To the north east, Hall Hills is dominated by oak standards. Several abandoned mineral workings are present in the south east of the wood and have been planted with small leafed lime. The Ringland Covert area is primarily coppice with standards. Rhododendron occurs rarely in the understorey.
Heydon Park	CWS	0.57	This site within the grounds of Heydon Hall is an area of species-poor grassland with some scattered trees fringed by complexes of various woodlands both semi-natural and planted. The majority of the site is scattered mature horse chestnut with oak, copper beech and common lime and underlying neutral grassland. Two other areas are dominated by rough meadow grass with meadow foxtail. The woodland areas are mainly ash dominated. To the west is sycamore and beech dominated over dense bramble and rhododendron. There are two lakes and both are overhung by alder in places.

Site Name	Designation	Distance to onshore elements of Hornsea Three (km)	Site Description
Land south of High Kelling	CWS	0.57	An extensive area of planted woodland, managed by Forest Enterprise. The woodland is situated on both sides of the River Glaven valley on the outskirts of Holt. The higher ground is on dry, sandy soil and supports a relict heathland flora in more open areas, while the valley bottom supports a fen type community. A regular network of broad grassy rides and access tracks divides the woodland into planting compartments, many of which are edged with earth banks and ditches. Some of these are lined with mature or veteran broad-leaved species and in places there are the remains of massive ancient coppice stools. Approximately one third of the compartments are planted with conifers, mainly in single species blocks. There are a number of clear-felled compartments, mostly overgrown with bracken, bramble and occasional rhododendron. Elsewhere, in the valley bottom, there are areas of broad-leaved, semi-natural woodland. Along much of the north bank of the river is a semi-open area of fen. This is becoming densely colonised particularly at the eastern end by birch, alder and willow scrub, forming impenetrable thickets in places. In compartments with a tall, closed canopy, the ground flora is virtually absent. Elsewhere bracken is abundant. Several ponds are present on the site.
Ringland Hills	CWS	0.57	This site is a broad-leaved semi-natural scrub woodland with patches of acid grassland. There is a steep gradient down to the River Wensum. Hedgerows mark the boundaries with arable land occurring to the north and south-west. The site is continuous with a belt of woodland running east west. It is well used with several paths running through the site. The south of the site is dominated by mature woodland.
Broom & Spring Hills	CWS	0.59	An area of semi-natural deciduous woodland which is fairly acidic in character and dominated by oak and sycamore. The ground flora is poor over much of the wood and only moderately species-rich in parts. The southern part of the wood consists of conifer and deciduous plantation. There is an active pheasant pen in the wood.
Tan Office Farm	CWS	0.66	This site is situated on spring-fed, peaty soils in a shallow valley through which runs a small tributary of the River Bure. Many of the ditches which traverse the site are silted up; and springs and seepages are frequent throughout the site. Secondary wet woodland forms sizeable blocks within the site. Scattered scrub is widespread and encroaching into the remaining open areas. The stream is narrow, shallow and relatively fast flowing, over a bed of sand and gravel, and supports little or no macrophytes. A large pond, originally the tannery lake, lies close to the centre of the site.
Cat Pits Wood	CWS	0.67	This site is mature, possibly secondary woodland with a series of species rich shallow pools. Broadleaved semi-natural coppice with standards covers much of the site.
Caistor St Edmund Roman Town	CWS	0.72	The site consists of the south and west-facing ramparts only of the Roman town at Caistor St. Edmunds, where lime mortar in the walls has encouraged a calcicolous assemblage of plant species growing both on the wall and the adjacent banks.
Intwood Carr	CWS	0.73	A moderately large area of predominantly damp broad-leaved semi-natural carr woodland. A small tributary stream of the River Yare flows through part of the site, dividing the woodland from a small area of tall-herb fen. To the north of a narrow thinned strip, the ground becomes progressively more waterlogged and the woodland grades into carr over a ground layer of tall-herb fen crossed by an extensive network of water-filled drains. A proportion of the woodland has been converted to conifer plantation and hybrid black poplars are interspersed throughout the semi-natural woodland. There is evidence of past management with coppice-stool regrowth and a row of large veteran oak pollards adjacent to the eastern boundary.
Moor Hall	CWS	0.76	This site is an area of moderately species-rich marshy grassland and low lying neutral meadows some of which are liable to flooding. The majority of the site is degraded marshy grassland at the base of a shallow slope. To the southern edge is a strip of moderately species-rich, semi-improved neutral grassland which may be liable to occasional flooding. To the north east is alder dominated woodland with a dense understorey. The ground flora is dominated by bramble and is moderately species-rich.
Reepham Meadows	CWS	0.79	This is a large site consisting of several fully enclosed fields separated by hedgerows. All the meadows are similar in nature being lightly grazed and marshy. An area to the east is managed for butterflies and contains a mixture of trees, scrub and tall ruderals. There is a small, good quality area of woodland dominated by fairly mature oak with a dense understorey of shrubs. There are several fallen trees and some more open areas.
Yare Valley (Bawburgh)	CWS	0.80	This site consists of a series of fields of tall vegetation with associated scrub. Within the fen area is a small block of woodland. The site is crossed by numerous dykes which support diverse macrophytes. The fen vegetation consists of dense growth of either reed sweet-grass or greater pond-sedge with locally emerging reed and bulrush. Along the ditches the diversity increases with the occurrence of purple loosestrife, water figwort and meadowsweet. The woodland area is of old coppiced alder over an understorey of elder and a thick ground layer of nettle. Scrub within the fen occurs largely towards the river banks and dykes and contains crack Willow, alder and willow.
Lake adjacent to Concrete Plant	CWS	0.81	A large water-filled gravel pit with woodland around its margins. The lake contains stands of reed and reedmace in shallow areas and the banks are largely wooded.
Ketteringham Hall Lake	CWS	0.81	A linear site running along a small valley bottom from west to east. To the west is an artificial lake adjacent to a disused sewerage works which are now over-grown. To the east is a wet carr woodland and elsewhere is fen or wet grassland.
Lenwade Pits (East)	CWS	0.84	This site is a complex of gravel pits with mature varied woodland and contains several pools. It is bordered on the south by a disused railway line and the River Wensum to the north. The woodland contains a considerable amount of standing dead wood which is good for invertebrates.

Site Name	Designation	Distance to onshore elements of Hornsea Three (km)	Site Description
The Carrs Woodland	CWS	0.91	A large semi-natural woodland containing several ponds, fen areas and grassland. A stream and numerous dykes cross the site.
Pond Hills Meadows	CWS	0.91	Two damp, low lying, species-rich meadows with fragments of woodland at the edges. The meadows have been neglected for some years and have become rank. In places scrub dominates. The wooded bank and derelict hedge that form the north/north east boundary are dominated by hawthorn. Where the access track opens into the meadow there is an open area dominated by birch and bracken. The stream itself, which flows northwards, is clear and fast flowing. Where the banks are low, to the south, pendulous sedge occurs occasionally. The boundary of the site, to the south and west of this area, is predominately mature woodland, composed largely of stored hazel coppice and mature oaks, some of which occur as veteran pollards along a bank. The meadow to the north is mostly damp and low lying, with some areas of standing water at the time of survey; the ground slopes gently up to the west as and here patches of short, acid-neutral grassland occur. Dense stands of bramble also occur, especially at the edge of the field.
Attlebridge Hills	CWS	1.02	This site is a varied structure, broad-leaved semi-natural woodland. The canopy is dominated by mature oak, sycamore and sweet chestnut with extensive areas of mixed coppice of hazel, sycamore and sweet chestnut. The ground flora is typical of such woodlands.
Land adjacent to The Hangs	CWS	1.05	This site is a lowland basic marshy grassland. The site lies to either side of a small eutrophic stream and can be divided into two distinct areas. The majority of the site is marshy grassland dominated by rushes. There are also scattered trees and the south-western end of the site has mosses dominating with some herbs including common spotted-orchid. It is within broad-leaved plantation woodland.
Old Carr	CWS	1.06	This site consists of marshy grassland which is bisected by a flowing drainage ditch lying north-south. The grassland to the east of the ditch has been invaded by young trees and scattered scrub. Management appears to be restricted to light grazing by cattle. Open areas of marshy grassland to the west are dominated by soft-rush. The marshy grassland to the east of the ditch is similar in composition but contains drier areas. Tree and shrub species are scattered across this area.
Blackwater Valley	CWS	1.10	This site is a linear area of tall fen, marshy grassland and the River Blackwater itself. The site is bound by arable land, coniferous plantation and to the north by a disused railway line. The majority of the site is tall fen vegetation dominated by sedges. To the west is a continuous line of Alders and Willows along a ditch which runs south from the railway line to the bridge. A drier area is dominated by common reed with scattered alder and willows and some bramble. The marshy grassland is a strip in the north east where several species of rush occur. The extreme northern end is higher and drier. The River Blackwater contains water starwort and there is good marginal vegetation along the length of the river with a broken line of trees along the banks.
Meadow Farm Meadow	CWS	1.14	An interesting and diverse area of marshy grassland grazed by horses and contains areas of spring activity, tall fen and scrub and woodland. A stream runs along the southern edge of the site and the Norwich Bypass crosses to the west.
Fairfield Lawn	CWS	1.14	This site comprises a small species-rich lawn. A particular feature of the lawn is the population of autumn ladies tresses (<i>Spiranthes spiralis</i>), a plant known at only a handful of sites in Norfolk.
Ringland Pits	CWS	1.15	A flooded disused gravel workings adjacent to the River Wensum, which is now mostly oak and birch woodland with some damp grassland and a small amount of acid grassland. Apart from the many small and large lakes, there are numerous small water-filled hollows within the woods. The trees are mainly silver birch in the drier north and oak and with an understorey of bracken and broad buckler fern. Three very small ponds in the south east are open and have a more diverse flora. A wide wet ditch in the south holds some Himalayan balsam by the bridge. Blyth's Wood and Taverham Meadows are both adjacent on the eastern side of the site. Damp cattle-grazed meadows, adjacent to the River Wensum, join the site on the western side and the River Wensum SSSI forms part of the southern boundary.
Triumph & Foxburrow Plantations	CWS	1.18	This site is a mixed broad-leaved woodland with good rides. The site is bordered by arable land to the east and west and a tip to the south. A pheasant track runs along the edge of the wood in parts.
Holly Woods	CWS	1.22	Two areas of semi-natural, broad-leaved woodland, separated by a third area of semi-mature conifer plantation with occasional broad-leaved species in the canopy.
Long Plantation	CWS	1.22	Principally a beech (<i>Fagus sylvatica</i>) woodland although it contains a wide variety of other trees. A woodland ride crosses the site.
Salthouse Heath	CWS	1.23	Salthouse Heath is a large coastal, dry heathland on free-draining, slightly acidic sandy soil. It comprises large stands of gorse scrub and bracken; acid dry heath; and broad-leaved deciduous woodland. Three small ponds also occur.
Yare Valley (Colton Wood)	CWS	1.28	This is an area of low-lying marshy grassland and tall fen situated on either side of the River Yare. The site also includes areas of wet semi-natural woodland and scrub. The grassland areas are grazed by horses under the Countryside Stewardship Scheme and there is public access to the northern side. The species-diversity of the grassland areas varies greatly. Scrub is scattered throughout the site but in places forms large blocks. To the north of the site an area of woodland has developed.

Site Name	Designation	Distance to onshore elements of Hornsea Three (km)	Site Description
Depot Meadow	CWS	1.31	An area of unmanaged, tall-herb fen adjacent to the River Yare, crossed by numerous defunct dykes. The sward is tall and dense in places and dominated over extensive areas by large patches of great willowherb (<i>Epilobium hirsutum</i>).
Eaton Common	CWS	1.34	Lying adjacent to the River Yare this site largely comprises grazed neutral grassland which is marshy in places, many of the former ditches now being marked by shallow depressions. In addition, there are smaller areas of tall herb and broad-leaved woodland.
Old Pollard Wood	CWS	1.37	Ancient, broad-leaved semi-natural woodland to the north-west of Holt Hall Residential and Field Study Centre. There are also conifer plantations, parkland and grassland, with shallow eutrophic ponds along the western boundary and woodland of more recent origin to the east of the Hall.
Cawston Wood	CWS	1.40	This site consists of an area of oak dominated woodland on an acidic substrate with a coniferous plantation in the centre. It is bordered by arable farmland and a patch of conifer plantation. There is a good regeneration through the wood, a good age structure and dead wood content.
Lord's Hill & Easton Reeds and Blackhill Wood	CWS	1.41	This is a diverse area in three parts, principally woodland, situated on light acid soil. There has been some localised planting of broad-leaved and coniferous trees. The woodland to the south-west is dominated by oak with an almost absent shrub layer. The northern block consists of old and widely spaced oak and hornbeam with the understorey and ground flora similar to that in the south-west. The eastern block is similar to that in the north. Blackhill Wood is located to the north east, and lies along the Wensum escarpment. The wood is divided into eight plots, of which five are residential. While only parts of the wood are notified as County Wildlife Site, due to restrictions of access, all areas of the wood are believed to be of similar quality.
Mossymere Wood	CWS	1.43	This site is a semi-natural, broad-leaved woodland with coppice in parts, and areas of basic marshy grassland adjacent to the streams.
Land adjoining Foxburrow Plantation	CWS	1.45	This site forms part of a larger area known collectively as Foxburrow Plantation and The Waterfence. It consists of an extensive area of wet, species-rich grassland situated in the bottom of a spring-fed valley (the stream itself is mostly overgrown). The site was at one time planted with poplars which have been felled, and the stumps can be found among the vegetation. In the wetter areas of the meadow soft rush dominates, particularly on the south side. The wet meadow is bounded to the south-west by a low, dry bank.
Small Hopes Farm	CWS	1.47	A steeply sloping, narrow stream valley site at the headwaters of the River Bure which flows through the centre of the site from west to east. Tall hedgerows enclose the site and there is carr woodland along the eastern boundary. The valley sides are narrow and drainage is impeded on the southern side, which is predominantly herb-rich, unimproved marshy grassland with a small area of tall-herb fen, patches of scrub and, at the top of the slope, peripheral, well-drained acidic grassland. North of the stream, part of the site is seasonally sheep-grazed, and the north-western segment is mown but to the south of the stream the marshy grassland is becoming rank. It is being rapidly colonised by woody saplings and encroached by developing scrub, particularly at the margins. Sedges and rushes are frequent. Tufted sedge dominates a small area of tall-herb fen. Sheep's sorrel is abundant along the well-drained sloping periphery adjacent to the southern boundary, where the soils are sandy and slightly acidic. North of the stream, the grassland is seasonally grazed by sheep and it has been semi-improved. It comprises a short, open sward dominated by grasses, with a considerable reduction in herb-richness. An overall lack of grazing south of the stream has resulted in colonisation of the marshy grassland by woody saplings. A small area of carr woodland, constituting part of a larger woodland block, forms the eastern segment of the site south of the stream.
Carleton Lodge Woodland	CWS	1.47	This is an area of neglected woodland which is open to the road and is well used by local people.
Riding School Meadow	CWS	1.49	This site is a large area of diverse marshy grassland; part has not been grazed for four years but still has high potential. In grazed areas, very short turf forms a mosaic with taller fen-like vegetation.
Salthouse Orchard	CWS	1.51	This site is listed for its species-rich grassland and presence of breeding turtle dove (<i>Streptopelia turtur</i>). It comprises scattered trees and semi-natural grassland with a sward mainly dominated by herbs.
Marston Marshes	CWS	1.52	This site comprises floodplain grazing marshes on the northern side of the River Yare. The western end of the site is separated by a railway. There are numerous dykes throughout the site, and it is managed through grazing and mowing. Along the eastern edge of the site is a strip of higher, better drained grass. Also included in the site are some small areas of damp woodland and scrub. The marshy grassland is in places extremely wet with seasonal standing water.
Blyth's Wood	CWS	1.56	This is a broad-leaved, semi-natural woodland situated within the floodplain of the River Wensum, to the west of Norwich. The woodland is very variable in character, with both wet and dry areas, open glades and clearings and good structural diversity. A broad ride traverses the wood from north-west to south-east, and a large pond is present near the south corner of the wood. A number of ditches run through wetter parts of the site, which has numerous shallow pools and damp hollows. The wood is comprised of high canopy trees, with areas of coppice, a well-developed understorey in many places, and a rich ground flora.
Foxes' Grove	CWS	1.59	Area of plantation woodland with a coppiced understorey. The site is crossed by a drain to the south.

Site Name	Designation	Distance to onshore elements of Hornsea Three (km)	Site Description
Newhall Wood	CWS	1.62	In the north of this site is mature oak dominated woodland exhibiting a very good age structure and regeneration. The shrub layer is generally mature and diverse with rhododendron present in parts of the wood. There is a good dead wood content with several fallen trees. A very large rabbit population is evident. The southern part of the site comprises open very scattered areas of mature oaks with several mature Scot's pine over dense, continuous bracken.
Catbridge Meadows	CWS	1.64	This is a small site of neutral marshy grassland, the eastern half of which is largely covered by scrub due to lack of grazing. A large irrigation pond also lies within the site and a public footpath runs along the eastern edge.
Eaton Island	CWS	1.67	An inaccessible island situated between two arms of the River Yare. The vegetation comprises neutral marshy grassland subject to flooding. There are some mature broad-leaved trees also present within the site.
Lenwade Pits (West)	CWS	1.70	This site is a complex of disused gravel pits, woodland, pools and wet grassland. The River Wensum lies to the east, a disused railway line to the north and there are several footpaths across the site. The area around the pools is broad-leaved semi-natural woodland. The ground flora consists of bramble and common nettle.
Bawburgh/Colney Gravel Pits	CWS	1.73	A large area of flooded sand and gravel pits surrounded by unimproved neutral to acid grassland, scrub and woodland. The lakes are large with gently sloping banks which support well developed marginal vegetation. Grassland areas are neutral and range from well-drained to marshy. Dry areas are dominated by grasses. Woodland occurs in small isolated pockets.
Land south of Blyth's Wood	CWS	1.75	These meadows lie on the north bank of the River Wensum and are surrounded on the north and west by woodland with a further small area of woodland lying adjacent to part of the south boundary. The site is bisected by a ditch running from west to east with another ditch running from north to south along the eastern boundary of the site. The meadow adjacent to the river is regularly inundated, and supports a range of fen and wet grassland species. The meadow north of the ditch is similar in character, but more intensively grazed, and lacks the extensive patches of greater pond sedge that are present closer to the river.
St. Thomas' Belt	CWS	1.77	It was once part of the woodland and parkland surrounding Ketteringham Hall. It is an area of broad-leaved plantation crossed by several dykes and containing local marshy areas. A high dense hedge runs along the northern boundary.
Weston Meadow	CWS	1.78	This site is an area of lowland marshy grassland bisected by a ditch. The southern end has been cattle grazed and appears more diverse with species typical of grazing marshes.
Land adjoining Swannington Bottom Plantation	CWS	1.82	site is a silver birch (<i>Betula pendula</i>) and young oak (<i>Quercus robur</i>) dominated woodland, with occasional honeysuckle (<i>Lonicera periclymenum</i>) over a ground flora of bracken (<i>Pteridium aquilinum</i>) and nettle (<i>Urtica dioica</i>). There is also a small strip of remnant acid woodland which connects with Upgate Common SSSI.
The Grove	CWS	1.88	This site consists of a mosaic of habitats around a small artificial lake. The north of the site is a semi-formal area with fragments of woodland, scrub, marshy grassland and fen and there has been much ornamental planting. The south has semi-natural carr, pasture and tall herb.
Yare Valley (Marlingford Hall)	CWS	0.89	This site comprises woodland, marshy grassland and fen either side of the River Yare as it forms a large meander to the south of Marlingford Hall. The marshy grassland is largely neutral with either impeded drainage or is subject to flooding. The wettest areas may be spring-fed with a possibly more basic influence and in these damper parts the flora is more diverse. The fen area lies adjacent to the river and grassland and is dominated by reed sweetgrass and meadowsweet. In the western blocks the trees are over tall fen vegetation whilst to the east, following Melton Beck, there is a shrub layer. The areas known as The Carrs and River Plantation have been left largely undisturbed. The shrub layer is varied and many of the dykes leading to the river contain a variety of aquatic flora.
Broomhill Meadows	CWS	1.90	This is an unimproved area of neutral grassland, mostly wet in character but with some dry, sandy areas. To the north-east is an area which has been partially improved. The majority of the site is cut regularly but there is an area to the north east which is left uncut and is now rather rank with alder (<i>Alnus glutinosa</i>) trees.
Holt County Park	CWS	1.90	Much of Holt Country Park is conifer woodland, with wide rides and clearings; the land undulates in places, with variable soils, being free-draining in places and damp in others. There is active management to maintain a variety of tree species, age ranges, structure and diverse ground flora throughout.
Gravel Pit Lane	CWS	1.92	This site supports unimproved dry and damp grassland interspersed with scrub. Numerous anthills are scattered over the site. The site lies over a mosaic of clay and lighter, sandy soils. It is slightly undulating and there are damp hollows with impeded drainage. The mosaic of soil types supports elements of different grassland types and a diverse range of plant species within a small area.
Danby Wood	CWS	1.93	This site comprises floodplain grazing marshes on the northern side of the River Yare. The western end of the site is separated by a railway. There are numerous dykes throughout the site, and it is managed through grazing and mowing. Along the eastern edge of the site is a strip of higher, better drained grass. Also included in the site are some small areas of damp woodland and scrub. The marshy grassland is in places extremely wet with seasonal standing water.

Site Name	Designation	Distance to onshore elements of Hornsea Three (km)	Site Description
Brake Hills Plantation and Carman's Belt	CWS	1.95	This site is a relatively complex mix of oak and ash dominated woodland with Scot's pine plantation, with natural ground flora over much of the site. At the most northern reaches of the site is a line of mature beech (150 years old) backed by an oak and Ash woodland over dense bramble. Further south is additional mature Scot's pine and common lime, with planted beech, over a poorly developed undergrowth. Brake Hills plantation is a mature oak dominated woodland with a dense sycamore understorey. A wildlife corridor from Dog Corner along Carman's Belt is dominated by oak and ash with horse chestnut. Some parts of the wood are very scrubby with bramble dominating the ground flora. To the middle of Carman's Belt is an area of conifers with western hemlock-spruce and wild birch. Brakehills Plantation is a mature oak and horse chestnut dominated woodland with a dense sycamore understorey.
The Oaks	CWS	1.95	An area of narrow river valley marshy grassland bisected by the upper River Bure flowing eastwards through the site. The site also encompasses two small patches of broad-leaved semi-natural woodland as well as ditches, scattered trees, patches of scrub and is enclosed by tall boundary hedgerows. Grassland management is by seasonal grazing within The Broads Environmentally Sensitive Area (ESA) scheme. The surrounding valley sides are predominantly arable farmland with scattered small blocks of both broad-leaved and mixed plantation woodland. The river is narrow and shallow, flowing moderately fast over a stony bed and in places the banks are heavily poached by livestock.
Smeeth Wood	CWS	1.96	A large area of mixed plantation wood on what is a site of ancient woodland. It has an excellent ground flora that includes many species typical of such a habitat. There is an area of scattered scrub and tall grassland adjacent to the wood. The wood consists of even-aged mixed stands of primarily oak (<i>Quercus robur</i>), ash (<i>Fraxinus excelsior</i>) and Scot's pine (<i>Pinus sylvestris</i>).
Bean & Outer Park Woods	CWS	1.99	This is a large area of mixed plantation which is surrounded by a dense high hedge and crossed by several rides. The woodland has a varied age structure but generally the oldest trees are approximately 60 years old. Young saplings are common where light penetrated the canopy such as near to the rides and the wood edges.
U57217	RNR	0.04	This RNR lies on the north side of the road and extends for 184 m. The verge is slightly raised from the road and backed by scattered scrub and one or two Oak trees. Behind the verge is a conifer belt. The whole verge runs from west to east and is surrounded by outdoor pig units.
U14319 (Pond Hills)	RNR	0.90	This RNR lies on the southern side of a meandering damp shady lane and extends to 58 m long. The verge rises to form a woodland bank (2 m wide) with trees along it. The RNR is situated in semi-ancient (but coniferised) woodland.
A140 (Cutting)	RNR	0.97	This RNR lies on the east and west sides and extends for a maximum 160 m. The site is wide (5 m) and consists of a level verge backed by a steeply rising bank. There is a scattering of trees and shrubs on the embankments. The verges are located between a busy 'A' road and open arable farmland.
B1149/C477	RNR	1.07	This RNR lies on the junction of a busy 'B' road and a minor road and extends 40 m. The verge is level (1-2 m) and gradually rising to form a south-facing bank (3 m wide) backed by a fence with scrub hedge. The RNR is set in arable farmland.
U14319 (Matlask Road)	RNR	1.62	This RNR lies on the north-west side and extends to 20 m. The verge is backed by a hedge. The whole verge runs from south-west to north east and is situated in an arable landscape close to Mossymer wood.

3.3 Protected and other notable species

3.3.1.1 Protected or notable species include any species specially protected or listed under the following legislation or which is identified as being of nature conservation concern in the lists referred to below.

Protected species

- The Conservation of Habitats and Species Regulations 2017 (Annex 4) (European Protected Species);
- Council Directive 79/409/EEC on the Conservation of Wild Birds (“Birds Directive”) (BDIR) Annex 1;
- Wildlife and Countryside Act 1981 (as amended) (Schedules 1, 5 and 8) (WCA1/WCA5/WCA8); and
- The Protection of Badgers Act 1992 (PBA).

Other notable species

- The Natural Environment and Rural Communities (NERC) Act 2006. Section 41; Habitats and Species of Principal Importance in England (S41);
- RSPB UK Red or Amber listed birds (Red or Amber);
- Red listing based on IUCN guidelines – Critically Endangered (CE), Data deficient (DD), Endangered (EN), Extinct (EX), Least concern (LC), Near threatened (NT), Rare (R), Vulnerable (VU); and
- Rare and scarce species not based on IUCN criteria – Nationally Notable (NN), Nationally Notable A (NNA), Nationally Notable B (NNB), Nationally Scarce (NS).

3.3.1.2 Records of protected and otherwise notable species are summarised in the sections below and in Table 3.3 to Table 3.9. Locations of records, with the exception of confidential badger records, are shown on Figure 4.2 (plants), Figure 4.3 (terrestrial invertebrates), Figure 4.4 (aquatic invertebrates and fish), Figure 4.5 (amphibians and reptiles), Figure 4.6 (birds), Figure 4.7 (bats) and Figure 4.8 (other mammals).

3.3.1.3 Species excluded from these tables include species such as smooth newt which are protected from sale only.

3.3.1.4 In order to simplify the results, as well as focus on those considered most up to date, only records from the last 10 years are shown.

3.3.1.5 The conservation status abbreviations used in Table 3.3 to Table 3.9 are defined in Table 3.10.

Flora

3.3.1.6 Thirteen protected or otherwise notable plant and lower plant species have been recorded within 2 km of the onshore elements of Hornsea Three. The species recorded are listed in Table 3.3 and the locations of records are shown on Figure 4.2.

3.3.1.7 Bluebell and sandy stillball are protected under the Wildlife and Countryside Act. Four species are listed under Section 41 of the Natural Environment and Rural Communities Act (2006) and are listed as a Biodiversity Action Plan UK priority species.

Table 3.3: Summary of protected and notable plant species recorded within 2 km of the onshore elements of Hornsea Three (as defined at PEIR stage).

Group	Taxon Name	Common Name	Conservation Status
Flowering plant	<i>Arabis glabra</i>	Tower Mustard	NRPI, NS-excludes, RLGB.EN, Sect.41, UKBAP
Flowering plant	<i>Carex diandra</i>	Lesser Tussock-sedge	NRPI, RLGB.Lr(NT)
Flowering plant	<i>Carex flava</i>	Large Yellow-sedge	NR-excludes, RLGB.VU
Flowering plant	<i>Crassula tillaea</i>	Mossy Stonecrop	NRPI, NS-excludes
Flowering plant	<i>Filago vulgaris</i>	Common Cudweed	NRPI, RLGB.Lr(NT)
Flowering plant	<i>Gymnadenia conopsea</i>	Fragrant Orchid	CITESB, Sect.42
Flowering plant	<i>Hyacinthoides non-scripta</i>	Bluebell	WCA8
Flowering plant	<i>Pinguicula vulgaris</i>	Common Butterwort	NRPI
Flowering plant	<i>Potentilla argentea</i>	Hoary Cinquefoil	NRPI, RLGB.Lr(NT)
Flowering plant	<i>Stellaria palustris</i>	Marsh Stitchwort	NRPI, RLGB.VU, Sect.41, UKBAP
Fungus	<i>Battarrea phalloides</i>	Sandy Stillball	Sect.41, UKBAP, WCA8
Moss	<i>Leucobryum glaucum</i>	Large White-moss	HSD5
Moss	<i>Sphagnum subnitens</i>	Lustrous Bog-moss	HSD5

Terrestrial invertebrates

3.3.1.8 A total of 3,293 records of 114 insect species with some rarity / conservation status have been recorded within 2 km of the onshore elements of Hornsea Three. These comprised 7 Diptera (flies), 1 Hemiptera (true bug), 26 Hymenoptera (bees and wasps), 4 butterflies, 75 moths and one beetle species: the black-headed cardinal beetle.

3.3.1.9 Of the 3,293 individual species records, 97% were moths.

3.3.1.10 The species recorded are listed in Table 3.4. The distribution of invertebrate records is shown on Figure 4.3. However, given the number of individual species recorded, Figure 4.3 distinguishes records by group rather than species name.

Table 3.4: Summary of protected and notable invertebrate species recorded within 2 km of the onshore elements of Hornsea Three (as defined at PEIR stage).

Group	Taxon Name	Common Name	Number of Records	Conservation Status
Diptera (fly)	<i>Cheilosia soror</i>		3	N
Diptera (fly)	<i>Didea fasciata</i>		2	N
Diptera (fly)	<i>Melangyna triangulifera</i>		1	N
Diptera (fly)	<i>Volucella inanis</i>		10	N
Diptera (fly)	<i>Volucella inflata</i>		3	N
Diptera (fly)	<i>Volucella zonaria</i>		10	N
Diptera (fly)	<i>Xylota florum</i>		1	N
Hemiptera (true bug)	<i>Gonocerus acuteangulatus</i>	Box Bug	2	RDBGB.EN
Hymenoptera (bees/wasps)	<i>Andrena (Charitandrena) hattorfiana</i>		1	RDBGB.R
Hymenoptera (bees/wasps)	<i>Andrena (Margandrena) marginata</i>		1	Na
Hymenoptera (bees/wasps)	<i>Andrena (Plastandrena) bimaculata</i>		4	Nb
Hymenoptera (bees/wasps)	<i>Andrena (Poecilandrena) labiata</i>	Girdled Mining Bee	1	Na
Hymenoptera (bees/wasps)	<i>Argogorytes fargeii</i>		3	Na
Hymenoptera (bees/wasps)	<i>Bombus (Psithyrus) rupestris</i>	Hill Cuckoo Bee	5	Nb
Hymenoptera (bees/wasps)	<i>Bombus (Thoracobombus) humilis</i>	Brown-banded Carder-bee	1	Sect.41, UKBAP
Hymenoptera (bees/wasps)	<i>Bombus (Thoracobombus) muscorum</i>	Moss Carder-bee	7	Sect.41, UKBAP
Hymenoptera (bees/wasps)	<i>Bombus (Thoracobombus) ruderarius</i>	Red-shanked Carder-bee	1	Sect.41, UKBAP
Hymenoptera (bees/wasps)	<i>Cerceris quinquefasciata</i>	Five-banded Weevil-wasp	2	Breck_Special, RDBGB.R, Sect.41, UKBAP
Hymenoptera (bees/wasps)	<i>Chrysis illigeri</i>		1	Nb

Group	Taxon Name	Common Name	Number of Records	Conservation Status
Hymenoptera (bees/wasps)	<i>Dolichovespula (Dolichovespula) media</i>		2	Na
Hymenoptera (bees/wasps)	<i>Dolichovespula (Pseudovespula) saxonica</i>		2	RDBGB.IK
Hymenoptera (bees/wasps)	<i>Hylaeus (Prosopis) signatus</i>	Large Yellow-Faced Bee	2	Nb
Hymenoptera (bees/wasps)	<i>Lasioglossum (Dialictus) leucopus</i>		5	RDBGB.R
Hymenoptera (bees/wasps)	<i>Lasioglossum (Evylaeus) malachurum</i>		1	Nb
Hymenoptera (bees/wasps)	<i>Lasioglossum (Evylaeus) pauxillum</i>		8	Na
Hymenoptera (bees/wasps)	<i>Megachile (Eutricharaea) leachella</i>	Silvery Leaf-Cutter Bee	1	Nb
Hymenoptera (bees/wasps)	<i>Methocha articulate</i>		4	Nb
Hymenoptera (bees/wasps)	<i>Nysson interruptus</i>		3	RDBGB.VU
Hymenoptera (bees/wasps)	<i>Osmia (Neosmia) bicolor</i>	Two-coloured Mason Bee	1	Nb
Hymenoptera (bees/wasps)	<i>Philanthus triangulum</i>	Bee Wolf	4	RDBGB.VU
Hymenoptera (bees/wasps)	<i>Podalonia hirsute</i>	Hairy Sand Wasp	2	Nb
Hymenoptera (bees/wasps)	<i>Priocnemis (Priocnemis) hyalinata</i>		3	Nb
Hymenoptera (bees/wasps)	<i>Sphecodes longulus</i>		1	Na
Hymenoptera (bees/wasps)	<i>Sphecodes reticulatus</i>		2	Na
Lepidoptera (butterfly)	<i>Coenonympha pamphilus</i>	Small Heath	1	RLGB.Lr(NT), Sect.41, UKBAP
Lepidoptera (butterfly)	<i>Hipparchia semele</i>	Grayling	3	RLGB.VU, Sect.41, UKBAP
Lepidoptera (butterfly)	<i>Lasiommata megera</i>	Wall	1	RLGB.Lr(NT), Sect.41, UKBAP
Lepidoptera (butterfly)	<i>Limenitis camilla</i>	White Admiral	1	RLGB.VU, Sect.41, UKBAP

Group	Taxon Name	Common Name	Number of Records	Conservation Status
Lepidoptera (moth)	<i>Acronicta psi</i>	Grey Dagger	89	Sect.41, UKBAP
Lepidoptera (moth)	<i>Acronicta rumicis</i>	Knot Grass	37	Sect.41, UKBAP
Lepidoptera (moth)	<i>Agrochola helvola</i>	Flounced Chestnut	8	Sect.41, UKBAP
Lepidoptera (moth)	<i>Agrochola litura</i>	Brown-spot Pinion	86	Sect.41, UKBAP
Lepidoptera (moth)	<i>Agrochola lychnidis</i>	Beaded Chestnut	115	Sect.41, UKBAP
Lepidoptera (moth)	<i>Allophyes oxyacanthae</i>	Green-brindled Crescent	74	Sect.41, UKBAP
Lepidoptera (moth)	<i>Amphipoea oculea</i>	Ear Moth	31	Sect.41, UKBAP
Lepidoptera (moth)	<i>Amphipyra tragopoginis</i>	Mouse Moth	59	Sect.41, UKBAP
Lepidoptera (moth)	<i>Apamea anceps</i>	Large Nutmeg	3	Sect.41, UKBAP
Lepidoptera (moth)	<i>Apamea remissa</i>	Dusky Brocade	30	Sect.41, UKBAP
Lepidoptera (moth)	<i>Arctia caja</i>	Garden Tiger	19	Sect.41, UKBAP
Lepidoptera (moth)	<i>Asteroscopus sphinx</i>	Sprawler	19	Sect.41, UKBAP
Lepidoptera (moth)	<i>Atethmia centrigo</i>	Centre-barred Sallow	62	Sect.41, UKBAP
Lepidoptera (moth)	<i>Blepharita adusta</i>	Dark Brocade	33	Sect.41, UKBAP
Lepidoptera (moth)	<i>Brachylomia viminalis</i>	Minor Shoulder-knot	2	Sect.41, UKBAP
Lepidoptera (moth)	<i>Caradrina morpheus</i>	Mottled Rustic	168	Sect.41, UKBAP
Lepidoptera (moth)	<i>Celaena leucostigma</i>	Crescent	12	Sect.41, UKBAP
Lepidoptera (moth)	<i>Ceramica pisi</i>	Broom Moth	13	Sect.41, Sect.42, UKBAP
Lepidoptera (moth)	<i>Chesias legatella</i>	Streak	5	Sect.41, UKBAP
Lepidoptera (moth)	<i>Chiasmia clathrata</i>	Latticed Heath	15	Sect.41, UKBAP
Lepidoptera (moth)	<i>Cirrhia gilvago</i>	Dusky-lemon Sallow	5	Sect.41, Sect.42, UKBAP
Lepidoptera (moth)	<i>Cirrhia icteritia</i>	Sallow	122	Sect.41, Sect.42, UKBAP
Lepidoptera (moth)	<i>Cossus cossus</i>	Goat Moth	1	Sect.41, Sect.42, UKBAP
Lepidoptera (moth)	<i>Costaconvexa polygrammata</i>	The Many-Lined	1	RDBGB.EX
Lepidoptera (moth)	<i>Crambus hamella</i>	Dark Grass-veneer	2	Nb
Lepidoptera (moth)	<i>Diarsia rubi</i>	Small Square-spot	129	Sect.41, UKBAP
Lepidoptera (moth)	<i>Ecliptopera silaceata</i>	Small Phoenix	65	Sect.41, UKBAP
Lepidoptera (moth)	<i>Ennomos fuscantaria</i>	Dusky Thorn	59	Sect.41, UKBAP

Group	Taxon Name	Common Name	Number of Records	Conservation Status
Lepidoptera (moth)	<i>Ennomos quercinaria</i>	August Thorn	18	Sect.41, UKBAP
Lepidoptera (moth)	<i>Eriogaster lanestris</i>	Small Eggar	6	RDBGB.VU
Lepidoptera (moth)	<i>Eudonia delunella</i>	Pied Grey	1	Nb
Lepidoptera (moth)	<i>Eugnorisma glareosa</i>	Autumnal Rustic	15	Sect.41, UKBAP
Lepidoptera (moth)	<i>Eullithis mellinata</i>	Spinach	13	Sect.41, UKBAP
Lepidoptera (moth)	<i>Euxoa nigricans</i>	Garden Dart	4	Sect.41, UKBAP
Lepidoptera (moth)	<i>Euxoa tritici</i>	White-line Dart	16	Sect.41, UKBAP
Lepidoptera (moth)	<i>Graphiphora augur</i>	Double Dart	1	Sect.41, UKBAP
Lepidoptera (moth)	<i>Heliophobus reticulata subsp. Marginosa</i>	Bordered Gothic	1	Breck_Special, Sect.41, UKBAP
Lepidoptera (moth)	<i>Heliothis virescens</i>	Marbled Clover	9	Breck_Special, RDBGB.R
Lepidoptera (moth)	<i>Hemistola chrysoprasaria</i>	Small Emerald	18	Sect.41, UKBAP
Lepidoptera (moth)	<i>Hepialus humuli</i>	Ghost Moth	68	Sect.41, UKBAP
Lepidoptera (moth)	<i>Homoeosoma nebulella</i>	Large Clouded Knot-horn	1	Nb
Lepidoptera (moth)	<i>Hoplodrina blanda</i>	Rustic	113	Sect.41, UKBAP
Lepidoptera (moth)	<i>Hydraecia micacea</i>	Rosy Rustic	112	Sect.41, UKBAP
Lepidoptera (moth)	<i>Leucania comma</i>	Shoulder-striped Wainscot	75	Sect.41, Sect.42, UKBAP
Lepidoptera (moth)	<i>Lithostege griseata</i>	Grey Carpet	2	Breck_Special, RDBGB.R, Sect.41, UKBAP
Lepidoptera (moth)	<i>Lycia hirtaria</i>	Brindled Beauty	67	Sect.41, UKBAP
Lepidoptera (moth)	<i>Macaria wauaria</i>	V-moth	2	Sect.41, UKBAP
Lepidoptera (moth)	<i>Malacosoma neustria</i>	Lackey	1	Sect.41, UKBAP
Lepidoptera (moth)	<i>Melanchra persicariae</i>	Dot Moth	124	Sect.41, UKBAP
Lepidoptera (moth)	<i>Melantheria procellata</i>	Pretty Chalk Carpet	10	Sect.41, UKBAP
Lepidoptera (moth)	<i>Mesoligia literosa</i>	Rosy Minor	66	Sect.41, UKBAP
Lepidoptera (moth)	<i>Mythimna flammaea</i>	Flame Wainscot	1	RDBGB.R
Lepidoptera (moth)	<i>Nascia ciliatilis</i>	Orange-rayed Pearl	1	Na
Lepidoptera (moth)	<i>Nephoterix angustella</i>	Spindle Knot-horn	3	Nb

Group	Taxon Name	Common Name	Number of Records	Conservation Status
Lepidoptera (moth)	<i>Noctua orbona</i>	Lunar Yellow Underwing	1	Breck_Special, Sect.41, UKBAP
Lepidoptera (moth)	<i>Orthosia gracilis</i>	Powdered Quaker	48	Sect.41, UKBAP
Lepidoptera (moth)	<i>Pelurga comitata</i>	Dark Spinach	3	Sect.41, UKBAP
Lepidoptera (moth)	<i>Rhizedra lutosa</i>	Large Wainscot	52	Sect.41, UKBAP
Lepidoptera (moth)	<i>Schoenobius gigantella</i>	Giant Water-veneer	2	Nb
Lepidoptera (moth)	<i>Scopula marginepunctata</i>	Mullein Wave	4	Sect.41, UKBAP
Lepidoptera (moth)	<i>Scotopteryx chenopodiata</i>	Shaded Broad-bar	60	Sect.41, UKBAP
Lepidoptera (moth)	<i>Spilosoma lubricipeda</i>	White Ermine	120	Sect.41, UKBAP
Lepidoptera (moth)	<i>Spilosoma luteum</i>	Buff Ermine	472	Sect.41, UKBAP
Lepidoptera (moth)	<i>Knot g</i>	Hedge Rustic	10	Sect.41, UKBAP
Lepidoptera (moth)	<i>Tholera decimalis</i>	Feathered Gothic	4	Sect.41, UKBAP
Lepidoptera (moth)	<i>Timandra comae</i>	Blood-Vein	111	Sect.41, UKBAP
Lepidoptera (moth)	<i>Trichiura crataegi</i>	Pale Eggar	12	Sect.41, UKBAP
Lepidoptera (moth)	<i>Tyria jacobaeae</i>	Cinnabar	65	Sect.41, UKBAP
Lepidoptera (moth)	<i>Tyta luctuosa</i>	Four-spotted	1	RDBGB.VU, Sect.41, UKBAP
Lepidoptera (moth)	<i>Watsonalla binaria</i>	Oak Hook-tip	58	Sect.41, UKBAP
Lepidoptera (moth)	<i>Xanthia gilvago</i>	Dusky-lemon Sallow	3	Sect.41, UKBAP
Lepidoptera (moth)	<i>Xanthia icterialis</i>	Sallow	62	Sect.41, UKBAP
Lepidoptera (moth)	<i>Xanthorhoe biriviata</i>	Balsam Carpet	2	RDBGB.R
Lepidoptera (moth)	<i>Xanthorhoe ferrugata</i>	Dark-barred Twin-spot Carpet	71	Sect.41, UKBAP
Lepidoptera (moth)	<i>Xestia agathina</i>	Heath Rustic	13	Sect.41, UKBAP
Coleoptera (beetle)	<i>Pyrochroa coccinea</i>	Black-headed Cardinal Beetle	1	Nb

Aquatic invertebrates and fish

3.3.1.11 One protected aquatic invertebrate species, white-clawed crayfish, was recorded from within 2 km of the onshore elements of Hornsea Three.

3.3.1.12 Four fish species of some conservation interest were recorded from within 2 km of the onshore elements of Hornsea Three (Table 3.5) and locations are shown on Figure 4.4.

3.3.1.13 Records of signal crayfish have also been shown, as the presence of signal crayfish in a watercourse may mean that white-clawed crayfish are absent.

Table 3.5: Summary of aquatic invertebrate and fish species recorded within 2 km of the onshore elements of Hornsea Three (as defined at PEIR stage).

Taxon Name	Common Name	Protected Status
<i>Austropotamobius pallipes</i>	White-clawed Crayfish	Bern3, HSD2p, HSD5, RLGLB.EN, Sect.41, UKBAP, WCA5/9.1t, WCA5/9.5a, WCA5/9.5b
<i>Pacifastacus leniusculus</i>	Signal Crayfish	Non-native
<i>Lampetra planeri</i>	Brook Lamprey	Bern3, HSD2p
<i>Lampetra fluviatilis</i>	River Lamprey	Bern3, HabRegs4, HSD2p, HSD5, Sect.41, UKBAP
<i>Barbus barbus</i>	Barbel	HabRegs4, HSD5
<i>Cottus gobio</i>	Bullhead	HSD2p

Amphibians and reptiles

3.3.1.14 Six protected or otherwise notable herpetofauna species have been recorded within 2 km of the onshore elements of Hornsea Three. The species recorded are listed in Table 3.6 below and shown on Figure 4.5, and comprise two amphibian and four reptile species.

Table 3.6: Summary of herpetofauna species recorded within 2 km of the onshore elements of Hornsea Three (as defined at PEIR stage).

Taxon Name	Common Name	Protected Status
<i>Bufo bufo</i>	Common Toad	Bern3, Sect.41, UKBAP, WCA5/9.5a, WCA5/9.5b
<i>Triturus cristatus</i>	Great Crested Newt	Bern2, HabRegs2, HSD2p, HSD4, Sect.41, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b
<i>Anguis fragilis</i>	Slow Worm	Bern3, Sect.41, UKBAP, WCA5/9.1k/i, WCA5/9.5a, WCA5/9.5b
<i>Natrix natrix</i>	Grass Snake	Bern3, Sect.41, UKBAP, WCA5/9.1k/i, WCA5/9.5a, WCA5/9.5b
<i>Vipera berus</i>	Adder	Bern3, Sect.41, UKBAP, WCA5/9.1k/i, WCA5/9.5a, WCA5/9.5b
<i>Zootoca vivipara</i>	Common Lizard	Bern3, Sect.41, UKBAP, WCA5/9.1k/i, WCA5/9.5a, WCA5/9.5b

Birds

- 3.3.1.15 Twenty-three Schedule 1 bird species have been recorded within the 5 km ornithology data search area. These include records of black redstart, stone curlew and barn owl.
- 3.3.1.16 Other Schedule 1 species recorded within the 5 km ornithology data search area include peregrine, brambling, redwing, Cetti's warbler, greylag goose, kingfisher, hobby, whooper swan and goshawk.
- 3.3.1.17 A total of 79 protected or notable species of bird have been recorded within 5 km the onshore elements of Hornsea Three; these are listed in Table 3.7 below and shown on Figure 4.6.

Table 3.7: Summary of protected and notable birds recorded within 5 km of the onshore elements of Hornsea Three (as defined at PEIR stage).

Taxon Name	Common Name	Protected Status
<i>Tyto alba</i>	Barn Owl	WCA1, Local Biodiversity Action Plan (LBAP)
<i>Phoenicurus ochruros</i>	Black Redstart	WCA1, BRed
<i>Chlidonias niger</i>	Black Tern	BAmb, BD1, Bern2, WCA1i
<i>Chroicocephalus ridibundus</i>	Black-headed Gull	BAmb
<i>Fringilla montifringilla</i>	Brambling	WCA1
<i>Pyrrhula pyrrhula</i>	Bullfinch	UKBAP, Sect.41, BAmb
<i>Cettia cetti</i>	Cetti's Warbler	WCA1
<i>Loxia curvirostra</i>	Common Crossbill	WCA1
<i>Larus canus</i>	Common Gull	BAmb
<i>Erythrura erythrina</i>	Common Rosefinch	Bern2, WCA1i
<i>Actitis hypoleucos</i>	Common Sandpiper	BAmb
<i>Sterna hirundo</i>	Common Tern	BD1, BAmb
<i>Cuculus canorus</i>	Cuckoo	UKBAP, Sect.41, BRed
<i>Numenius arquata</i>	Curlew	UKBAP, Sect.41, BRed
<i>Prunella modularis</i>	Dunnock	UKBAP, Sect.41, BAmb
<i>Anas strepera</i>	Gadwall	BAmb
<i>Anas querquedula</i>	Garganey	WCA1, BAmb
<i>Larus hyperboreus</i>	Glaucous Gull	BAmb
<i>Accipiter gentilis</i>	Goshawk	WCA1
<i>Locustella naevia</i>	Grasshopper Warbler	UKBAP, Sect.41, BRed

Taxon Name	Common Name	Protected Status
<i>Larus marinus</i>	Great Black-backed Gull	BAmb
<i>Picus viridis</i>	Green Woodpecker	BAmb, Bern2
<i>Perdix perdix</i>	Grey Partridge	UKBAP, Sect.41, BRed, LBAP
<i>Motacilla cinerea</i>	Grey Wagtail	Bred
<i>Anser anser</i>	Greylag Goose	BAmb
<i>Coccothraustes coccothraustes</i>	Hawfinch	UKBAP, Sect.41, Bred
<i>Falco subbuteo</i>	Hobby	WCA1
<i>Delichon urbicum</i>	House Martin	BAmb
<i>Passer domesticus</i>	House Sparrow	UKBAP, Sect.41, BRed
<i>Lymnocyptes minimus</i>	Jack Snipe	BAmb, CMS_A2
<i>Falco tinnunculus</i>	Kestrel	BAmb
<i>Alcedo atthis</i>	Kingfisher	WCA1, UKBAP, Sect.41, BAmb
<i>Calcarius lapponicus</i>	Lapland Bunting	BAmb, Bern2, WCA1i
<i>Vanellus vanellus</i>	Lapwing	UKBAP, Sect.41, BRed
<i>Larus fuscus</i>	Lesser Black-backed Gull	BAmb
<i>Dendrocopos minor</i>	Lesser Spotted Woodpecker	UKBAP, Sect.41, BRed
<i>Linaria cannabina</i>	Linnet	UKBAP, Sect.41, BRed
<i>Egretta garzetta</i>	Little Egret	BD1
<i>Tachybaptus ruficollis</i>	Little Grebe	BAmb
<i>Anas platyrhynchos</i>	Mallard	BAmb
<i>Puffinus puffinus</i>	Manx Shearwater	BAmb, Bern2
<i>Poecile palustris</i>	Marsh Tit	UKBAP, Sect.41, BRed
<i>Anthus pratensis</i>	Meadow Pipit	BAmb, Bern2
<i>Turdus viscivorus</i>	Mistle Thrush	BRed
<i>Luscinia megarhynchos</i>	Nightingale	BRed
<i>Caprimulgus europaeus</i>	Nighthawk	BD1
<i>Haematopus ostralegus</i>	Oystercatcher	BAmb
<i>Falco peregrinus</i>	Peregrine Falcon	WCA1, BD1
<i>Coturnix coturnix</i>	Quail	WCA1, BAmb
<i>Milvus milvus</i>	Red Kite	BAmb, BD1, CITESA, CMS_A2, RLGLB.NT, WCA1i

Taxon Name	Common Name	Protected Status
<i>Lanius collurio</i>	Red-backed Shrike	WCA1, UKBAP
<i>Turdus iliacus</i>	Redwing	WCA1, BRed
<i>Emberiza schoeniclus</i>	Reed Bunting	UKBAP, Sect.41, BAmb, LBAP
<i>Turdus torquatus</i>	Ring Ouzel	UKBAP, Sect.41, BRed
<i>Sterna dougallii</i>	Roseate Tern	BD1, Bern2, BRed, CMS_A2, Sect.41, Sect.42, UKBAP, WCA1i
<i>Riparia riparia</i>	Sand Martin	BAmb, Bern2
<i>Eremophila alpestris</i>	Shore Lark	BAmb, Bern2, WCA1i
<i>Anas clypeata</i>	Shoveler	BAmb
<i>Alauda arvensis</i>	Skylark	UKBAP, Sect.41, BRed, LBAP
<i>Gallinago gallinago</i>	Snipe	BAmb
<i>Plectrophenax nivalis</i>	Snow Bunting	BAmb, Bern2, WCA1i
<i>Platalea leucorodia</i>	Spoonbill	BAmb, BD1, Bern2, CITESA, CMS_A2, WCA1i
<i>Muscicapa striata</i>	Spotted Flycatcher	UKBAP, Sect.41, BRed, LBAP
<i>Columba oenas</i>	Stock Dove	BAmb
<i>Burhinus oedicnemus</i>	Stone-curlew	WCA1, UKBAP, Sect.41, BAmb, LBAP
<i>Hirundo rustica</i>	Swallow	BAmb, Bern2
<i>Apus apus</i>	Swift	BAmb, LBAP
<i>Anas crecca</i>	Teal	BAmb
<i>Calidris temminckii</i>	Temminck's Stint	Bern2, BRed, CMS_A2, WCA1i
<i>Arenaria interpres</i>	Turnstone	BAmb, Bern2, CMS_A2
<i>Streptopelia turtur</i>	Turtle Dove	UKBAP, Sect.41, BRed, LBAP
<i>Sylvia communis</i>	Whitethroat	BAmb
<i>Cygnus Cygnus</i>	Whooper Swan	BAmb
<i>Poecile montana</i>	Willow Tit	UKBAP, Sect.41, BRed
<i>Phylloscopus trochilus</i>	Willow Warbler	BAmb
<i>Phylloscopus sibilatrix</i>	Wood Warbler	UKBAP, BRed
<i>Scolopax rusticola</i>	Woodcock	BRed
<i>Motacilla flava</i>	Yellow Wagtail	UKBAP, Sect.41, BRed
<i>Emberiza citrinella</i>	Yellowhammer	UKBAP, Sect.41, BRed

Mammals

Bats

3.3.1.18 Twelve species of bats were recorded within 5 km of the onshore elements of Hornsea Three. In addition, a number of records were provided for bats not identified to species level. These could therefore account for other additional species. The bat species recorded are listed in Table 3.8 below and shown on Figure 4.7.

Table 3.8: Summary of bat records within 5 km of the onshore elements of Hornsea Three (as defined at PEIR stage).

Taxon Name	Common Name	Protected Status
<i>Barbastella barbastellus</i>	Western Barbastelle	Bern2, CMS_A2, CMS_EUROBATS-A1, HabRegs2, HSD2p, HSD4, RLGLB.NT, Sect.41, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b
<i>Eptesicus serotinus</i>	Serotine	Bern2, CMS_A2, CMS_EUROBATS-A1, HabRegs2, HSD4, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b
<i>Myotis sp.</i>	Unidentified Myotis bat	CMS_A2, HabRegs2, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b
<i>Myotis brandtii</i>	Brandt's Bat	Bern2, CMS_A2, CMS_EUROBATS-A1, HabRegs2, HSD4, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b
<i>Myotis daubentonii</i>	Daubenton's Bat	Bern2, CMS_A2, CMS_EUROBATS-A1, HabRegs2, HSD4, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b
<i>Myotis mystacinus</i>	Whiskered Bat	Bern2, CMS_A2, CMS_EUROBATS-A1, HabRegs2, HSD4, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b
<i>Myotis nattereri</i>	Natterer's Bat	Bern2, CMS_A2, CMS_EUROBATS-A1, HabRegs2, HSD4, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b
<i>Nyctalus leisleri</i>	Lesser Noctule	Bern2, CMS_A2, CMS_EUROBATS-A1, HabRegs2, HSD4, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b
<i>Nyctalus noctula</i>	Noctule	Bern2, CMS_A2, CMS_EUROBATS-A1, HabRegs2, HSD4, Sect.41, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b
<i>Nyctalus Sp.</i>	Unidentified Nyctalus bat	CMS_A2, HabRegs2, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b
<i>Pipistrellus nathusii</i>	Nathusius Pipistrelle	Bern2, CMS_A2, CMS_EUROBATS-A1, HabRegs2, HSD4, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b
<i>Pipistrellus pipistrellus</i>	Common Pipistrelle	CMS_A2, HabRegs2, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b
<i>Pipistrellus pygmaeus</i>	Soprano Pipistrelle	Bern2, CMS_A2, CMS_EUROBATS-A1, HabRegs2, HSD4, Sect.41, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b

Taxon Name	Common Name	Protected Status
<i>Pipistrellus sp.</i>	Unidentified Pipistrelle species	CMS_A2, HabRegs2, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b
<i>Plecotus auritus</i>	Brown Long-eared Bat	Bern2, CMS_A2, CMS_EUROBATS-A1, HabRegs2, HSD4, Sect.41, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b
<i>Plecotus sp.</i>	Unidentified Long-eared bat species	CMS_A2, HabRegs2, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b

Other mammals

- 3.3.1.19 Six other protected or notable mammal species have been recorded within 2 km of the onshore elements of Hornsea Three. The mammal species recorded are listed in Table 3.9 and shown on Figure 4.8.
- 3.3.1.20 One record of red squirrel was obtained from the data search, from Swardeston dating from 2006. However, the note accompanying this record states that the animal was partially tame and was clearly an escaped or released animal which was not expected to survive. It has therefore not been included in Table 3.9.

Table 3.9: Summary of other protected and notable mammal records within 2 km of the onshore elements of Hornsea Three (as defined at PEIR stage).

Taxon Name	Common Name	Protected Status
<i>Arvicola amphibius</i>	European Water Vole	Sect.41, UKBAP, WCA5/9.1k/l, WCA5/9.1t, WCA5/9.2, WCA5/9.4.a, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b
<i>Erinaceus europaeus</i>	West European Hedgehog	Bern3, Sect.41, UKBAP
<i>Lepus europaeus</i>	Brown Hare	Sect.41, UKBAP
<i>Lutra lutra</i>	European Otter	Bern2, CITESA, HabRegs2, HSD2p, HSD4, RLGLB.NT, Sect.41, UKBAP, WCA5/9.4b, WCA5/9.4c, WCA5/9.5a, WCA5/9.5b
<i>Meles meles</i>	Eurasian Badger	Bern3, PBA
<i>Micromys minutus</i>	Harvest Mouse	Sect.41, UKBAP

Table 3.10: Conservation status abbreviations used in Table 3.3 to Table 3.9.

Abbreviated Designation	Full designation	Description
BAmb	Bird Population Status - amber	Species listed on the Birds of Conservation Concern (BoCC) Amber List.
BD1	Birds Directive Annex 1	Birds which are the subject of special conservation measures concerning their habitat in order to ensure their survival and reproduction in their area of distribution. As appropriate, Special Protection Areas to be established to assist conservation measures.
Bern2	Bern Convention Appendix 2	Special protection ('appropriate and necessary legislative and administrative measures') for the animal taxa listed.
Bern3	Bern Convention Appendix 3	Special protection through 'appropriate and necessary legislative and administrative measures', of the listed wild fauna species.
BRed	Bird Population Status - red	Species listed on the Birds of Conservation Concern (BoCC) Red List.
CMS_A2	Convention on Migratory Species, Appendix 2	Migratory species having an unfavourable conservation status for which Range States are encouraged to conclude international agreements for their benefit.
CMS_EUROBATS-A1	Convention on Migratory Species, EUROBATS - Annex I	Protection and enhancement of species populations through legislation, education, conservation measures and international co-operation.
HabRegs2	The Conservation (Natural Habitats, &c.) Regulations 2010 (Schedule 2)	Schedule 2- European protected species of animals.
HSD2p	Habitats Directive Annex 2 - non-priority species	Animal and plant species of Community interest (i.e. endangered, vulnerable, rare or endemic in the European Community) whose conservation requires the designation of special areas of conservation.
HSD4	Habitats Directive Annex 4	Animal and plant species of Community interest (i.e. endangered, vulnerable, rare or endemic in the European Community) in need of strict protection. They are protected from killing, disturbance or the destruction of them or their habitat.
HSD5	Habitats Directive Annex 5	Animal and plant species of Community interest whose taking in the wild and exploitation may be subject to management measures.
N	Nationally Notable	Species which are estimated to occur within the range of 16 to 100 10 km squares. (subdivision into Notable A and Notable B is not always possible because there may be insufficient information available).
NA	Nationally Notable A	Taxa which do not fall within RDB categories but which are none-the-less uncommon in Great Britain and thought to occur in 30 or fewer 10 km squares of the National Grid or, for less well-recorded groups, within seven or fewer vice-counties.
NB	Nationally Notable B	Taxa which do not fall within RDB categories but which are none-the-less uncommon in Great Britain and thought to occur in between 31 and 100 10 km squares of the National Grid or, for less-well recorded groups between eight and twenty vice-counties.
NRPI	Norfolk Rare Plants	Norfolk rare plants as identified by BSBI County recorder Bob Ellis.
NS-excludes	Nationally scarce. Excludes Red Listed taxa	Occurring in 15 or fewer hectads (10 km x 10 km squares) in Great Britain. Excludes rare species qualifying under the main IUCN criteria.
RDBGB.EN	IUCN (pre-1994) - Endangered	Taxa in danger of extinction and whose survival is unlikely if the causal factors continue operating. Superseded by new IUCN categories in 1994, but still applicable to lists that have not been reviewed since 1994.
RDBGB.EX	IUCN (pre-1994) - Extinct	Taxa which are no longer known to exist in the wild after repeated searches of their localities and other known likely places. Superseded by new IUCN categories in 1994, but still applicable to lists that have not been reviewed since 1994.
RDBGB.IK	RDB - Insufficient known	Taxa that are suspected but not definitely known to belong to any of the above categories (i.e. Endangered, Vulnerable, Rare), because of the lack of information. Superseded by new IUCN categories in 1994, so no longer in use.
RDBGB.R	IUCN (pre-1994) - Rare	Taxa with small populations that are not at present Endangered or Vulnerable, but are at risk. (In GB, this was interpreted as species which exist in fifteen or fewer 10 km squares). Superseded by new IUCN categories in 1994, but still applicable to lists that have not been reviewed since 1994.
RDBGB.VU	IUCN (pre-1994) - Vulnerable	Taxa believed likely to move into the Endangered category in the near future if the causal factors continue operating. Superseded by new IUCN categories in 1994, but still applicable to lists that have not been reviewed since 1994.

Abbreviated Designation	Full designation	Description
RLGB.EN	IUCN (2001) - Endangered	A taxon is Endangered when it is not Critically Endangered but is facing a very high risk of extinction in the wild in the near future.
RLGB.Lr(NT)	IUCN (1994) - Lower risk - near threatened	Taxa which do not qualify for Lower Risk (conservation dependent), but which are close to qualifying for Vulnerable. In Britain, this category includes species which occur in 15 or fewer hectads (10 km x 10 km squares) but do not qualify as Critically Endangered, Endangered or Vulnerable.
RLGB.VU	IUCN (1994) - Vulnerable	A taxon is Vulnerable when it is not Critically Endangered or Endangered but is facing a high risk of extinction in the wild in the medium term future.
RLGLB.NT	IUCN (2001) - Lower risk - near threatened	A taxon is Near Threatened when it has been evaluated against the criteria but does not qualify for Critically Endangered, Endangered or Vulnerable now, but is close to qualifying for or is likely to qualify for a threatened category in the near future.
Sect.41	Natural Environment and Rural Communities Act 2006 - Species of Principal Importance in England (sec	Species "of principal importance for the purpose of conserving biodiversity" covered under section 41 (England) of the NERC Act (2006) and therefore need to be taken into consideration by a public body when performing any of its functions.
UKBAP	UK Biodiversity Action Plan priority species	The UK List of Priority Species and Habitats contains 1150 species and 65 habitats that have been listed as priorities for conservation action under the UK Biodiversity Action Plan (UK BAP).
WCA1	Wildlife and Countryside Act 1981 (Schedule 1 Part 1)	Birds which are protected by special penalties at all times.
WCA5/9.1k/i	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.1 (killing/injuring))	Section 9.1. Animals which are protected from intentional killing or injuring.
WCA5/9.1t	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.1 (taking))	Section 9.1 Animals which are protected from taking.
WCA5/9.2	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.2)	Section 9.2 Animals which are protected from being possessed or controlled (live or dead).
WCA5/9.4a	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.4a)	Section 9.4 Animals which are protected from intentional damage or destruction to any structure or place used for shelter or protection.
WCA5/9.4b	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.4b)	Section 9.4 Animals which are protected from intentional disturbance while occupying a structure or place used for shelter or protection.
WCA5/9.4c	Wildlife and Countryside Act 1981 (Schedule 5)	Animals which are protected from their access to any structure or place which they use for shelter or protection being obstructed.
WCA5/9.5a	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.5a)	Section 9.5 Animals which are protected from being sold, offered for sale or being held or transported for sale either live or dead, whole or part.
WCA5/9.5b	Wildlife and Countryside Act 1981 (Schedule 5 Section 9.5b)	Section 9.5 Animals which are protected from being published or advertised as being for sale.
WCA8	Wildlife and Countryside Act 1981 (Schedule 8)	Plants which are protected from intentional picking, uprooting or destruction (Section 13 1a); selling, offering for sale, possessing or transporting for the purpose of sale (live or dead, part or derivative) (Section 13 2a); advertising (any of these) for sale.

4. Phase 1 habitat survey Results

- 4.1.1.1 The results of the Phase 1 habitat surveys undertaken for Hornsea Three (comprising that undertaken by RPS in 2016 and the additional phase 1 surveys undertaken by Thomson in 2017) are shown in Figure 4.9.
- 4.1.1.2 Appendix A provides the full results of the 2017 Phase 1 surveys.

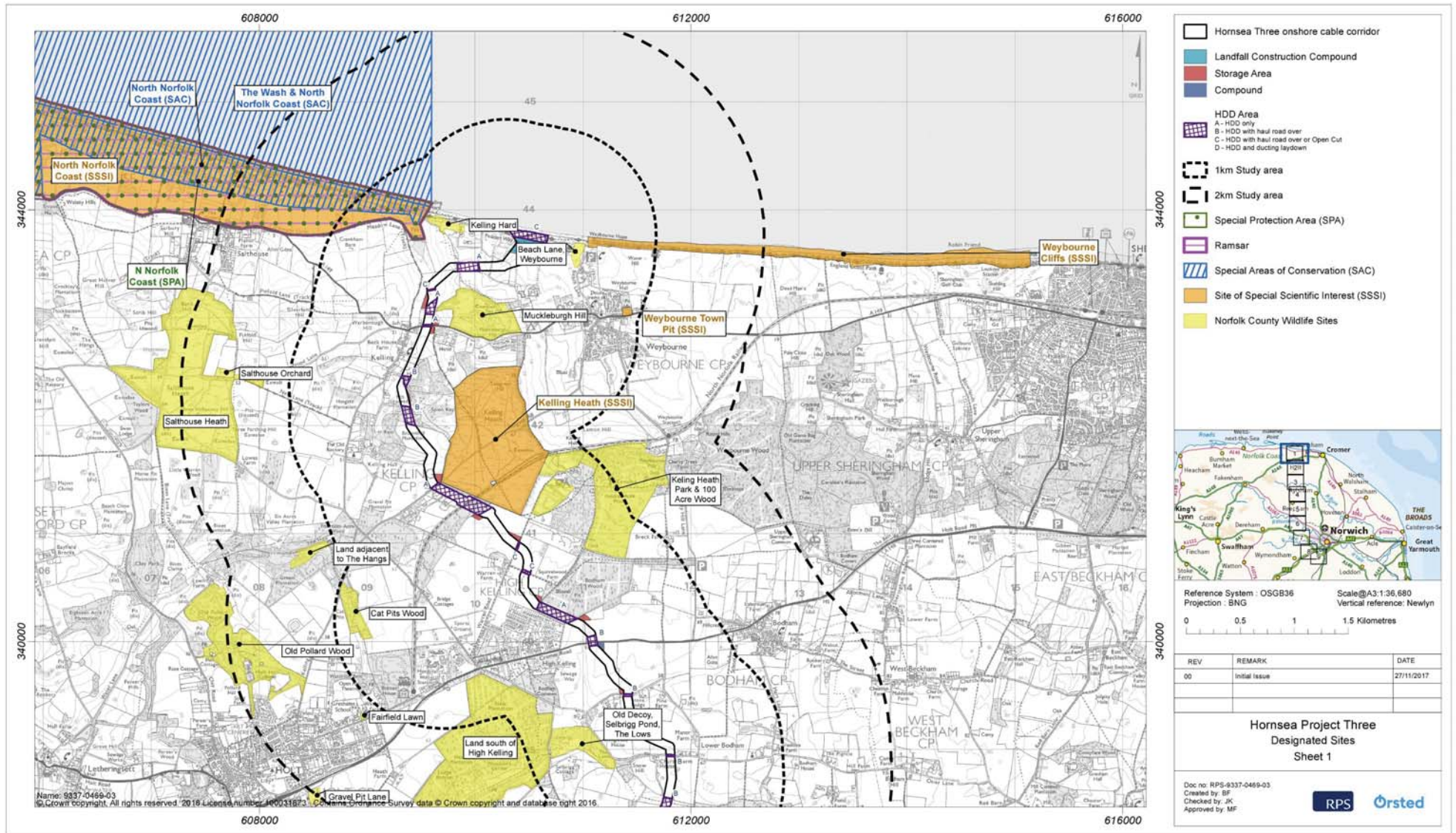


Figure 4.1: Location of designated sites.

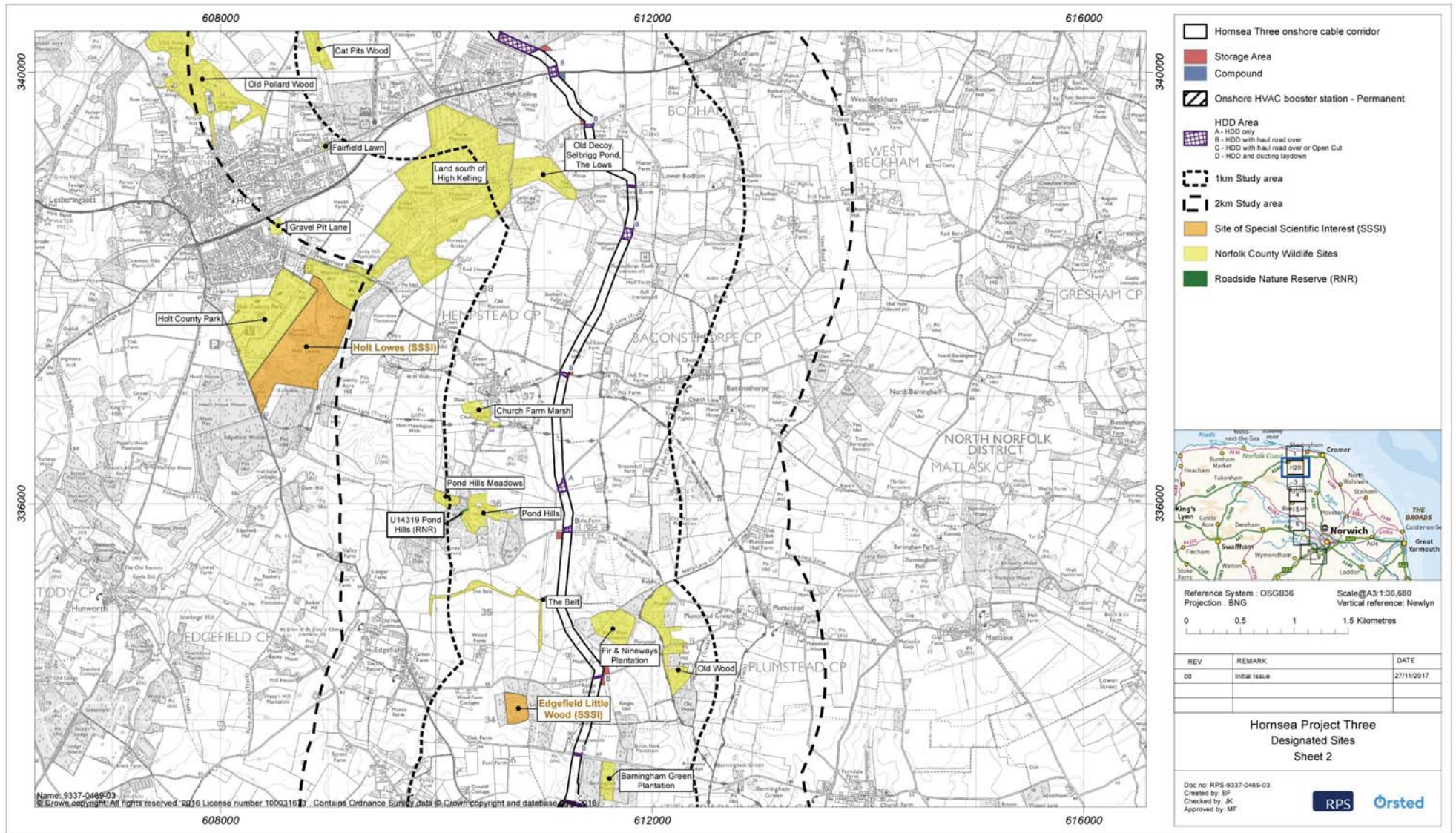


Figure 4.1: Location of designated sites.

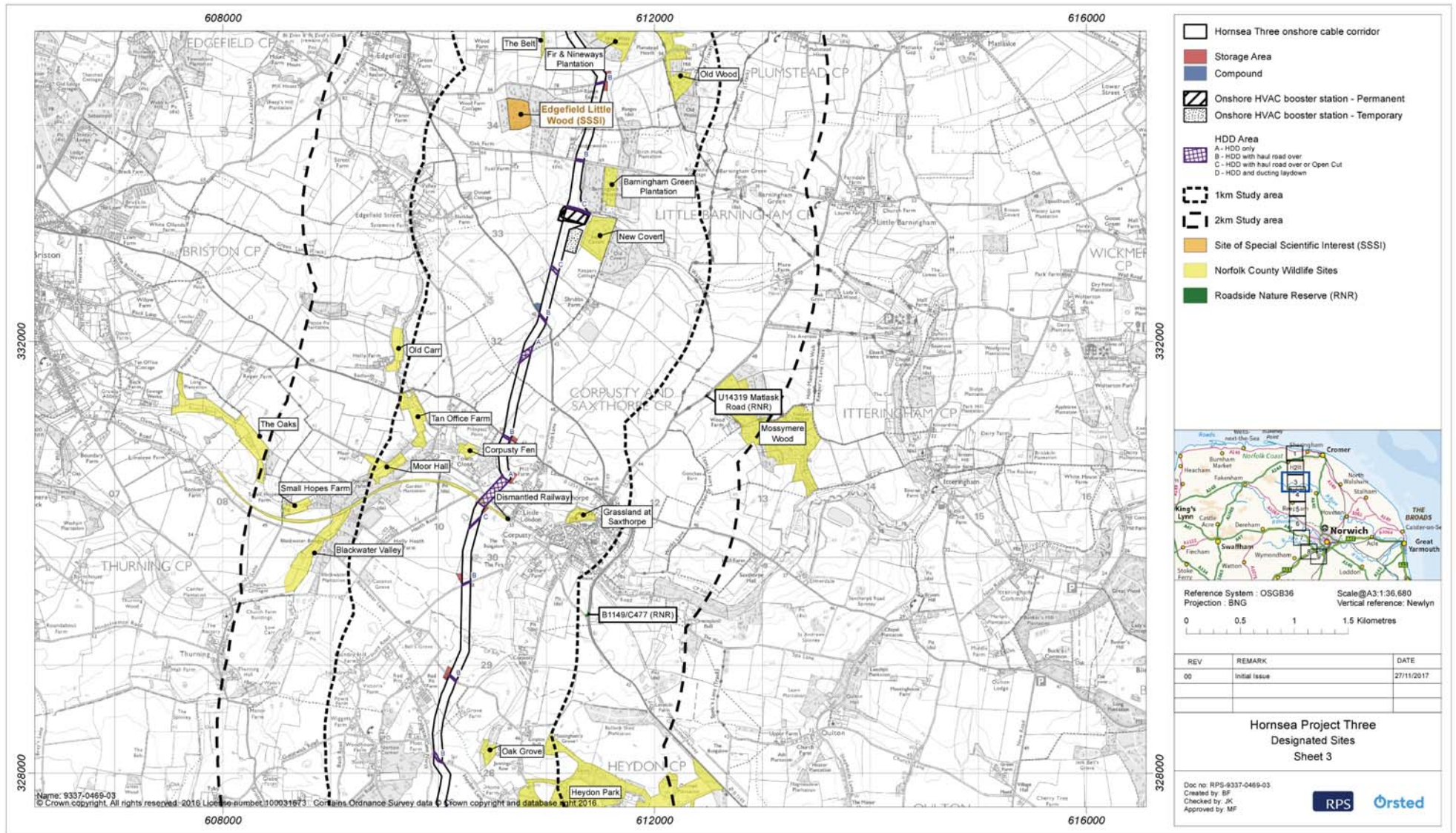


Figure 4.1: Location of designated sites.

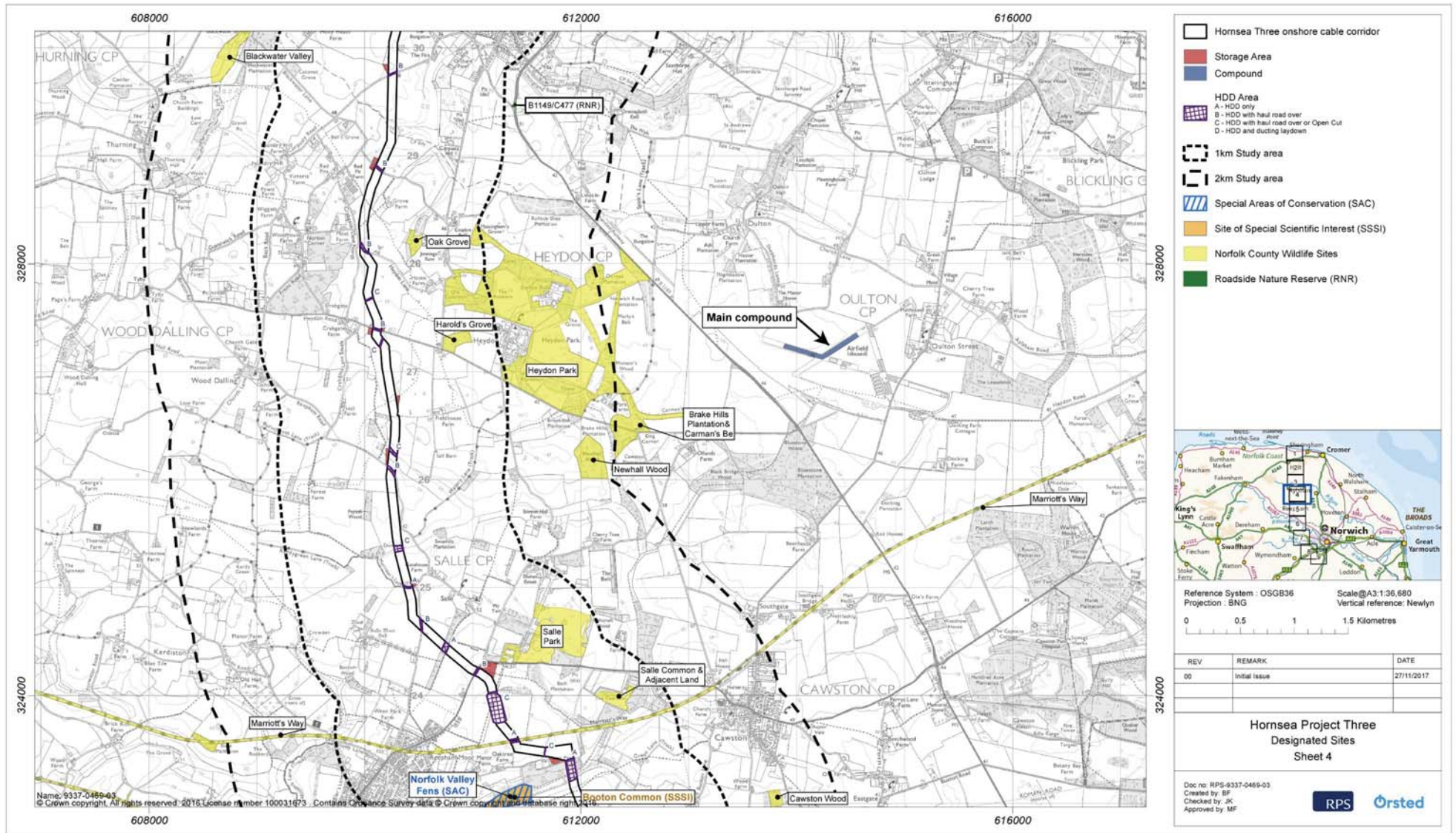


Figure 4.1: Location of designated sites.

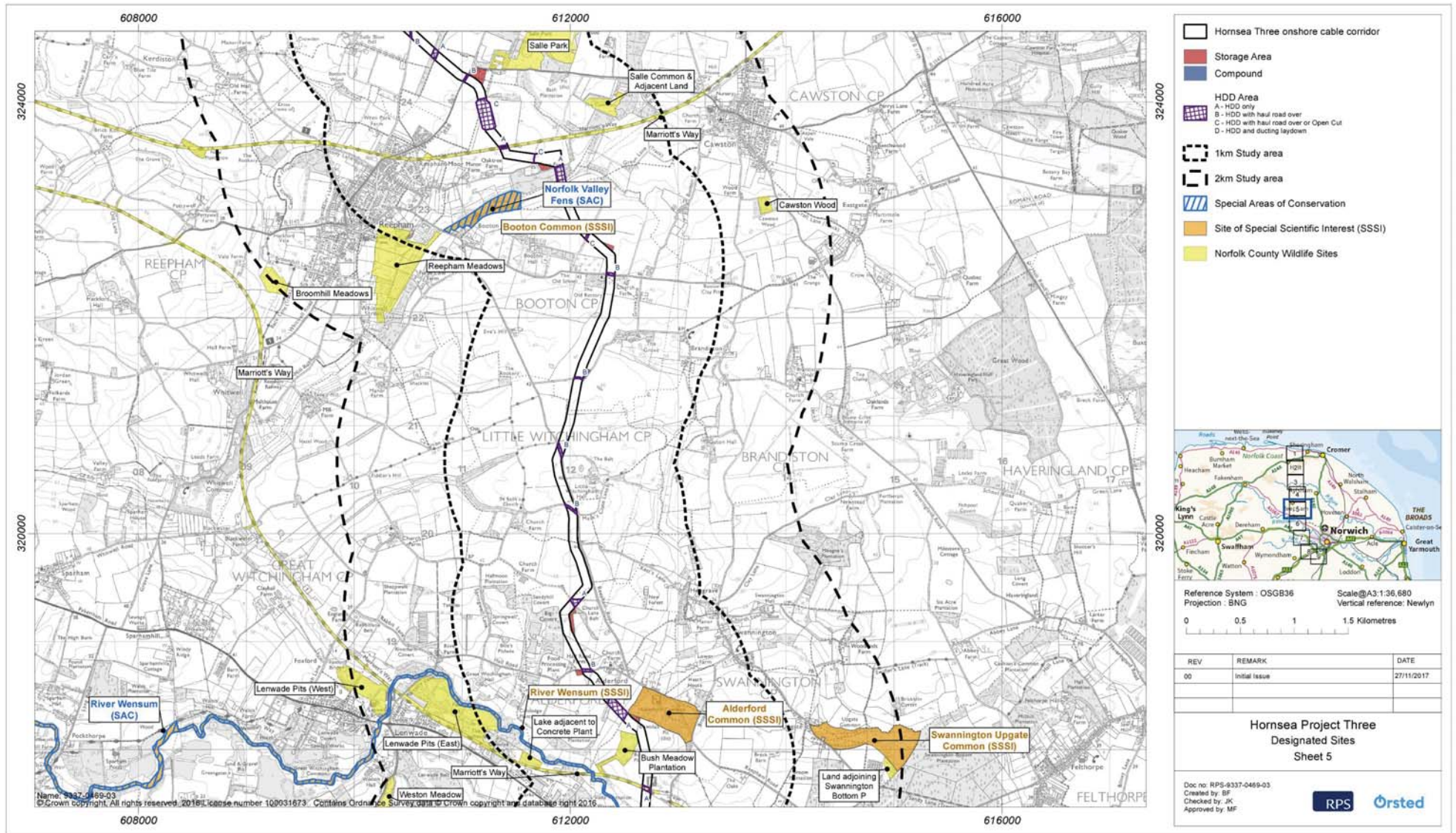


Figure 4.1: Location of designated sites.

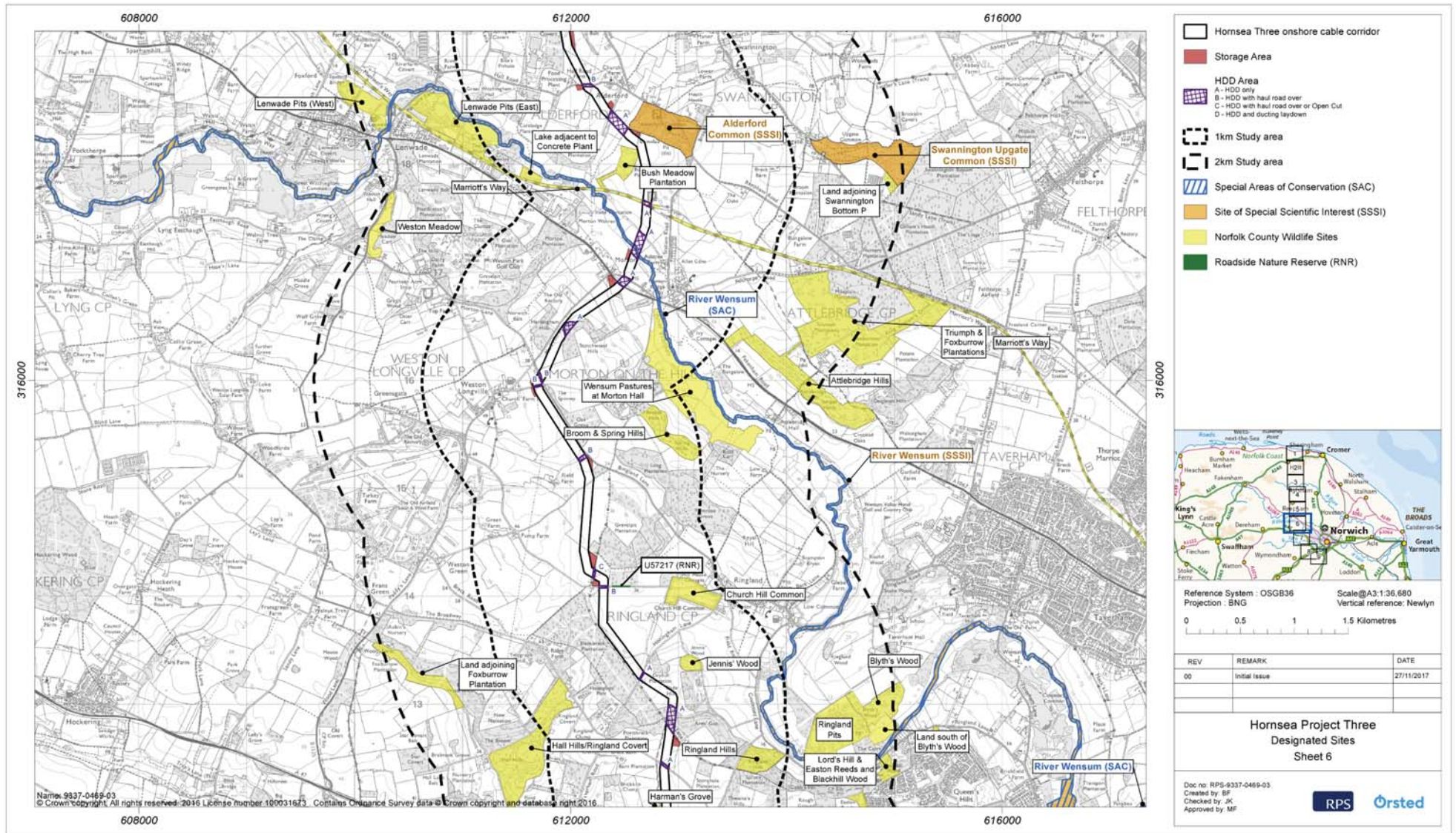


Figure 4.1: Location of designated sites.

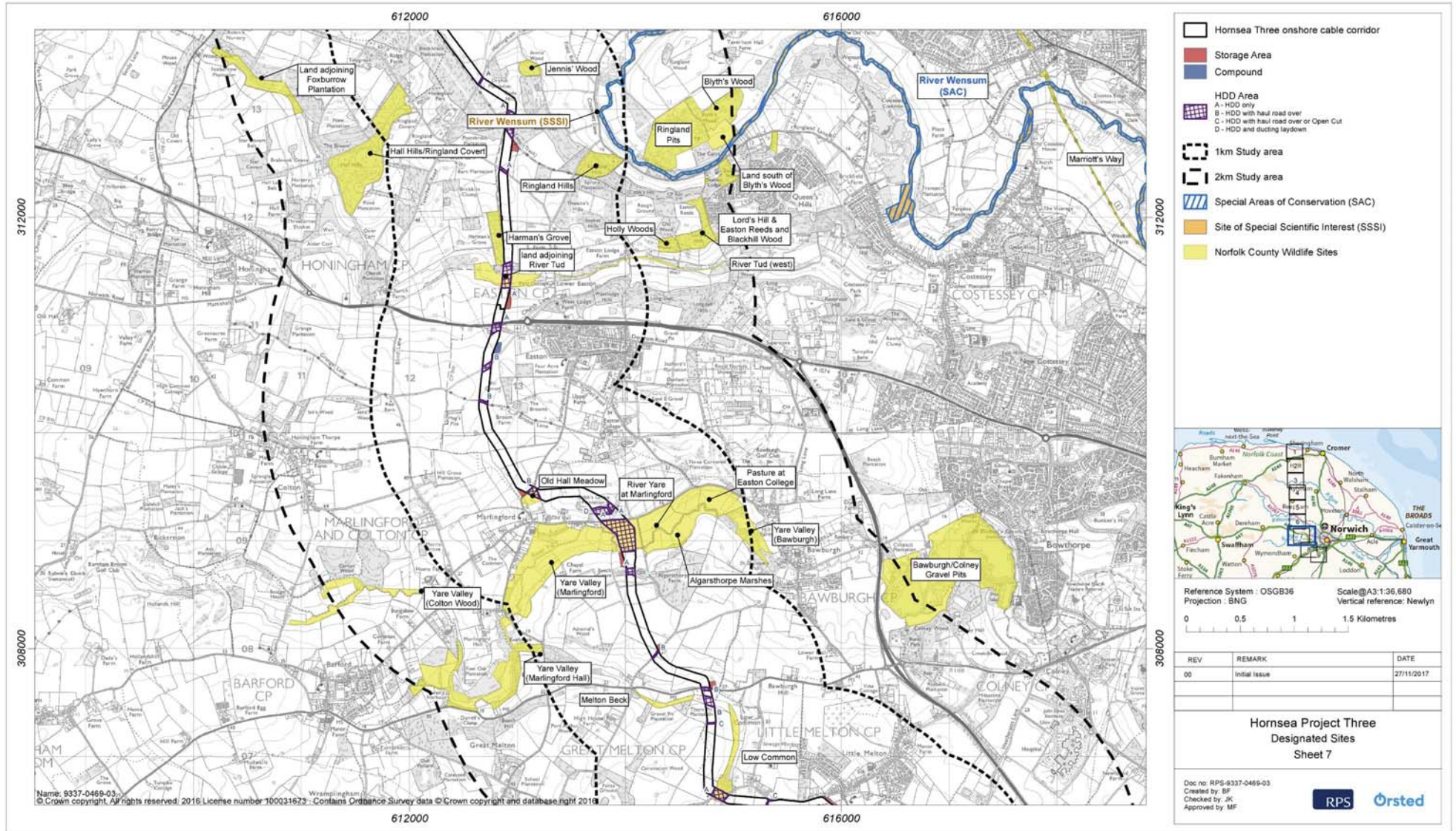


Figure 4.1: Location of designated sites.

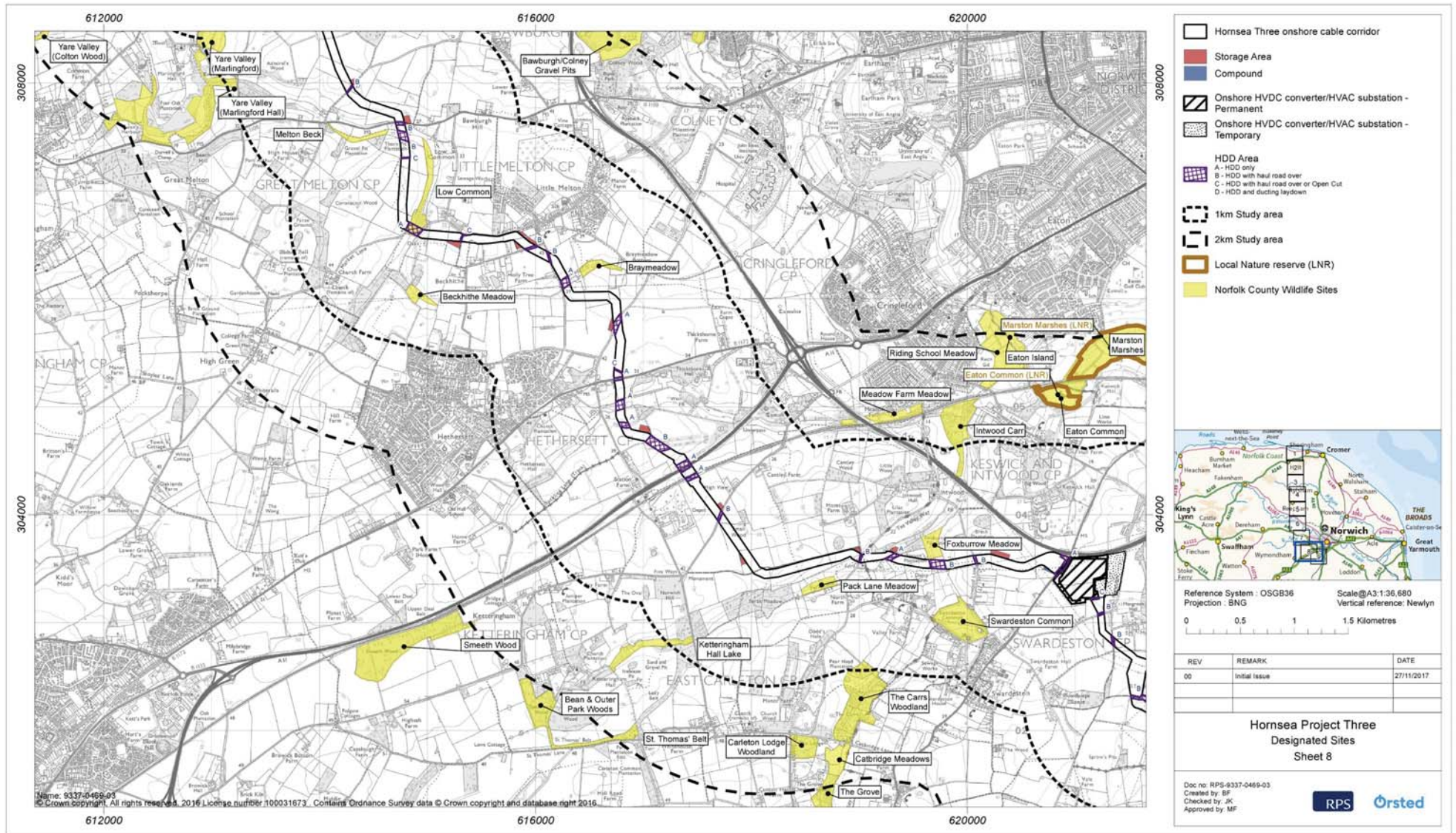


Figure 4.1: Location of designated sites.

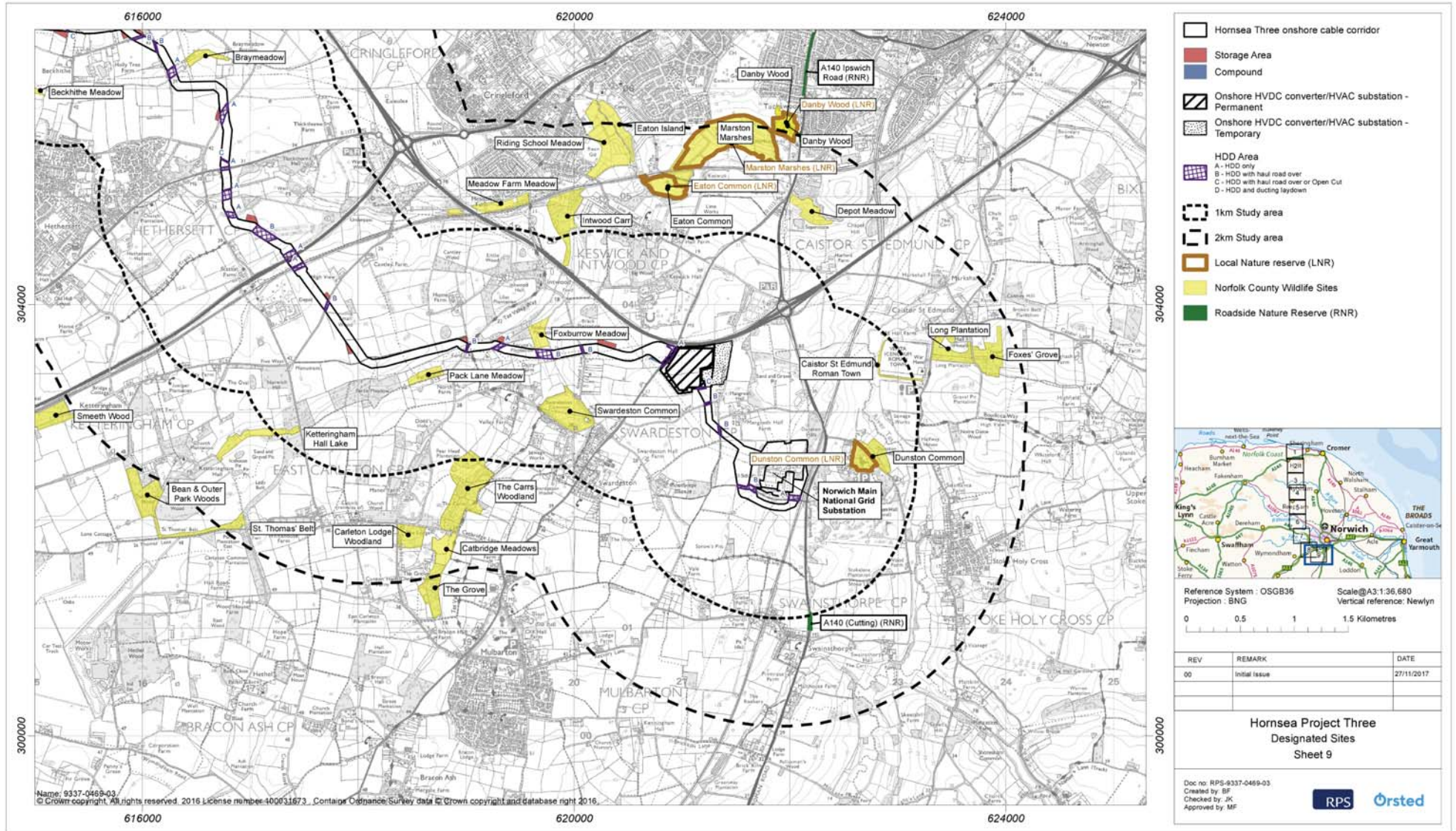


Figure 4.1: Location of designated sites.

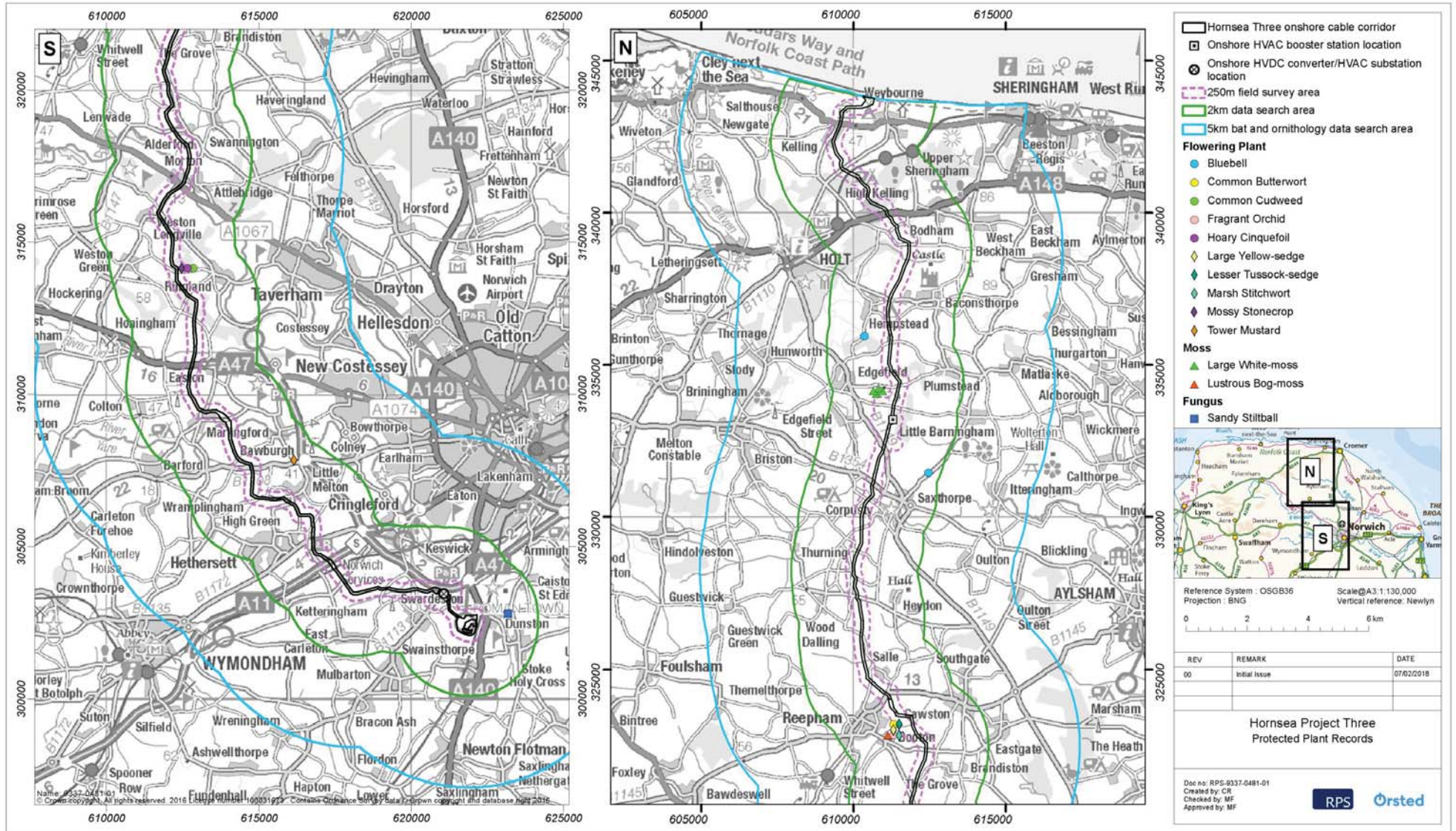


Figure 4.2: Protected plant records.

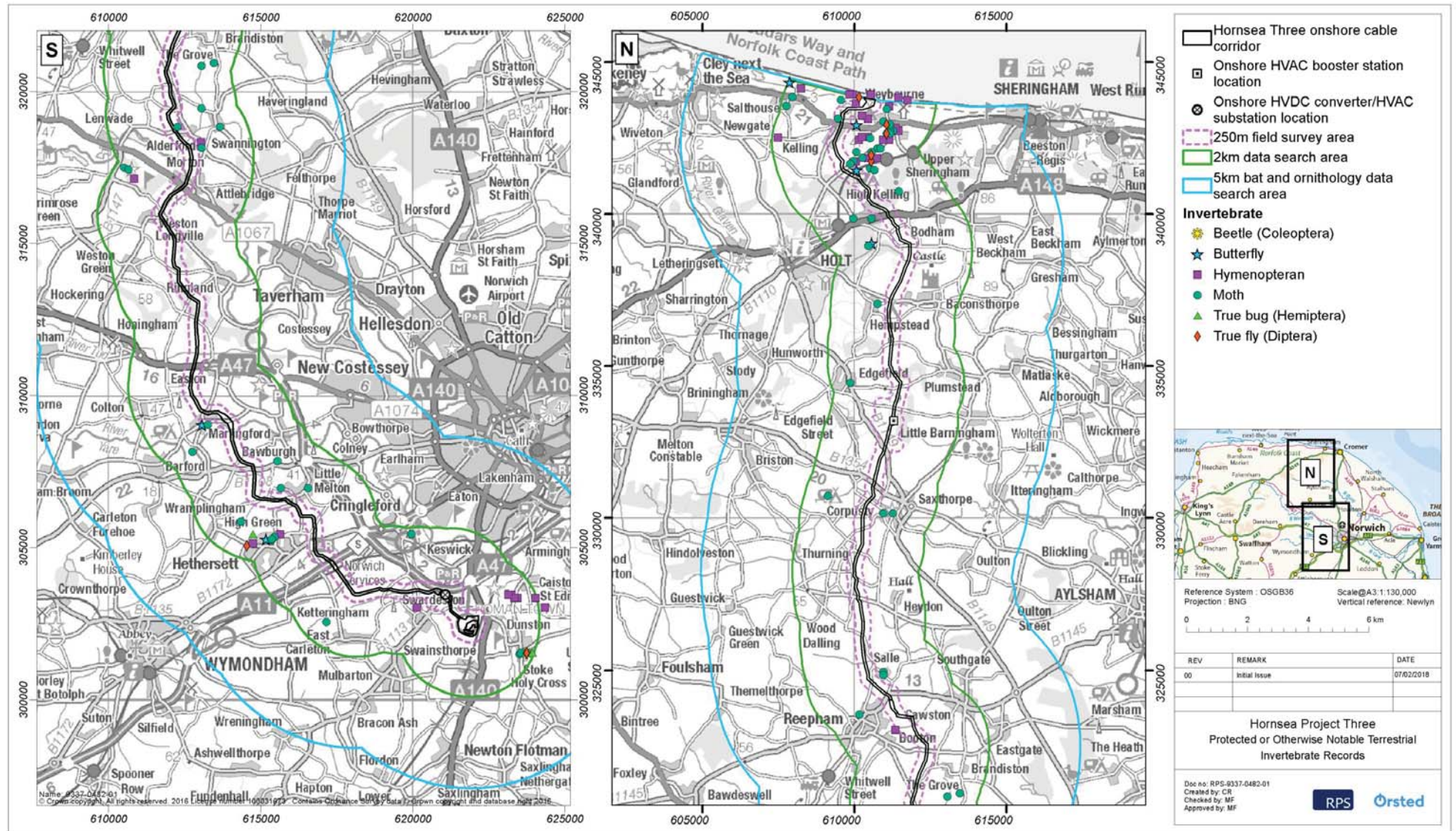


Figure 4.3: Location of protected or otherwise notable terrestrial invertebrate records.

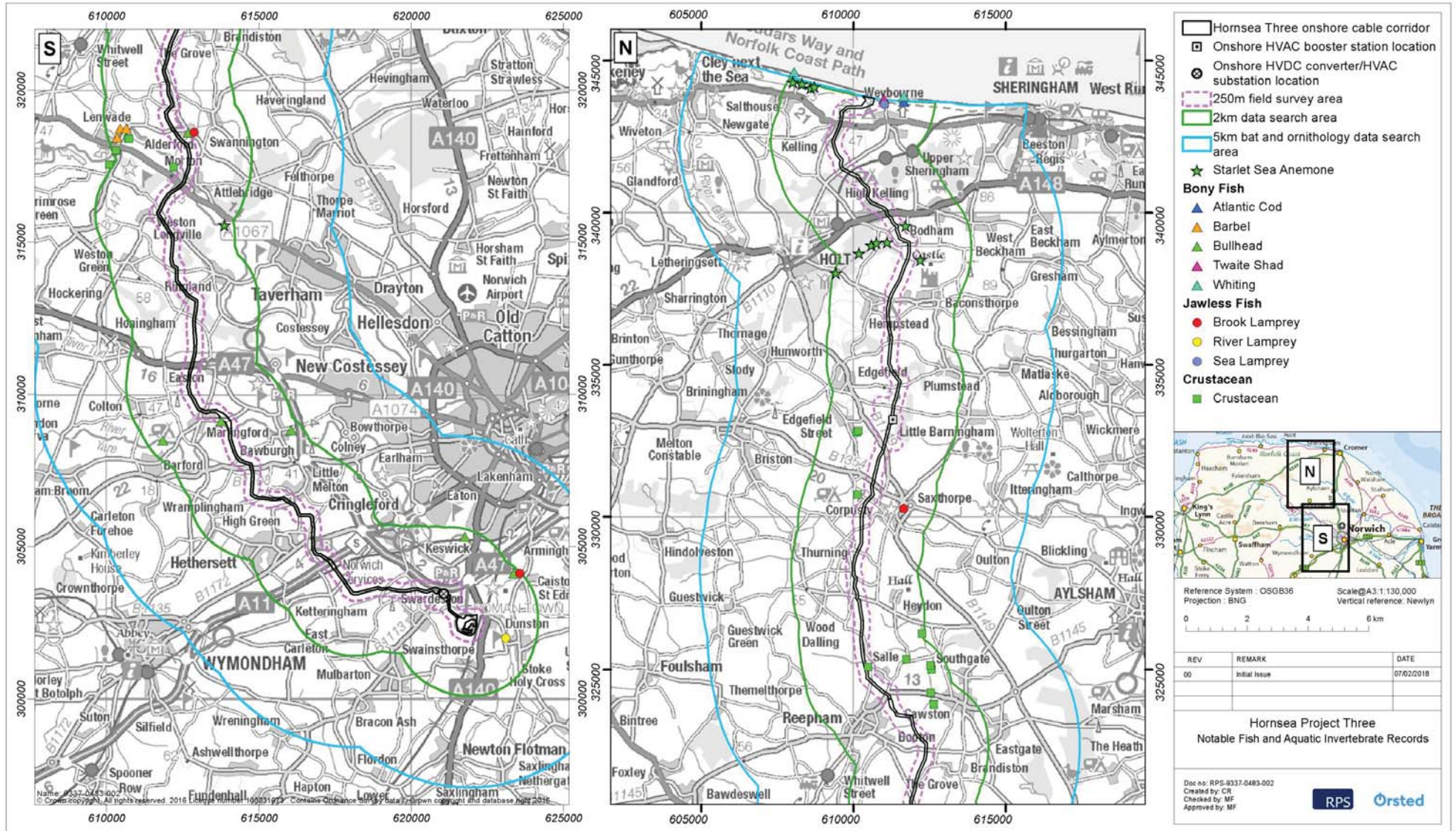


Figure 4.4: Location of fish and aquatic invertebrate records.

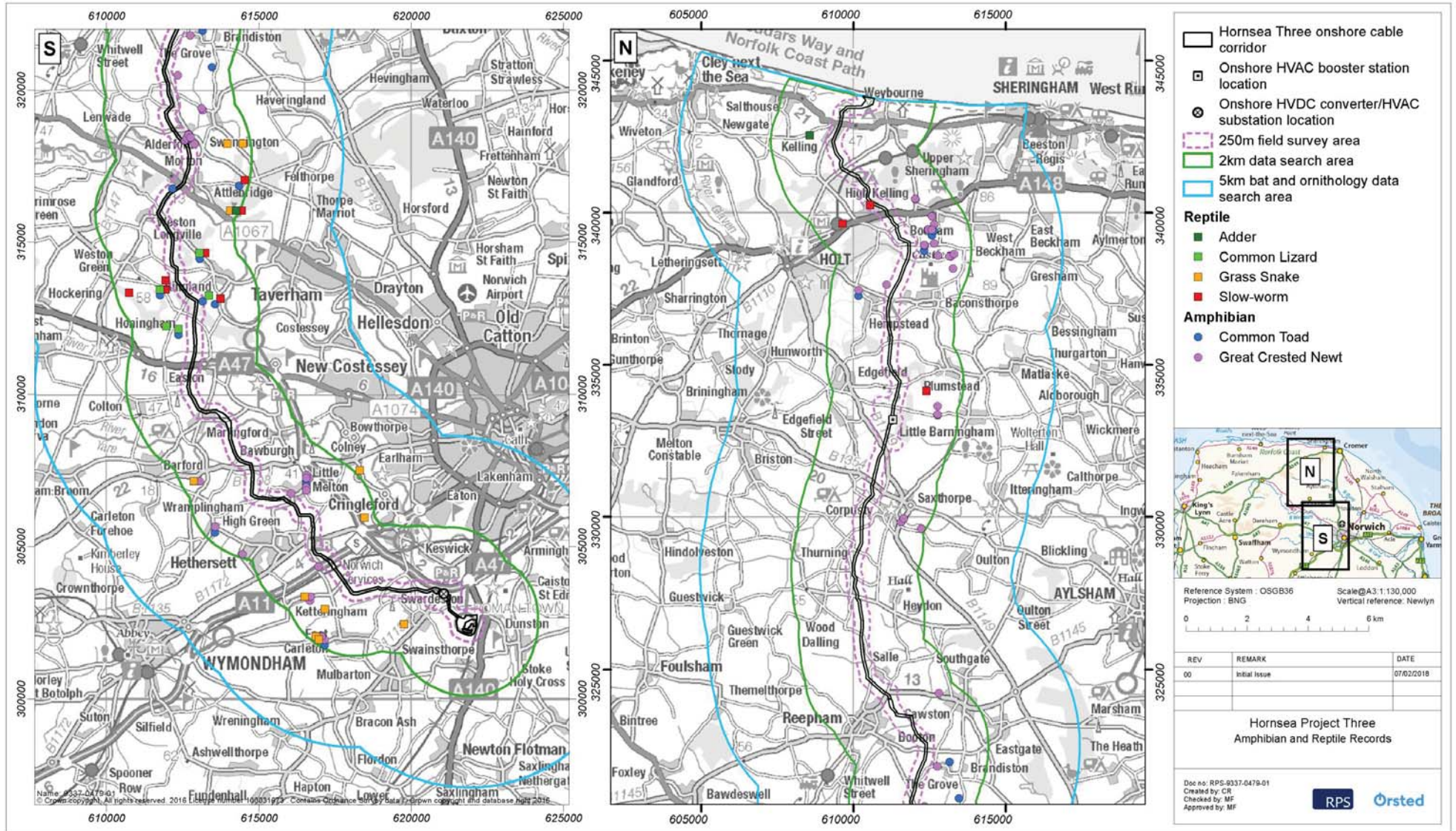


Figure 4.5: Location of amphibian and reptile records.

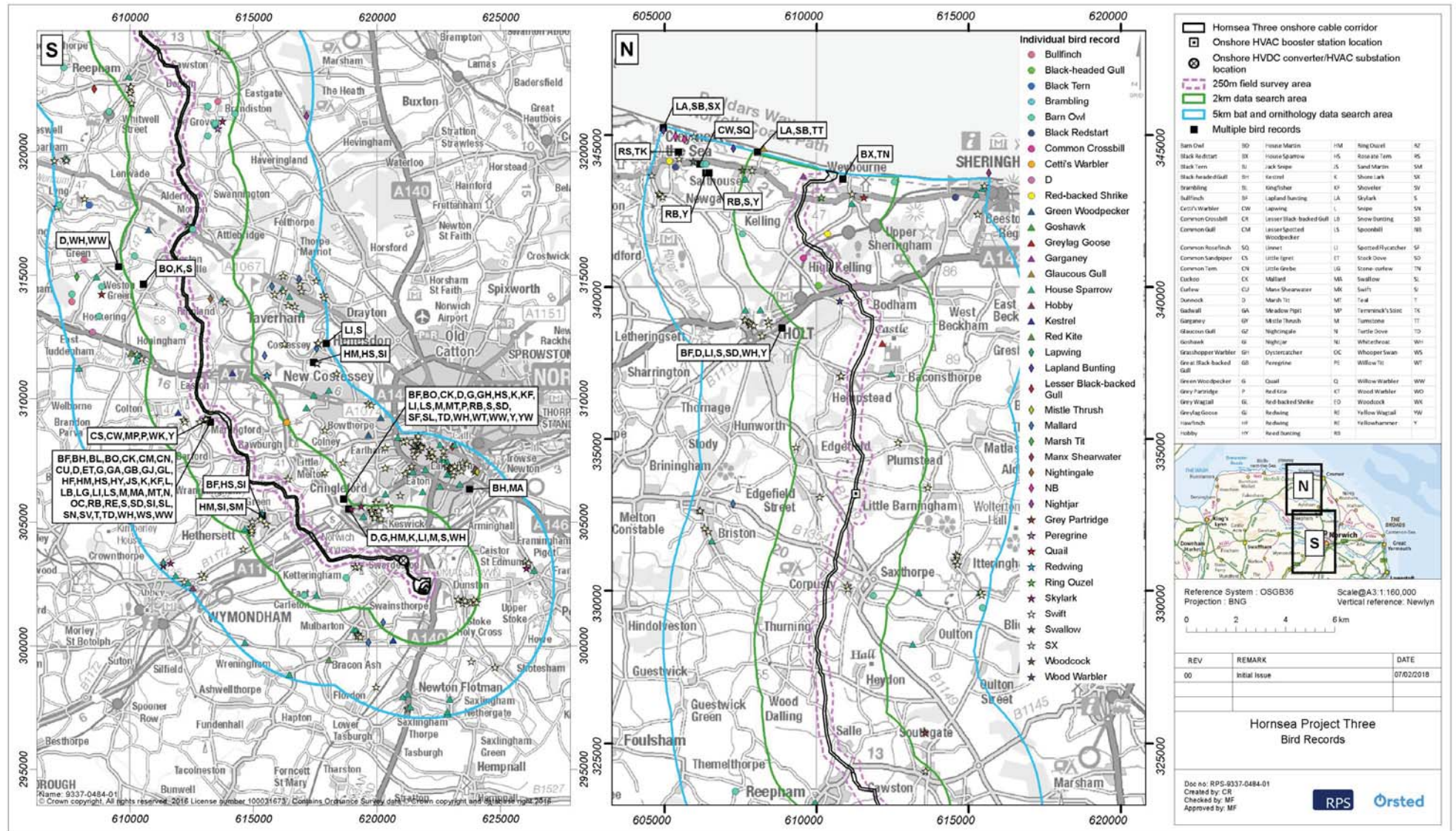


Figure 4.6: Location of bird records.

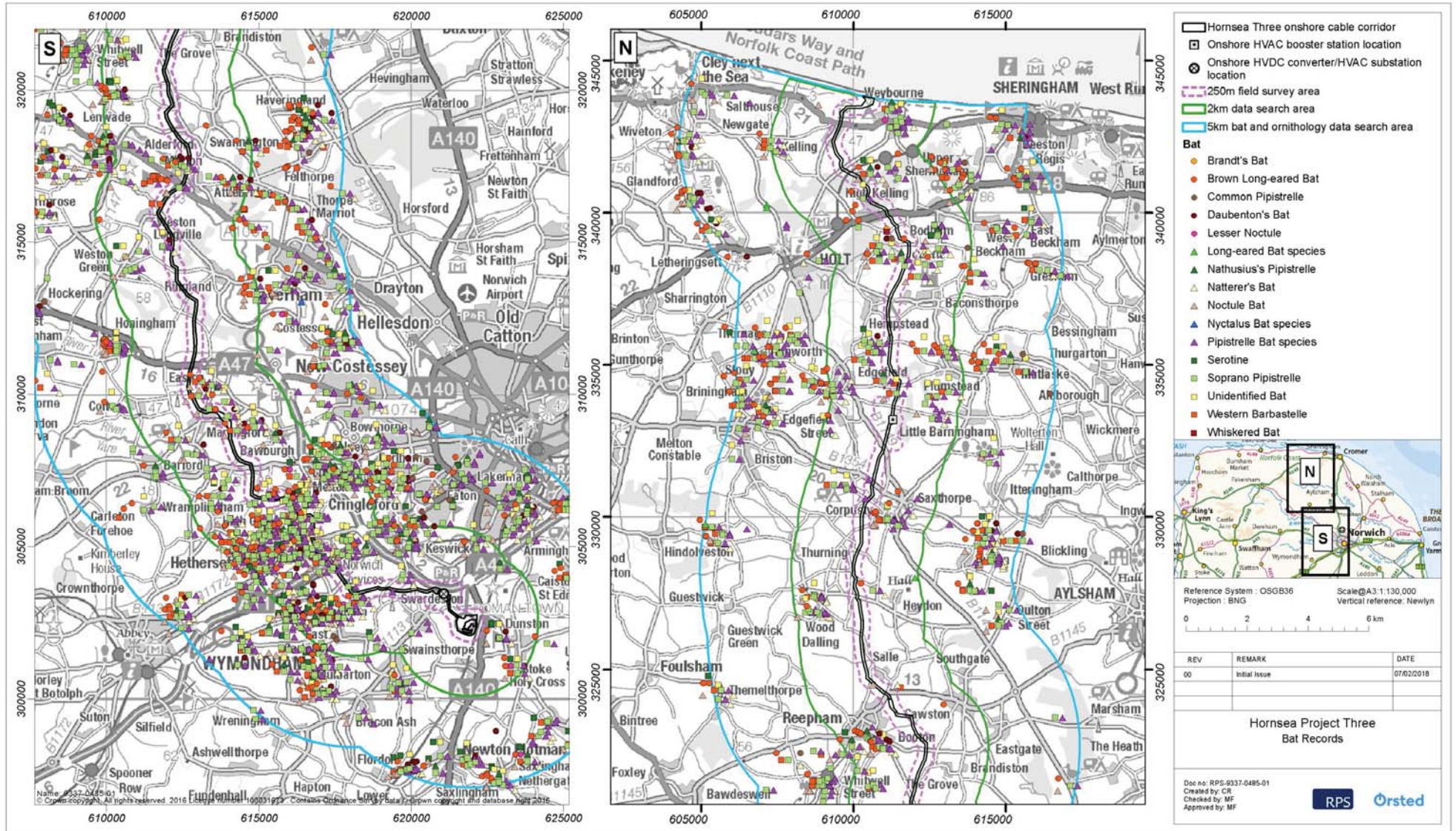


Figure 4.7: Location of bat records.

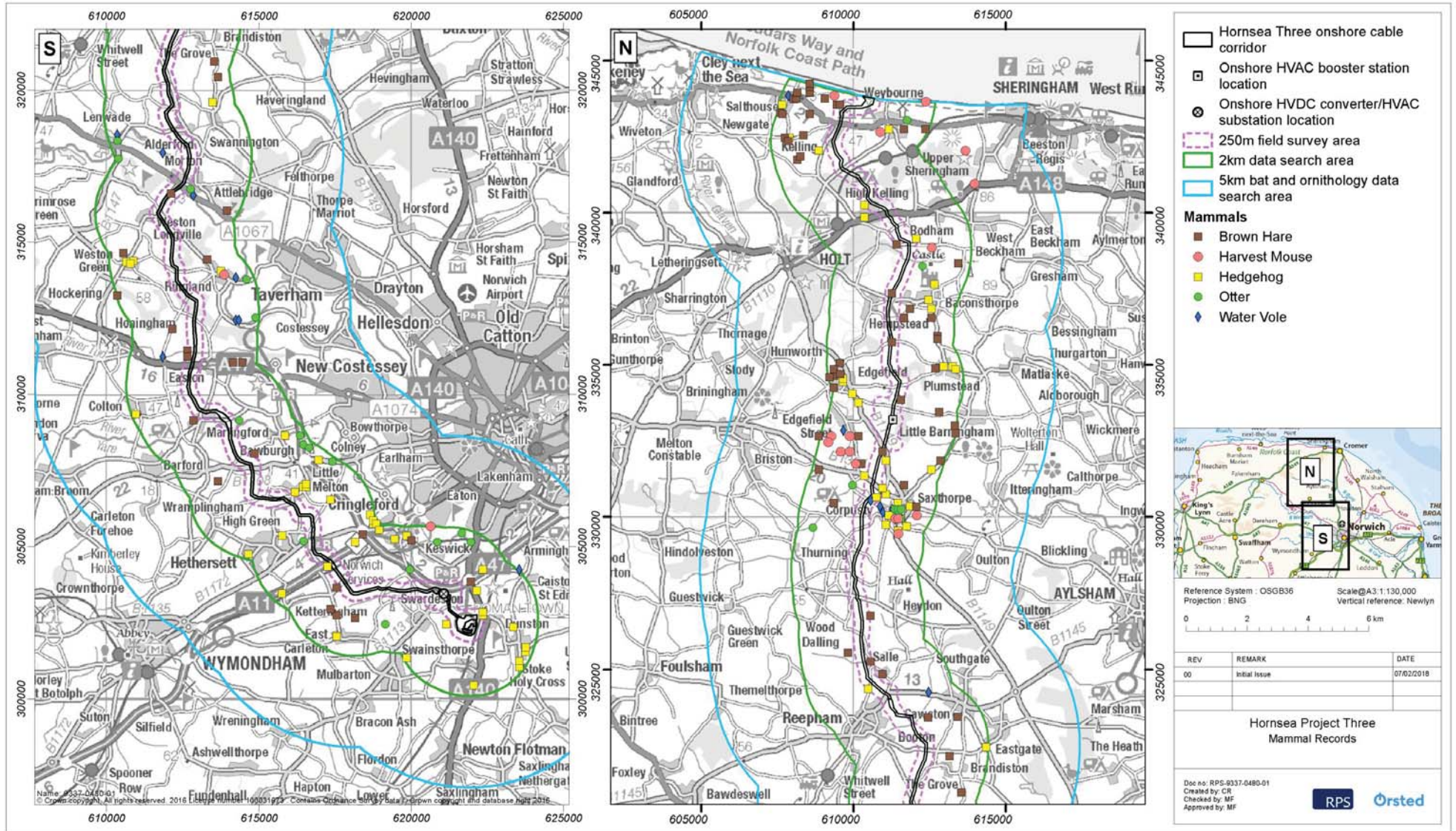


Figure 4.8: Location of other mammal records.

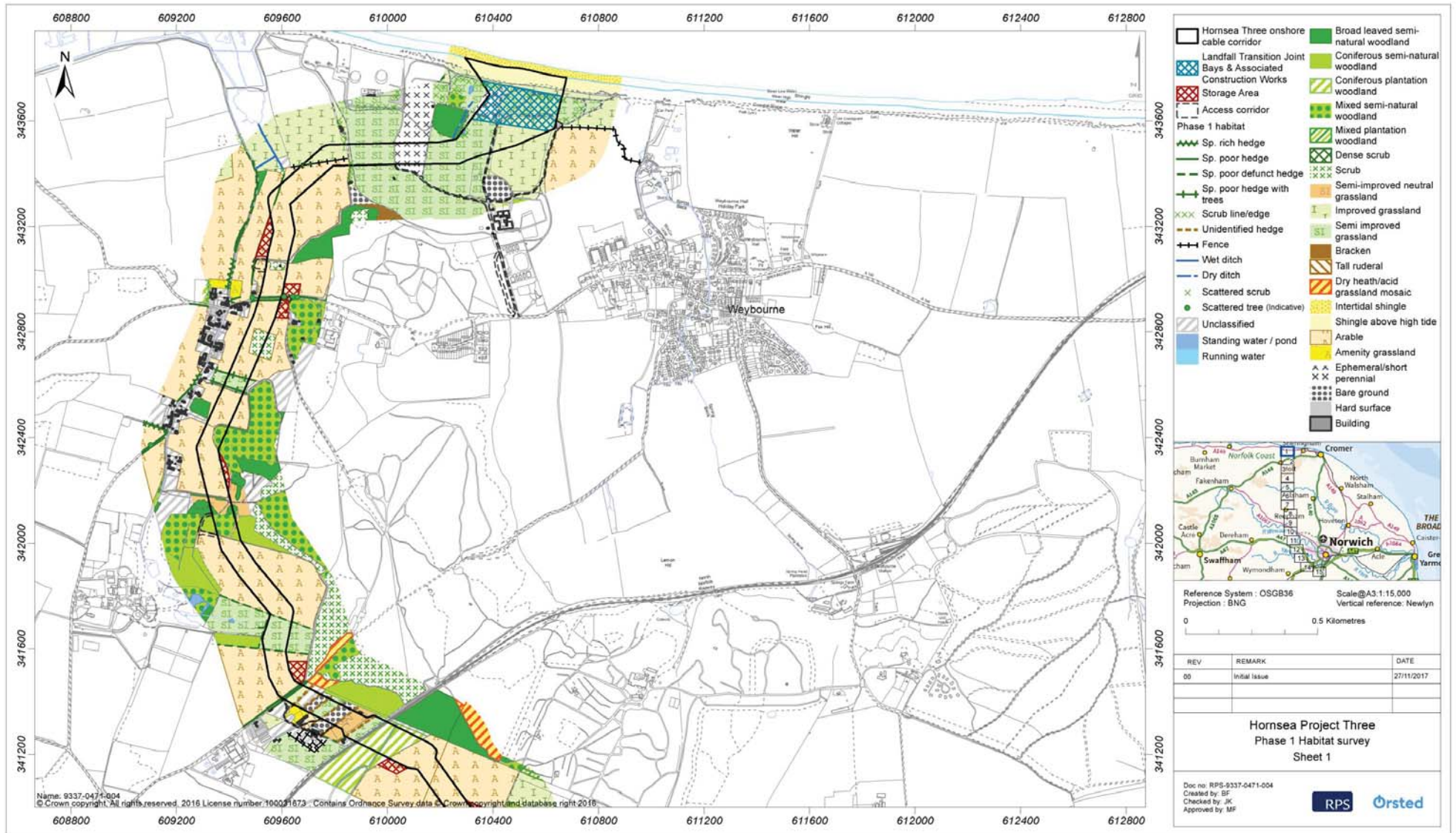


Figure 4.9: Phase 1 habitat survey.



Figure 4.9: Phase 1 habitat map.



Figure 4.9: Phase 1 habitat map.



Figure 4.9: Phase 1 habitat map.

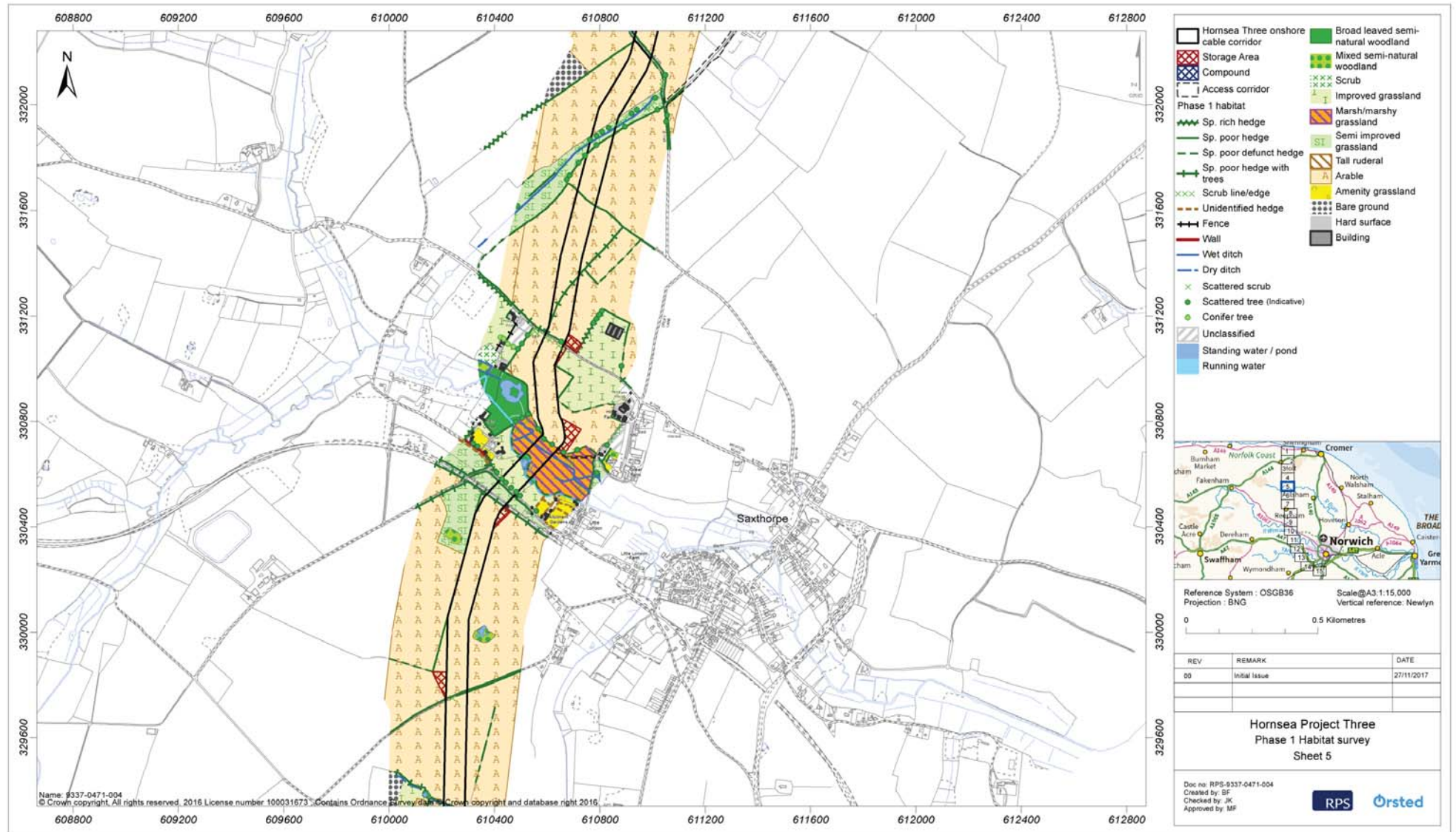


Figure 4.9: Phase 1 habitat map.



Figure 4.9: Phase 1 habitat map.

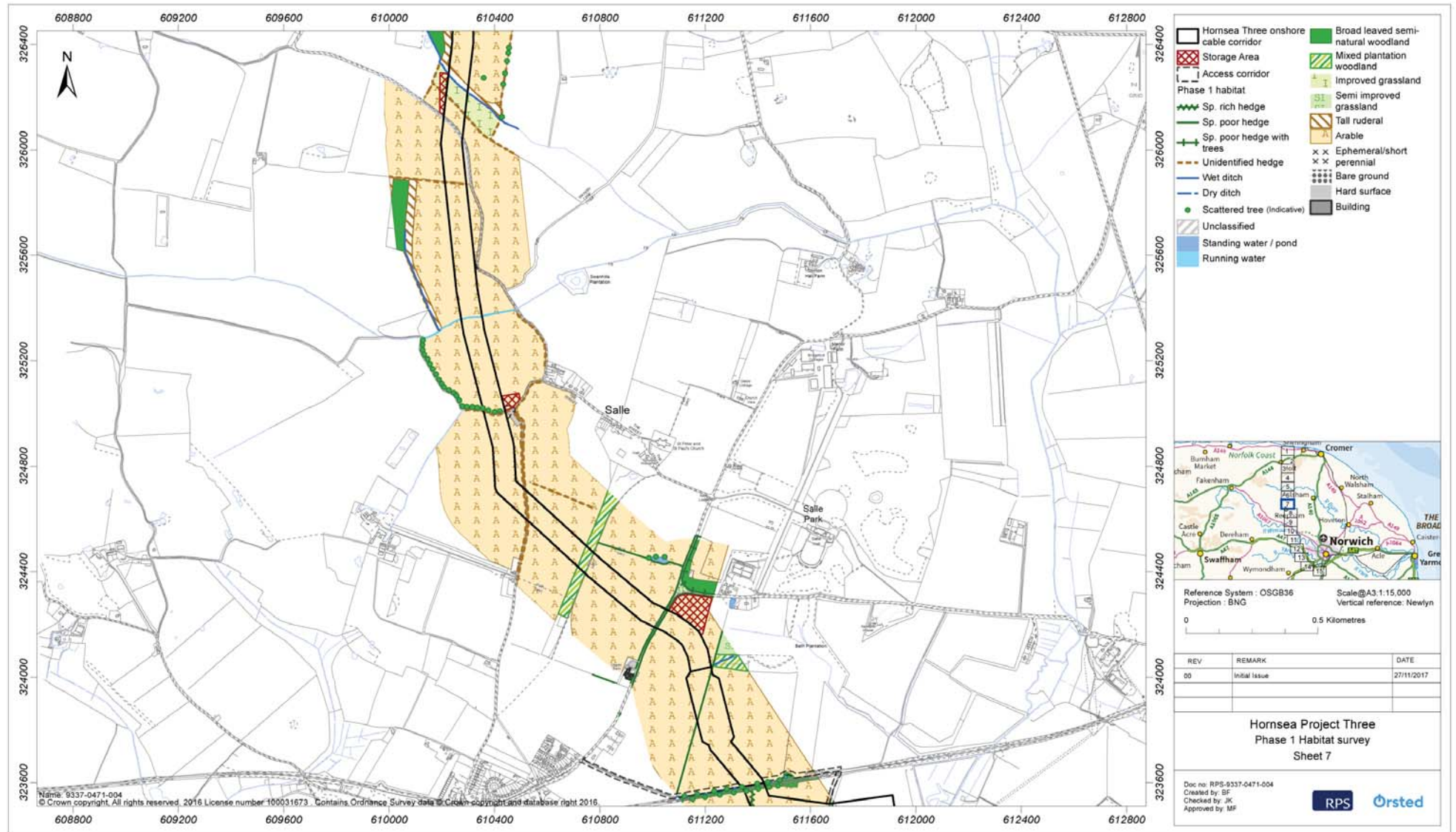


Figure 4.9: Phase 1 habitat map.

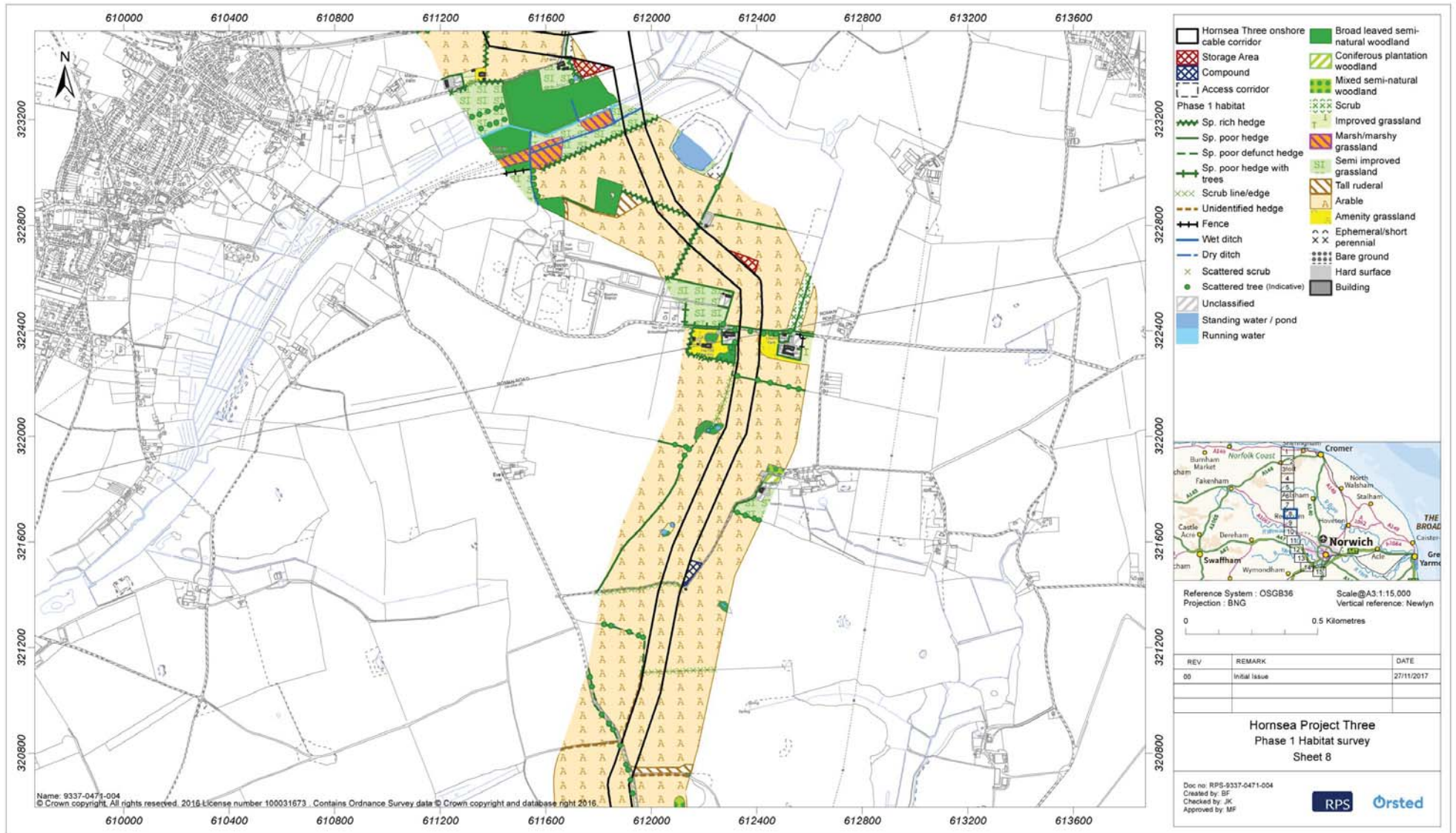


Figure 4.9: Phase 1 habitat map.



Figure 4.9: Phase 1 habitat map.

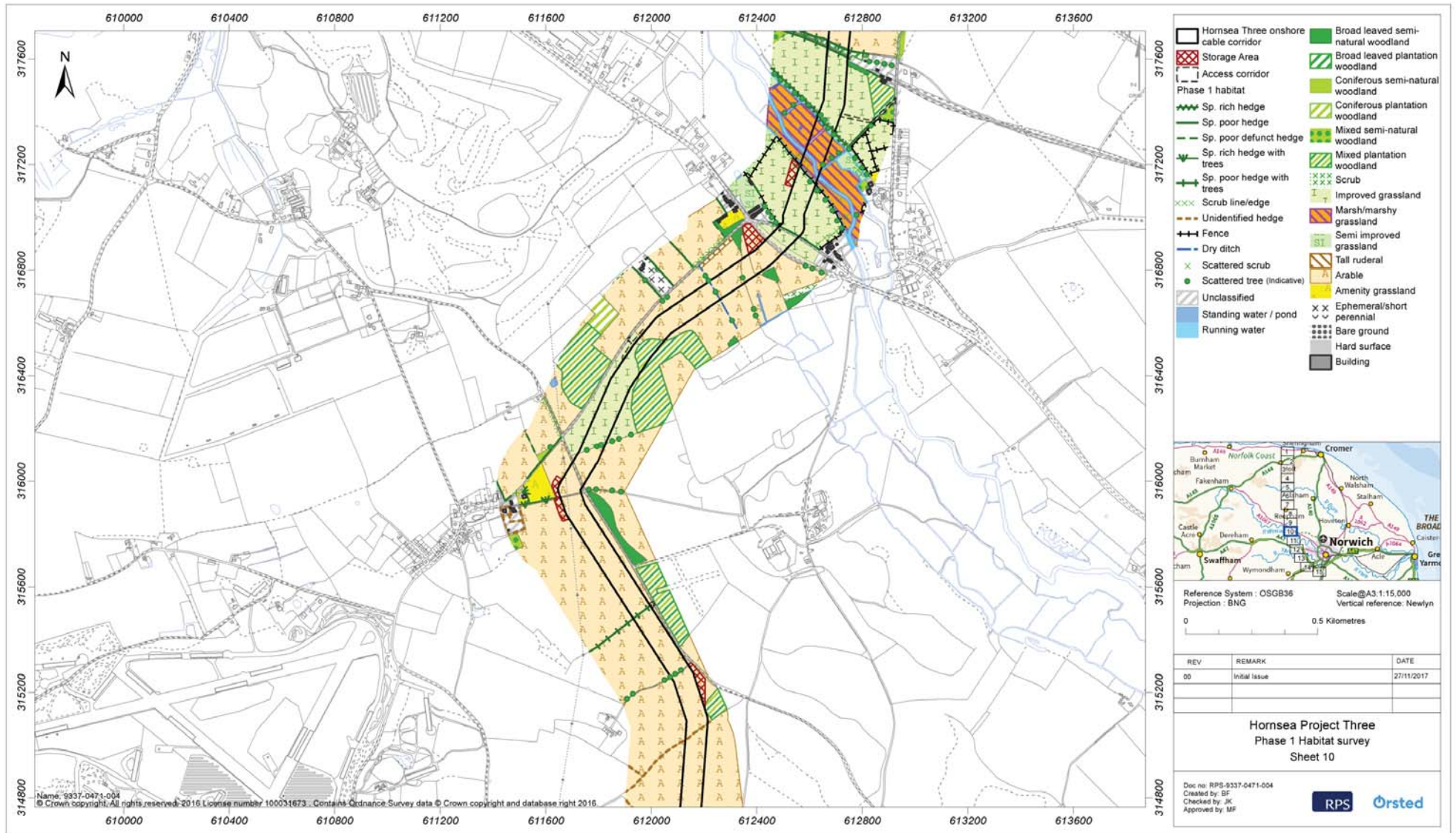


Figure 4.9: Phase 1 habitat map.



Figure 4.9: Phase 1 habitat map.

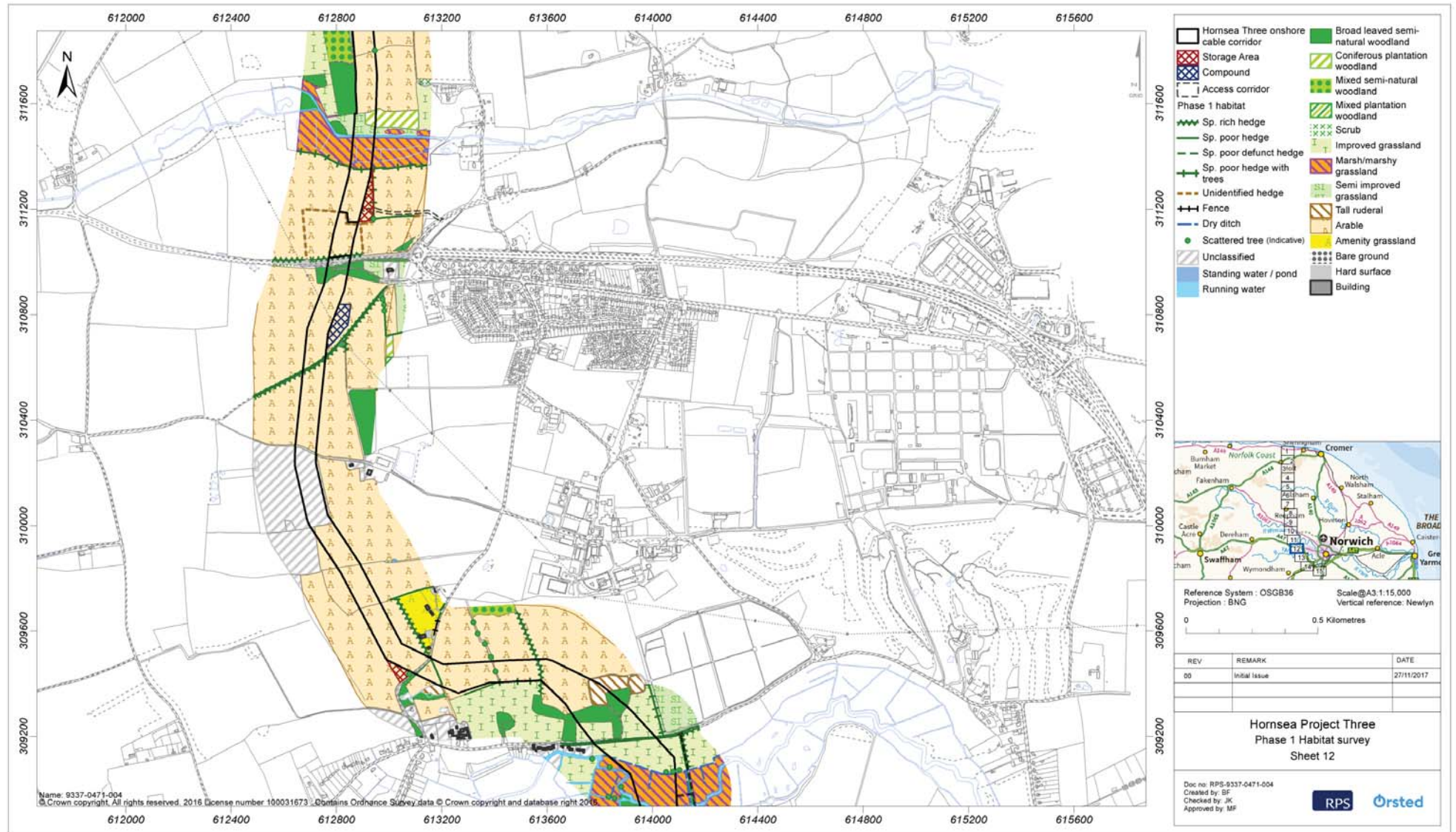


Figure 4.9: Phase 1 habitat map.

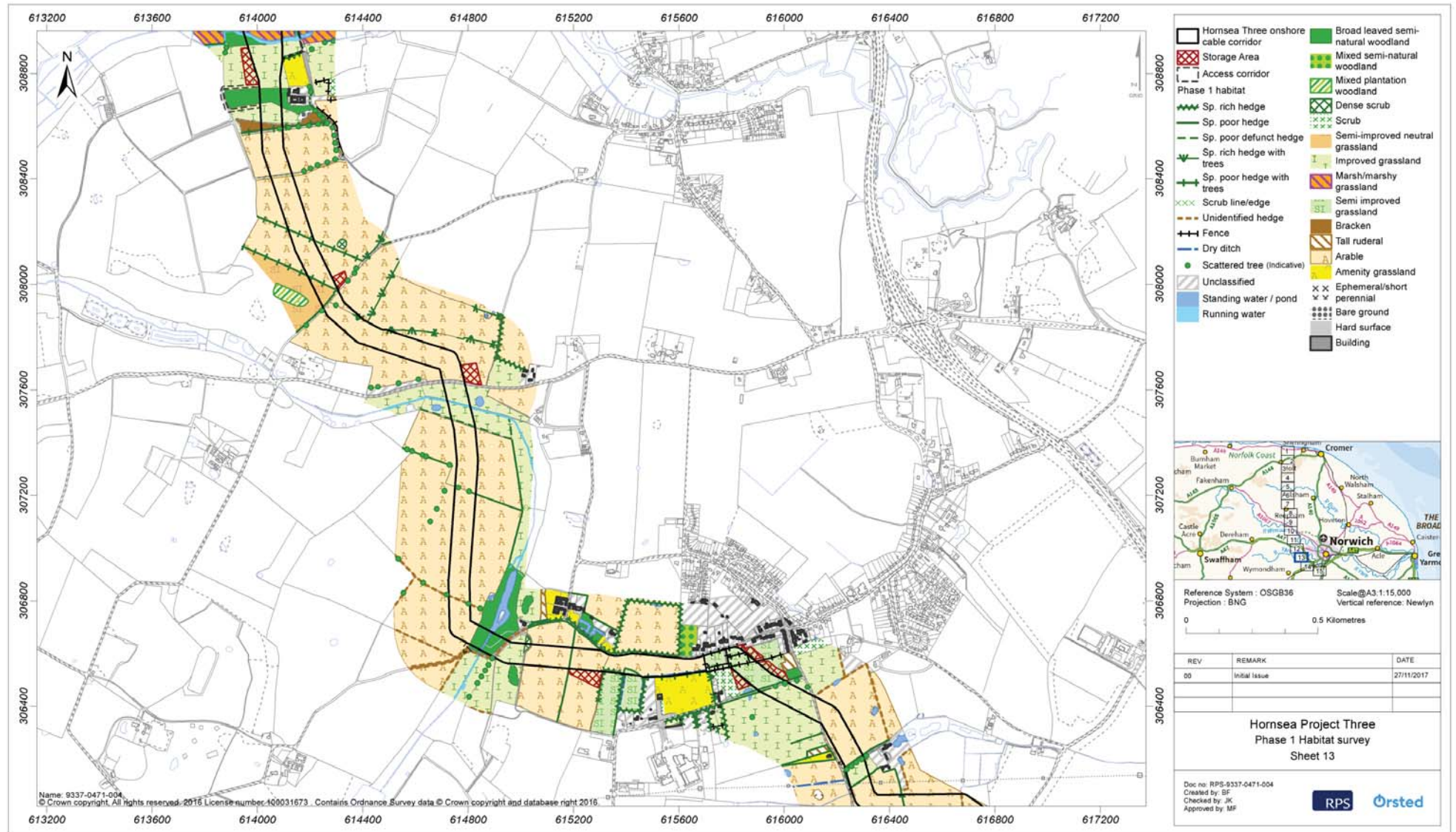


Figure 4.9: Phase 1 habitat map.

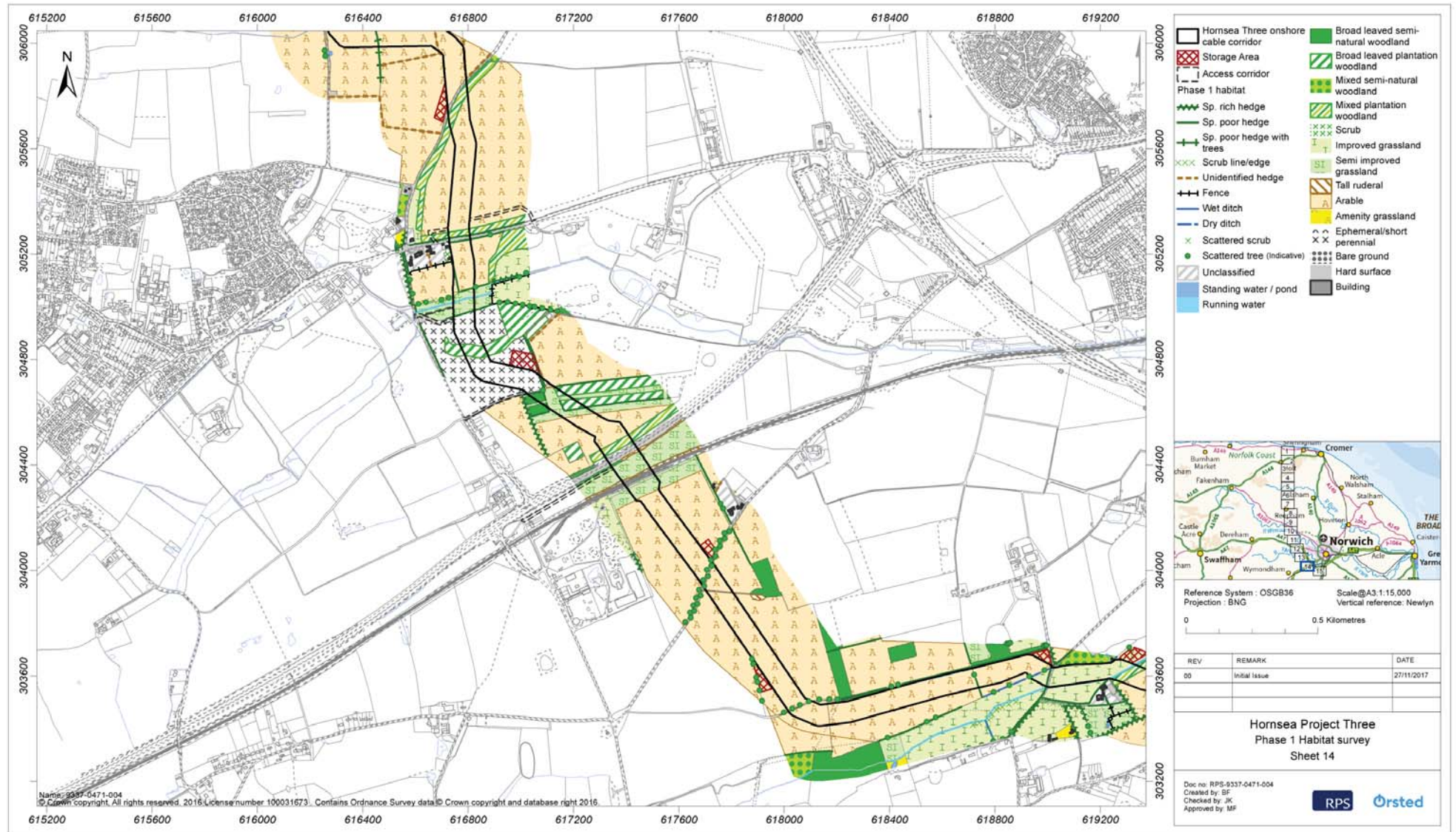


Figure 4.9: Phase 1 habitat map.



Figure 4.9: Phase 1 habitat map.

5. References

IUCN (2017) Guidelines for Using the IUCN Red List Categories and Criteria. Available online:

<http://cmsdocs.s3.amazonaws.com/RedListGuidelines.pdf>

JNCC (2010) Handbook for Phase 1 habitat survey - a technique for environmental audit. Peterborough, JNCC.

The Conservation of Habitats and Species Regulations 2017 (2017) SI 2017/1012. London, The Stationery Office.

The Natural Environment and Rural Communities Act 2006 (Chapter 16). London, The Stationery Office.

The Protection of Badgers Act 1992 (Chapter 51). London, The Stationery Office.

Wildlife and Countryside Act 1981 (as amended) (Chapter 69). London, The Stationery Office.

Appendix A Thomson Ecology Additional Phase 1 Habitat Survey Report 2017

A.1 Introduction

A.1.1.1 This appendix provides the results of an additional Phase 1 habitat survey which was undertaken by Thomson Ecology in order to gather information on areas which were not accessible during the Phase 1 undertaken as part of Preliminary Ecological Appraisal (PEA) by RPS in 2016, as well as in response to the identification of potential alternative routes during the route refinement process. Further details on the relationship between the the PEA and the additional Phase 1 Habitat survey which is the focus of this appendix, is provided in A.1.2 and A.2.

A.1.1.2 The information presented in this appendix has been used, in conjunction with the information contained in the main body of the annex, to inform the baseline and impact assessment presented in volume 3, chapter 3: Ecology and Nature Conservation.

A.1.2 Development background

A.1.2.1 At the time of ecological survey scoping in December 2016, a 200 m wide cable corridor search area had been identified by Orsted. The 200 m wide search area included the locations of the proposed onshore cable corridor, HVAC booster station, HVDC converter/HVAC substation, Norwich main national grid substation and construction compounds and was the focus of the Preliminary Environmental Information Report (PEIR) submitted in July 2017. This search area is hereafter referred to as the 'PEIR onshore cable corridor search area'. Since the PEIR was issued some alternate route considerations were added. Ecological survey area boundaries were based on the PEIR onshore cable corridor search area and alternate routes considered, with an appropriate survey buffer added for some survey types where necessary. The survey area applicable to this report is shown in Figure A.1.

A.1.2.2 Since the submission of the PEIR in July 2017, a route refinement process has been undertaken to refine the Hornsea Three onshore cable corridor to an approximately 80 m wide corridor and construction compounds, access roads and storage areas have been added. This process is described in more detail in volume 1, chapter 4: Site Selection and Alternatives of the Environmental Statement. This corridor and associated infrastructure is hereafter referred to as the 'onshore cable corridor' and runs approximately 55 km in length from Weybourne on the north Norfolk coast, southwards through Norfolk, and ending in the vicinity of Swardeston, south-west of Norwich. A full description of Hornsea Three is provided in volume 1, chapter 3: Project Description.

A.2 Ecology background

A.2.1.1 As previously noted, a PEA for Hornsea Three was undertaken in 2016 (RPS, 2016), and is summarised in the main body of this annex. The full PEA is available on request. The PEA comprised a Phase 1 habitat survey of a 500 m wide corridor (including the PEIR onshore cable corridor search area described above) and an ecological desk study, whereby protected species data was requested from the Norfolk Biodiversity Information Service (NBIS) for a 2 km radius. The PEA Phase 1 survey area is shown on A.1. The PEA results were used to inform the PEIR and to determine the scope and extent of further ecological surveys required to inform the Environmental Impact Assessment (EIA) for Hornsea Three. Based on the findings of the PEA, habitats present included¹:

- Woodland (semi-natural broadleaved woodland and conifer plantation);
- Scrub (dense and scattered);
- Scattered broadleaved trees;
- Grassland (semi-improved grassland, acid grassland, improved grassland, calcareous grassland);
- Tall ruderal;
- Standing water;
- Running water;
- Arable (including field margins);
- Amenity grassland;
- Ephemeral/short perennial;
- Introduced shrub;
- Hedges (species-rich intact and defunct hedges; species-poor intact and defunct hedges; and
- Buildings and bare ground.

A.2.1.2 The PEA also identified suitable habitat for: invertebrates (white-clawed crayfish (*Austropotamobius pallipes*), Desmoulin's whorl snail (*Vertigo moulinsiana*)), amphibians (great crested newt (*Triturus cristatus*) and common toad (*Bufo bufo*)), reptiles, birds (breeding and wintering), mammals (badger (*Meles meles*), bats, European hedgehog (*Erinaceus europaeus*), otter (*Lutra lutra*), water vole (*Arvicola amphibious*), hazel dormouse (*Muscardinus avellanarius*) and brown hare (*Lepus europaeus*)).

A.2.1.3 Due to access restrictions during the PEA and the identification of potential alternate routes during the route refinement process (see A.1.2), 30 additional areas (totalling 103.4 ha) were identified as requiring a Phase 1 habitat survey. The location of these additional areas are shown on Figure A.2 to Figure A.6. The results of the Phase 1 Habitat Survey at these additional areas are the focus of this appendix.

¹ The Phase 1 Habitat Survey accessed 80 % of the PEA survey area (500 m wide corridor). The remainder of the PEA survey area was not accessible due to a lack of landowner permission (see section 2.3).

A.3 The brief and objectives

A.3.1.1 The brief and objectives of the survey was to:

- i. Undertake a Phase 1 habitat survey of the areas which were not surveyed as part of the PEA due to access restrictions or subsequent design refinements, recording the main habitats present;
- ii. Make an assessment of the potential of each area to support protected species or species of conservation concern; and
- iii. Provide a report supported by digitised mapping presenting the survey methods and results, and recommendations for further surveys that may be required to support the application.

A.3.1.2 The findings of this survey have been used to inform further site-specific protected species surveys and ultimately enable an assessment of the potential impacts of Hornsea Three on species and habitats within volume 6, chapter 3: Ecology and Nature Conservation of the Environmental Statement.

A.4 Methodology

A.4.1 Survey methods

A.4.1.1 As noted in section A.1.2, due to access restrictions during the PEA and subsequent design refinements, 30 areas (totalling 103.4 ha) were identified during the route refinement stage as requiring additional Phase 1 habitat survey. The additional areas are collectively referred to as the 'survey area' within this appendix and are shown on Figure A.2 to Figure A.6. Of these 30 areas, 20 were fully surveyed due to land access restrictions (see section A.6).

A.4.1.2 The study area for the phase 1 habitat survey was initially determined based on the PEIR onshore cable corridor search area and alternate routes considered, and multiple HVAC booster station and onshore HVDC converter/HVAC substation option sites. It is noted that during the course of the survey period, the design was refined such that some areas surveyed are no longer within the footprint of the onshore components of Hornsea Three cable corridor as described in volume 1, chapter 3: Project Description of the Environmental Statement. Where surveyed areas are no longer within the application boundary, this has been identified within Table A.7.2.

A.4.1.3 A Phase 1 habitat survey (JNCC, 2010) was conducted throughout the survey area between 17 January 2017 and 20 July 2017. Phase 1 habitat survey is a standard technique for rapidly obtaining baseline ecological information over a large area of land. It is primarily a mapping technique and uses a standard set of habitat definitions for classifying areas of land on the basis of the vegetation present. For this survey, the technique was modified to provide more detail over a smaller area and give further consideration to fauna (Institute of Environmental Assessment, 1995). The standard habitat definitions were used with an additional category of coarse grassland for unmanaged, secondary grasslands that are species poor.

A.4.1.4 The dominant and readily identified species of higher plant species from each habitat type within the survey area were recorded and their abundance was assessed on the DAFOR scale:

- D - Dominant
- A - Abundant
- F - Frequent
- O - Occasional
- R - Rare

A.4.1.5 The addition of the letter L denotes a local abundance, and the letter E denotes the abundance at the edge of a habitat.

A.4.1.6 These scores represent the abundance within the defined area only and do not reflect national or regional abundances. Plant species nomenclature follows Stace (2010).

A.4.1.7 Target notes were made for any features which were too small to map or are of particular ecological interest. Photographs were taken of most habitat parcels (Figure A.40 to Figure A.46).

A.4.1.8 Habitats identified were evaluated for their potential to support protected species and other species of conservation concern. Separate species surveys have been undertaken and are reported in Annex 3.3 to 3.13 of the Environmental Statement.

A.5 Surveyors

A.5.1.1 Phase 1 habitat surveys were undertaken by Assistant Ecologists Philip Joyce BSc MSc, Kathryn Jones MBiolSci GradCIEEM, Sarah Hawes BSc MSc GradCIEEM, Robert Allen BSc MSc, Kate Philpott BSc MSc, Emily Wallace BSc MSc GradCIEEM and Charlotte Hewitt BSc MSc GradCIEEM, and Senior Ecologists Felicity Andruszko BSc MSc GradCIEEM, Dr. Arnaud Duranel PhD MSc and Daniel Sidoli BSc MRes GradCIEEM. The surveyors have the appropriate training and experience to undertake Phase 1 habitat surveys.

A.6 Limitations

- A.6.1.1 The scope of the additional Phase 1 habitat survey, i.e. the identification of additional areas, was determined based on a comparison of the PEIR onshore cable corridor search area and alternative route options to the survey area of the PEA (hereafter referred to as the 'PEA Phase 1 survey area'). Since then, further design refinements have occurred (e.g. identification of construction compounds, access roads and storage areas) which fall outside of both the PEA Phase 1 survey area and the Phase 1 survey area of additional areas described in this report. As these design refinements were finalised in November 2017, the survey season had finished and it was not possible to collect Phase 1 habitat data for these areas. The area within the onshore cable corridor and associated infrastructure that is outside of the Phase 1 survey areas is 57.67 ha (10.84% of the onshore cable corridor and associated infrastructure area).
- A.6.1.2 The Phase 1 habitat survey was completed at 20 of the 30 additional area parcels identified as requiring survey due to permission to access the land not being granted. Although the status of landowner permission was reviewed on a weekly basis during the survey season, four parcels could not be surveyed and six could only be partially surveyed. Parcels that could not be surveyed or were only partially surveyed are shown on Figure A.7 to Figure A.39. However, three of the sites that could not be surveyed (PHB1, PHB2 and PHE2) and two of the sites that could only be partially surveyed (PHA2 and PHA3) are now located outside the Hornsea Three onshore cable corridor footprint and so they are not required to be surveyed, as shown on Figure A.2 to Figure A.6.
- A.6.1.3 Although the areas described above was not accessed for field survey, it was covered by the ecological desk study as part of the PEA (RPS, 2016). The desk study identified priority habitats, designated sites for nature conservation, records for protected species and records for species of conservation concern. The most important habitats for nature conservation are likely to be within designated sites or will have been recorded during the desk study as priority habitats. This data, combined with the large volume of field data on habitats collected in the remainder of the survey area, is considered sufficient to inform the impact assessment on habitats reported in volume 6, chapter 3: Ecology and Nature Conservation of the Environmental Statement. Areas where a Phase 1 habitat survey could not be undertaken have been assessed for their potential to support protected species and species of conservation concern, where possible, by examination of desk study records, ordnance survey mapping and aerial imagery. Results of species specific assessments and any species survey limitations are reported in relevant annexes (Annex 3.3 to 3.13) of the Environmental Statement.
- A.6.1.4 The main construction compound to the east of the Hornsea Three onshore cable corridor is outside of the survey area for this study (see Figure A.4). However, given that this compound comprises existing hard standing with negligible ecological importance, it is considered that a detailed survey of baseline conditions was not required.

A.7 Results

- A.7.1.1 This chapter reports on the results of the Phase 1 habitat survey for the survey area. The potential for the survey area to support protected species or species of conservation concern is not specifically covered within this section; instead, potential further ecological issues are discussed in chapter 4.
- A.7.1.2 Twenty-four different Phase 1 habitat types were identified within the survey area, these are listed in Table A.7.1
- A.7.1.3 The habitat types, areas and descriptions for each area are given in Table A.7.2. A species list for each habitat type recorded in the survey area is presented in Appendix C: Plant species and abundance. The Phase 1 habitat survey results are shown on Figure A.7 to Figure A.39.
- A.7.1.4 Three of these habitat types were identified as being habitats of principal importance in England, listed under section 41 of the Natural Environment and Rural Communities (NERC) Act 2006. The habitats of principle importance comprised: hedgerows, broadleaved woodland and standing water ponds. Arable land was found to make up the majority of the habitats (75%) present within the areas surveyed. Poor semi-improved grassland comprised 14.5% of the area surveyed and broadleaved and mixed woodland comprised 1.8%.
- A.7.1.5 Suitable habitat was identified for species of fauna which are either protected or of conservation concern. This included: badger, bats, birds, great crested newt, reptiles, common toad, hazel dormouse, brown hare, European hedgehog and stag beetle (*Lucanus cervus*). Further surveys for fauna have been undertaken and are reported in volume 6, annex 3.3 to 3.13 of the Environmental Statement.
- A.7.1.6 One invasive plant species, Indian balsam (*Impatiens glandulifera*), was located in broadleaved woodland (see target note on Figure A.23). This species is covered under Schedule 9 under the Wildlife and Countryside Act (1981).

Table A.7.1: Habitat types and areas or lengths recorded during the Phase 1 habitat survey of additional areas.

Habitat types	Total Area (ha)	Total Length (m)
Amenity Grassland	1.62	-
Arable	47.25	-
Bare Ground	0.14	-
Building	0.005	-
Coarse Grassland	0.45	-
Defunct Species-poor Hedge	-	525.65
Defunct Species-poor Hedge With Trees	-	174.28
Dense Scrub	0.24	-
Dry Ditch	-	685.24
Hard Standing	0.62	-
Improved Grassland	0.34	-
Intertidal Shingle / Cobbles	0.06	-
Plantation Broadleaved Woodland	1.00	-
Plantation Coniferous Woodland	0.02	-
Plantation Mixed Woodland	0.14	-
Poor Semi-Improved Grassland	5.76	-
Semi-Improved Neutral Grassland	3.37	-
Semi-natural Broadleaved Woodland	1.12	-
Semi-natural Mixed Woodland	0.09	-
Species-poor Hedge	-	1650.84
Species-poor Hedge With Trees	-	896.09
Species-rich Hedge	-	229.03
Standing Water	0.10	-
Tall Ruderal	0.40	-
Total area surveyed	62.72	-
Total area not surveyed	40.64	-

Table A.7.2: Phase 1 habitat survey results.

Parcel number	Habitats recorded	Habitat description and potential to support protected species and species of conservation concern
PHA1 (0.005 ha) Figure A.7 and Figure A.40	Dense scrub/coarse grassland mosaic (0.005 ha)	The parcel comprises a dense scrub/ coarse grassland mosaic on a coastal path route with bramble scrub scattered across the parcel. Bramble (<i>Rubus fruticosus</i> agg.) and Yorkshire-fog (<i>Holcus lanatus</i>) dominate with abundant common bent (<i>Agrostis capillaris</i>). Potential to support: reptiles; badger; and birds.
PHA2 ** (0.548 ha) Figure A.8 (part-surveyed) and Figure A.40	Intertidal shingle/cobbles (0.06 ha) Not surveyed (0.49 ha)	This parcel comprises a small area of intertidal shingle/cobbles on the coast between the sea and cliffs. This parcel was only partially surveyed due to access availability. Potential to support birds.
PHA3** (6.658 ha) Figure A.9 and Figure A.10 (part-surveyed) and Figure A.40	Plantation broadleaved woodland (0.56 ha) Dense scrub (0.14 ha) Arable (2.24 ha) Amenity grassland (1.62 ha) Scattered broadleaved trees Hard standing (0.20 ha) Not surveyed (1.89 ha)	The parcel comprises a large arable field dominated by perennial rye-grass (<i>Lolium perenne</i>), which is bordered by dense scrub, dominated by bracken (<i>Pteridium aquilinum</i>) and bramble. Plantation broadleaved woodland with a tree canopy dominated by sycamore (<i>Acer pseudoplatanus</i>) and the ground flora dominated by wood avens (<i>Geum urbanum</i>) is located between the arable and amenity grassland. The woodland shows evidence of coppicing. This parcel was only partially surveyed due to access availability (1.89 ha outstanding). Potential to support: reptiles; badger; bats; and birds.
PHA4 (0.726 ha) Figure A.11	Species-poor hedgerow* (301 m) Poor semi-improved grassland (0.73 ha)	This parcel comprises poor semi-improved grassland with abundant Yorkshire-fog, ribwort plantain (<i>Plantago lanceolata</i>) and germander speedwell (<i>Veronica chamaedrys</i>), bordered on the north and south with species-poor hedgerow. Potential to support: reptiles; badger; bats; and birds.
PHA5 (0.835 ha) Figure A.12	Semi-natural broadleaved woodland (0.78 ha) Semi-improved grassland (0.76 ha)	This parcel contains semi-improved neutral grassland abundant with common bent, red fescue (<i>Festuca rubra</i>), Yorkshire-fog and ribwort plantain and encompassing a semi-natural broadleaved woodland. This grassland has similar species throughout, with the westerly field incorporating bracken into the mix. Potential to support: reptiles; badger; bats; and birds.
PHA6 (2.762 ha) Figure A.13	Defunct species-poor hedgerow (130.00 m) Poor semi-improved grassland (2.76 ha)	This parcel contains two areas of poor semi-improved grassland both of which had recently been cut for hay, both dominated by Yorkshire-fog, with abundant common bent, silver hair-grass (<i>Aira caryophyllaea</i>), smooth hawk's-beard (<i>Crepis capillaris</i>), wavy hair-grass (<i>Deschampsia flexuosa</i>) and ribwort plantain. Potential to support: reptiles; bats; and birds.
PHA7 (0.769 ha) Figure A.14	Poor Semi-Improved Grassland (0.50 ha) Arable (0.26 ha)	This parcel contains two main areas, a poor semi-improved grassland field in the north of the area, recently been cut for hay, and an arable field to the south of the area. Potential to support birds.
PHA8 (1.360 ha) Figure A.14	Defunct species-poor hedgerow (70.10 m) Poor semi-improved grassland (0.37 ha) Semi-improved neutral grassland (0.97 ha) Plantation coniferous woodland (0.02 ha) Buildings (0.005 ha)	This parcel contains two areas of semi-improved grassland both dominated by Yorkshire-fog, both of which had been recently cut for hay. Two small buildings are located in the north east of the parcel within the semi improved neutral grassland, which is abundant in common bent, silver hair-grass (<i>Aira caryophyllaea</i>), smooth hawk's-beard (<i>Crepis capillaris</i>), wavy hair-grass (<i>Deschampsia flexuosa</i>), Yorkshire-fog and ribwort plantain. A small strip of planted coniferous woodland can be found at the south of the grassland. Potential to support: reptiles; bats; and birds.
PHB1** (0.038 ha) Figure A.15	Not surveyed due to access restrictions	

Parcel number	Habitats recorded	Habitat description and potential to support protected species and species of conservation concern
PHB2** (1.506 ha) Figure A.15	Not surveyed due to access restrictions	
PHB3** (0.638 ha) Figure A.16 and Figure A.41	Plantation broadleaved woodland (0.26 ha) Hard standing (0.37 ha)	This parcel is comprised of immature plantation broadleaved woodland at the edge of an arable field next to a small farm road with dense scrub (mostly bramble) at the edges of the woodland. Arable field margins mostly semi improved grassland. Alder (<i>Alnus glutinosa</i>) and silver birch (<i>Betula pendula</i>) are frequent. Potential to support: badger; bats; and birds.
PHB4** (0.010 ha) Figure A.17 and Figure A.41	Scattered broadleaved trees Scattered scrub Tall ruderal (0.01 ha)	This parcel consists entirely of tall ruderal habitat which contains frequent common bent, false oat grass (<i>Arrhenatherum elatius</i>), bramble and couch grass (<i>Elymus repens</i>). Within this habitat, patches of scattered scrub and scattered pedunculate oak (<i>Quercus robur</i>), blackthorn (<i>Prunus spinosa</i>) and sycamore trees (<i>Acer pseudoplatanus</i>) can be found throughout. Potential to support: reptiles; and birds.
PHB5** (0.006 ha) Figure A.18 (part surveyed) and Figure A.42	Hard standing (0.006 ha) Coarse grassland (0.88 m ²) Scattered broadleaved tree	This parcel mainly consists of hard standing including a small section of a B road and a very small section of coarse grassland is located to the east of the hard standing, which is dominated with holly (<i>Ilex aquifolium</i>), the shrub layer dominated with common ivy (<i>Hedera helix</i>) and a ground flora dominated in cock's-foot (<i>Dactylis glomerata</i>). Within the coarse grassland one lone tree is situated in the centre covered in common ivy. Potential to support: reptiles; bats; and birds.
PHB6 (0.838 ha) Figure A.19 and Figure A.42	Coarse grassland (0.10 ha) Arable (0.73 ha) Species-poor hedgerow (168 m)	This parcel comprised corner of an arable field with coarse grassland strip along the western margin, dominated with cock's-foot with abundant common bent and frequent cleavers (<i>Galium aparine</i>). A species-poor hedgerow lines the western margin of the coarse grassland. TN1: Tree with bat potential. Potential to support: reptiles; bats; birds; and great crested newt.
PHB7 (1.725 ha) Figure A.20 and Figure A.42	Arable (1.52 ha) Coarse grassland (0.20 ha) Scattered broadleaved tree Species-poor hedgerow (162 m)	This parcel comprised an arable field bordered by a margin of coarse grassland dominated by cock's-foot with abundant bracken, bramble, common ragwort (<i>Senecio jacobaea</i>) and Yorkshire-fog. A scattered pedunculated oak was also present. A species-poor hedgerow lines the western margin of the area. Potential to support: reptiles; badger; bats; and birds.
PHB8 (5.146 ha) Figure A.21 and Figure A.42	Arable (5.00 ha) Coarse grassland (0.14 ha) Defunct species-poor hedge (325 m)	Large arable field with a coarse grassland field margin to the south, dominated by cock's-foot with abundant ribwort plantain and occasional cleavers, common nettle and hemlock (<i>Conium maculatum</i>). The arable field is bordered by a defunct species-poor hedge. Potential to support: reptiles; badger; bats; and birds.
PHC1 (16.627 ha) Figure A.22 and Figure A.23	Arable (15.94 ha) Species poor hedgerow (387 m) Semi natural broadleaved woodland (0.36 ha) Poor semi-improved grassland (0.18 ha) Plantation Broadleaved woodland (0.16 ha)	This parcel is dominated by an arable field, with poor semi-improved grassland, semi-natural broadleaved woodland, species poor hedgerow and plantation broadleaved woodland located to the south. The semi improved grassland consists of common bent, Yorkshire-fog, common nettle and ground ivy. The semi-natural broadleaved woodland is dominated by Indian balsam (<i>Impatiens glandulifera</i>), a schedule 9 invasive plant (TN4 on Figure 2.17), and abundant in oak with an understory abundant in bramble. The planted woodland was locally dominant in hawthorn and abundant in pedunculate oak. Potential to support: reptiles; badger; bats; and birds.
PHE1 (0.210 ha) Figure A.24 and Figure A.43	Arable (0.05 ha) Semi-natural broadleaved woodland (0.12 ha) Dense scrub/Tall ruderal mosaic (0.004 ha) Coarse grassland (0.007 ha) Hard standing (0.03 ha)	This parcel comprises two arable fields dominated by perennial rye-grass, separated by a semi-natural broadleaved woodland with a tree canopy dominated by ash and ground flora dominated by dog's mercury (<i>Mercurialis perennis</i>) with abundant common ivy and common nettle. Dense scrub/tall ruderal mosaic occurs, dominated by bracken and common nettle with abundant cock's-foot and yarrow (<i>Achillea millefolium</i>). The arable field to the north is bordered with a coarse grassland with hard standing in the northern most part of the area. Potential to support: badger; bats; and birds.

Parcel number	Habitats recorded	Habitat description and potential to support protected species and species of conservation concern
PHE2** (6.003 ha) Figure A.25	Not surveyed due to access restrictions (6 ha)	
PHF1 (21.906 ha) Figure A.26, Figure A.27 & Figure A.28 (part-surveyed)	Not surveyed (20.36 ha) Plantation broadleaved woodland (0.02 ha) Semi natural broadleaved woodland (0.25 ha) Arable (1.007 ha) Tall ruderal (0.27 ha) Species-poor hedge (233 m)	This parcel was only partially surveyed due to access availability. This parcel consisted of 5 arable fields, one to the north of the area boarded with plantation broadleaved woodlands. The other 4 arable fields are located to the very southern end of the area with semi-natural broadleaved woodland along the road way and surrounding the tall ruderal that is located between the arable fields. A species-poor hedge with trees separates the two southern most arable fields. Potential to support: bats; and birds.
PHF2 (12.701 ha) Figure A.29 & Figure A.30	Arable (9.92 ha) Semi-natural Broadleaved Woodland (0.20 ha) Improved Grassland (0.11 ha) Species-poor Hedge (188 m) Defunct Species-poor Hedge With Trees (88.39 m) Species-poor Hedge With Trees (465.90 m) Plantation Mixed Woodland (0.14 ha) Poor Semi-Improved Grassland (0.70 ha) Semi-Improved Neutral Grassland (1.64 ha)	This parcel comprises of several arable fields, with semi natural broadleaved woodland situated to the north of the surveyed area, abundant in beech (<i>Fagus sylvatica</i>) and pedunculate oak with an understorey locally dominant in common nettle. Moving down the area north to south are arable fields divided by defunct species-poor hedge with trees, improved grassland dominated by cock's-foot and abundant in white clover (<i>Trifolium repens</i>). Followed by more defunct species-poor hedge with trees. Finally to the south of the area is an area of semi-improved neutral grassland surrounding a patch of plantation mixed woodland and is boarded to the south by a species –poor hedge. Potential to support: badger; bats; and birds.
PHF3 (1.586 ha) Figure A.31	Arable (1.32 ha) Dense Scrub (0.09 ha) Hard Standing (0.004 ha) Species-poor Hedge (50.12 ha) Poor Semi-Improved Grassland (0.17 ha)	This area consists of poor semi-improved grasslands to the north of the area and the road that is boarded by hard standing and species poor hedge. The south side of the road is and an arable field that is divided to the south by another species poor hedge. Dense scrub encroaches onto the arable field to the north west. Potential to support: reptiles; bats; and birds.
PHG1 (0.255 ha) Figure A.32	Improved grassland (0.23 ha) Bare ground (0.02 ha) Scattered broadleaved trees	This parcel comprises heavily grazed improved grassland dominated by perennial rye-grass with abundant common bent and frequent Yorkshire-fog. Scattered trees comprise hazel (<i>Corylus avellana</i>), pedunculated oak, sessile oak (<i>Quercus petraea</i>) and wild cherry (<i>Prunus avium</i>). TN2: Mole hills Potential to support: reptiles; badger; bats; and birds.
PHG2 (0.361 ha) Figure A.33	Poor semi-improved grassland (0.36 ha) Semi-natural broadleaved woodland (0.005ha) Scattered broadleaved tree Dry ditch (13.40 m)	This parcel comprises a grazed semi-improved grassland with one pedunculated oak as a scattered broadleaved tree. The semi-improved grassland is dominated by perennial rye-grass with abundance creeping buttercup (<i>Ranunculus repens</i>) and Yorkshire-fog with frequent common nettle and ground-ivy (<i>Glechoma hederacea</i>). A log pile was found within the semi-improved grassland (TN3 on Figure 2.27). A small area of semi-natural broadleaved woodland, supporting a dry ditch, occurs in the east of the area. Potential to support: reptiles; badger; bats; and birds.

Parcel number	Habitats recorded	Habitat description and potential to support protected species and species of conservation concern
PHG3 (3.078 ha) Figure A.34 (part-surveyed) and Figure A.43	Arable (2.65 ha) Scattered broadleaved tree Species-poor hedge (239.36 m) Tall ruderal (0.01 ha) Not surveyed (0.42 ha)	This parcel comprises an arable field dominated by perennial rye-grass bordered by a species-poor hedge dominated by hawthorn (<i>Crataegus monogyna</i>) and cock's-foot with abundance cleavers and common ivy; and a road to the north west. A patch of tall ruderal dominated by common nettle with occasional cleavers is located under a pylon in the arable field. This parcel was only partially surveyed due to access availability (0.419 ha outstanding). Potential to support: reptiles; badger; bats; and birds.
PHG4 (4.766 ha) Figure A.35 (Not surveyed)	Not surveyed due to access restrictions (4.77 ha).	
PHG5 (6.508 ha) Figure A.36 (part-surveyed) and Figure A.44	Arable (1.18 ha) Semi-natural broadleaved woodland (0.01 ha) Standing water (0.02 ha) Species-poor hedgerow (210 m) Scattered broadleaved trees Bare Ground (0.12 ha) Not surveyed (5.18 ha)	This parcel comprises an arable field dominated by perennial rye-grass adjacent to a railway. There is semi-natural broadleaved woodland to the west of the arable field. The woodland is dominated by sycamore with abundant bramble, common nettle, pedunculate oak and frequent common thistle (<i>Cirsium vulgare</i>). Standing water (SW1) occurs within the woodland. This was dry at the time of the survey, however could hold water at other times of the year. A species-poor hedgerow can be found along the northern margin of the surveyed area along with a strip of bare ground. This parcel was only partially surveyed due to access availability (5.18 ha outstanding). Potential to support: reptiles; badger; bats; birds; great crested newt; and invertebrates.
PHG6 (3.675 ha) Figure A.37, Figure A.44 and Figure A.45	Scattered broadleaved trees Species-rich hedge (229 m) Species-poor hedge (49 m) Dry ditch (375 m) Semi-natural broadleaved woodland (0.09 ha) Standing water (0.08 ha) Arable (3.50 ha)	This parcel comprises two arable perennial rye grass fields, with a semi-natural broadleaved woodland in the north west corner. The woodland is dominated with pedunculate oak and is abundant with blackthorn, common ivy and hawthorn. Standing water (SW2 and SW3) occur within the woodland. A ditch running along the westerly border of the area that was dry at the time of the survey as well as SW3, but they could hold water at other times of the year. Standing water (SW2) did not contain any emergent vegetation and was 20-30 cm deep. A species-rich hedgerow runs parallel to the dry ditch and is dominated by ash, whereas the species-poor hedgerows are dominated with hawthorn. Potential to support: reptiles; badger; bats; birds; great crested newt; and invertebrates.
PHG7** (2.045 ha) Figure A.39 and Figure A.45	Scattered broadleaved trees Defunct species-poor hedge with trees (86 m) Semi-natural mixed woodland (0.09 ha) Tall ruderal (0.11 ha) Arable (1.85 ha) Dry ditch (199 m)	This parcel comprises of one arable field. Tall ruderal, mixed broadleaved woodland and a defunct species poor hedgerow line the south of the area. The woodland is dominated by Scot's pine (<i>Pinus sylvestris</i>) with abundant ash and frequent pedunculated oak. Tall ruderal is dominated by common nettle, with abundant broad-leaved dock (<i>Rumex obtusifolius</i>) and frequent cleavers and cock's foot. The defunct species-poor hedgerow is dominated by elder with abundant common ivy and occasional alder, ash, hawthorn and hazel and a dry ditch running parallel. Potential to support: reptiles; badger; bats; and invertebrates.
PHG8** (0.077 ha) Figure A.38 and Figure A.46	Species-poor hedgerow (92 m) Dry ditch (97 m) Arable (0.077 ha)	This parcel comprises of an arable field with a species-poor hedgerow running through the centre, parallel to a dry ditch. The arable field is dominated by perennial rye-grass with frequent annual meadow-grass, cleavers and common nettle. Although the ditch was dry during this survey, it may hold water at different times of the year. The hedgerow is dominated by hawthorn with abundant field maple (<i>Acer campestre</i>) with occasional bramble and dog-rose (<i>Rosa canina</i>). Potential to support: reptiles; badger; bats; birds; and invertebrates.
* All species-poor hedgerows are intact unless otherwise stated ** Habitat parcels no longer within the footprint of the onshore cable corridor due to refinements.		

A.8 Potential further ecological considerations

A.8.1 Introduction

A.8.1.1 This section sets out Thomson Ecology's assessment of the survey areas potential to support protected species and other species of conservation concern that were not detected during the Phase 1 habitat survey, either because their presence is seasonal or because specialist survey techniques are required.

A.8.2 Habitats of principal importance

A.8.2.1 The Natural Environment and Rural Communities Act (NERC Act) 2006 places a duty on all public authorities (including Local Planning Authorities, who will comment on the DCO application, and the Secretary of State, the determining body for the DCO application) to have regard to the purpose of conserving biodiversity in all of their functions. This duty extends to restoring or enhancing habitats or populations. Section 41 of the NERC Act requires the Secretary of State to establish and maintain a list of habitats and species of principal importance in relation to this duty.

A.8.2.2 Three habitats identified in the survey area can be classified as habitats of principal importance: standing water ponds, hedgerows (intact species-poor hedgerow and species rich hedgerow) and lowland mixed deciduous woodland. These three habitat types are habitats of principle importance for the conservation of biodiversity in England under Section 41 of the NERC Act. Volume 6, chapter 3: Ecology and Nature Conservation of the Environmental Statement considers potential impacts and appropriate mitigation measures for habitats of principal importance. Where hedgerows may also qualify for protection under the Hedgerow Regulations (1997), this is also considered volume 6, chapter 3 of the Environmental Statement.

A.8.3 Protected species

Badger

A.8.3.1 Badger is protected under the Protection of Badgers Act 1992, which makes it an offence to wilfully kill, injure, take, cruelly ill-treat, or dig for a badger. Badger setts are also protected from damage, destruction, obstruction, and disturbing an occupied badger sett.

A.8.3.2 Suitable badger habitat was identified during the Phase 1 habitat survey of additional areas. Based on these findings, further survey has been undertaken to identify the location of badger setts within the onshore cable corridor and these results are reported in volume 6, annex 3.12 of the Environmental Statement. Potential impacts on badgers and, where necessary, associated mitigation are set out in volume 6, chapter 3: Ecology and Nature Conservation of the Environmental Statement.

Bats

A.8.3.3 Bats and their roosts are protected under the Conservation of Habitats and Species Regulations 2010 (as amended), and are afforded some protection under the Wildlife and Countryside Act 1981 (as amended), Countryside and Rights of Way Act 2000. Some bat species are Species of Principle Importance (SPI). It is an offence to deliberately kill or injure a bat, disturb a bat or to intentionally or recklessly damage, destroy or obstruct access to a roost. Development affecting bats and their roosts is governed by a licensing procedure administered by Natural England.

A.8.3.4 Scattered trees and trees within woodland and hedges identified during the Phase 1 habitat survey of additional areas, provide roosting opportunities for bats. A tree in parcel PHB7 was specifically identified as having the potential to support roosting bats. Based on these findings, further survey has been undertaken for bats and the results are reported in volume 6, annex 3.8 of the Environmental Statement. Potential impacts on bats and, where necessary, associated mitigation are set out volume 6, chapter 3: Ecology and Nature Conservation of the Environmental Statement.

Birds

A.8.3.5 All birds, eggs and nests are protected from damage and destruction under the Wildlife and Countryside Act 1981 (as amended).

A.8.3.6 Suitable habitat for breeding birds was identified during the Phase 1 habitat survey of additional areas, including woodland, hedge, dense scrub, scattered scrub and farmland. Based on these findings, further survey has been undertaken for breeding birds and these results are reported in volume 6, annex 3.9 of the Environmental Statement. Potential impacts on birds and, where necessary, associated mitigation are set out volume 6, chapter 3: Ecology and Nature Conservation of the Environmental Statement.

Great crested newt

A.8.3.7 Great crested newt is protected under the Conservation of Habitats and Species Regulations 2010 (as amended) and is afforded some protection under the Wildlife and Countryside Act 1981 (as amended), Countryside and Rights of Way Act 2000. This species is an SPI. It is an offence to deliberately kill or injure a great crested newt, disturb a great crested newt or to intentionally or recklessly damage, destroy or obstruct access to a place of shelter. Development affecting great crested newt and its places of shelter is governed by a licensing procedure administered by Natural England.

A.8.3.8 Three ponds were identified during the Phase 1 habitat survey of additional areas: SW1 in parcel PH1G5, SW2 and SW3 in parcel PH1G6. These ponds have the potential to support great crested newt and all are adjacent to broadleaved woodland, which would provide suitable terrestrial habitat for this species. Based on these findings, further survey has been undertaken for great crested newt and these results are reported in volume 6, annex 3.5 of the Environmental Statement. Potential impacts on great crested newt and, where necessary, associated mitigation are included in volume 6, chapter 3: Ecology and Nature Conservation of the Environmental Statement.

Hazel dormouse

A.8.3.9 Hazel dormouse is protected under the Conservation of Habitats and Species Regulations 2010 (as amended) and is afforded some protection under the Wildlife and Countryside Act 1981 (as amended) and Countryside and Rights of Way Act 2000. This species is an SPI. It is an offence to deliberately kill or injure a dormouse, disturb a dormouse or to intentionally or recklessly damage, destroy or obstruct access to a place of shelter. Development affecting dormouse and its places of shelter is governed by a licensing procedure administered by Natural England.

A.8.3.10 Suitable habitat for hazel dormouse, including hedge and woodland, was found in a number of areas during the Phase 1 habitat survey of additional areas. However, given that the hazel dormouse is understood to be locally extinct (as reported in volume 6, annex 3.13 of the Environmental Statement), no further surveys are proposed.

Reptiles

A.8.3.11 All reptile species are protected under the Wildlife and Countryside Act 1981 (as amended), protecting them from intentional killing, injuring and selling only, and are SPI.

A.8.3.12 Areas of suitable reptile habitat including coarse grassland, hedge, scattered and dense scrub were identified during the Phase 1 habitat survey of additional areas. Based on these findings, further survey has been undertaken for reptiles and these results are reported in volume 6, annex 3.6 of the Environmental Statement. An impact assessment and mitigation requirements for reptiles are included in volume 6, chapter 3: Ecology and Nature Conservation of the Environmental Statement.

A.8.4 Species of principal importance

Birds

A.8.4.1 In addition to the blanket protection afforded to all birds under the Wildlife and Countryside Act 1981 (as amended), some birds are also listed as species of principal importance in England under the NERC Act 2006. These include farmland specialists such as common linnet (*Linaria cannabina*), corn bunting (*Emberiza calandra*), grey partridge (*Perdix perdix*), northern lapwing (*Vanellus vanellus*), skylark (*Alauda arvensis*) and yellowhammer (*Emberiza citrinella*), for which suitable habitat was found during the Phase 1 habitat survey of additional areas. Suitable habitat also exists for other SPIs, including bullfinch (*Pyrrhula pyrrhula*), common starling (*Sturnus vulgaris*), dunnock (*Prunella modularis*), European turtle dove (*Streptopelia turtur*), house sparrow (*Passer domesticus*), lesser spotted woodpecker (*Dendrocopos minor*), lesser redpoll (*Carduelis cabaret*), marsh tit (*Poecile palustris*), song thrush (*Turdus philomelos*), spotted flycatcher (*Muscicapa striata*) and tree sparrow (*Passer montanus*).

A.8.4.2 Based on the findings of the Phase 1 habitat survey of the additional areas, further survey has been undertaken for birds and these results are reported in volume 6, annex 3.9 and 3.10 of the Environmental Statement. Potential impacts on birds and, where necessary, associated mitigation are set out in volume 6, chapter 3: Ecology and Nature Conservation of the Environmental Statement.

Brown hare

A.8.4.3 Brown hare was identified during the Phase 1 habitat survey of additional areas. Brown hare is an SPI for nature conservation in England. No species specific field survey has been undertaken for brown hare as presence is deemed reasonably likely and further data was not required to inform the assessment of impacts on this species which has been considered in volume 6, chapter 3: Ecology and Nature Conservation of the Environmental Statement.

Common toad

A.8.4.4 Suitable habitats were identified in the Phase 1 habitat survey of additional areas to support common toad, including woodland, scrub and rough grassland. Common toad is a SPI for nature conservation in England. No species specific field survey has been undertaken for common toad as presence is deemed reasonably likely and further data was not required to inform the assessment of impacts on this species which has been considered in volume 6, chapter 3: Ecology and Nature Conservation of the Environmental Statement.

European hedgehog

A.8.4.5 Suitable habitat for European hedgehog was recorded during the Phase 1 habitat survey of additional areas, including hedges, woodland edges and grassland. European hedgehog is a SPI for nature conservation in England. No species specific field survey has been undertaken for European hedgehog as presence is deemed reasonably likely and further data was not required to inform the assessment of impacts on this species which has been considered in volume 6, chapter 3: Ecology and Nature Conservation of the Environmental Statement.

Invertebrates

A.8.4.6 Suitable habitat for stag beetle was recorded during the Phase 1 habitat survey of additional areas, including woodland and hedges. Stag beetle is a SPI for nature conservation in England. No species specific field survey has been undertaken for stag beetle as presence is deemed reasonably likely and further data was not required to inform the assessment of impacts on this species which has been considered in volume 6, chapter 3: Ecology and Nature Conservation of the Environmental Statement.

A.8.4.7 Suitable habitat for Desmoulin's whorl snail and white clawed crayfish was not found in any of the areas surveyed during the Phase 1 habitat survey of additional areas. However, based on the finding of the PEA, further survey was undertaken for both species and are reported in volume 6, annex 3.3 and 3.4 of the Environmental Statement respectively.

A.8.5 Invasive plant species

A.8.5.1 Indian balsam was recorded during the Phase 1 habitat survey of additional areas in PHC1 (Figure A.23). This species is included under Schedule 9 of the Wildlife and Countryside Act (1981); it is an offence to plant or otherwise cause species listed in Schedule 9 to grow in the wild.

A.8.5.2 Measures have been identified within volume 6, chapter 3: Ecology and Nature Conservation of the Environmental Statement to ensure that the spread of invasive species, including Indian balsam, does not occur as a result of the construction phase of Hornsea Three.

A.8.6 Other considerations

A.8.6.1 Mole hills were identified in a number of areas during the Phase 1 habitat survey of additional areas and it is likely that areas within the onshore cable corridor search area will support other mammals such as European rabbit (*Oryctolagus cuniculus*) and red fox (*Vulpes vulpes*). These species receive some protection under the Wild Mammals (Protection) Act 1996 which makes it an offence to intentionally cause these species unnecessary suffering by certain methods, including crushing and asphyxiation, which could occur during site clearance.

A.8.6.2 Measures have been identified within volume 6, chapter 3: Ecology and Nature Conservation of the Environmental Statement to ensure adequate protection is provided to such species throughout the construction phase of Hornsea Three.

A.9 Conclusion

A.9.1.1 As a result of route refinement and previous access restrictions, 30 areas (additional to the survey area covered in the PEA) were identified as requiring a Phase 1 habitat survey (totalling 103.4 ha). Of these 30 areas, four could not be surveyed and six could only be partially surveyed due to ongoing land access restrictions. The remaining twenty areas were fully surveyed and the data, when combined with the findings of the desk based assessment of the PEA are considered sufficient to inform the impact assessment reported in volume 6, chapter 3: Ecology and Nature Conservation of the Environmental Statement (see section 2.3).

A.9.1.2 During the Phase 1 habitat survey of the additional areas, 24 habitat types were identified, including three habitats of principal importance for nature conservation in England. These comprised standing water ponds, hedges, and lowland mixed deciduous woodland. Arable land was found to make up the majority of the habitats surveyed (75%), followed by poor semi-improved grassland comprising 14.5% and broadleaved and mixed woodland comprising 1.8%. One invasive plant species was recorded, Indian Balsam, which is listed under Schedule 9 of the Wildlife and Countryside Act 1981.

A.9.1.3 The survey area was found to have the potential to support protected species and species of conservation concern. Based on these findings, in combination with the findings of the PEA, species specific surveys have been undertaken for the following and are reported in relevant annexes of the Environmental Statement:

- Great crested newt (volume 6, annex 3.5);
- Reptile (volume 6, annex 3.6);
- Bats (volume 6, annex 3.8);
- Birds (volume 6, annex 3.9 and 3.10);
- Otter (volume 6, annex 3.11); and
- Badger (volume 6, annex 3.12).

A.9.1.4 It is noted that the following surveys were also undertaken (based on the findings of the PEA) and are reported in the relevant annex to the Environmental Statement:

- Desmoulin's Whorl Snail (volume 6, annex 3.3);
- White Clawed Crayfish (volume 6, annex 3.4); and
- Water Vole (volume 6, annex 3.7).

A.9.1.5 Results of the above surveys have been used to inform the final location and design of the onshore components of Hornsea Three (see volume 1, chapter 4: Site Selection and Alternatives) and to enable the assessment of the impacts on ecology and nature conservation, reported in volume 6, chapter 3: Ecology and Nature Conservation of the Environmental Statement.



Figure A.1: PE Phase 1 habitat survey area.

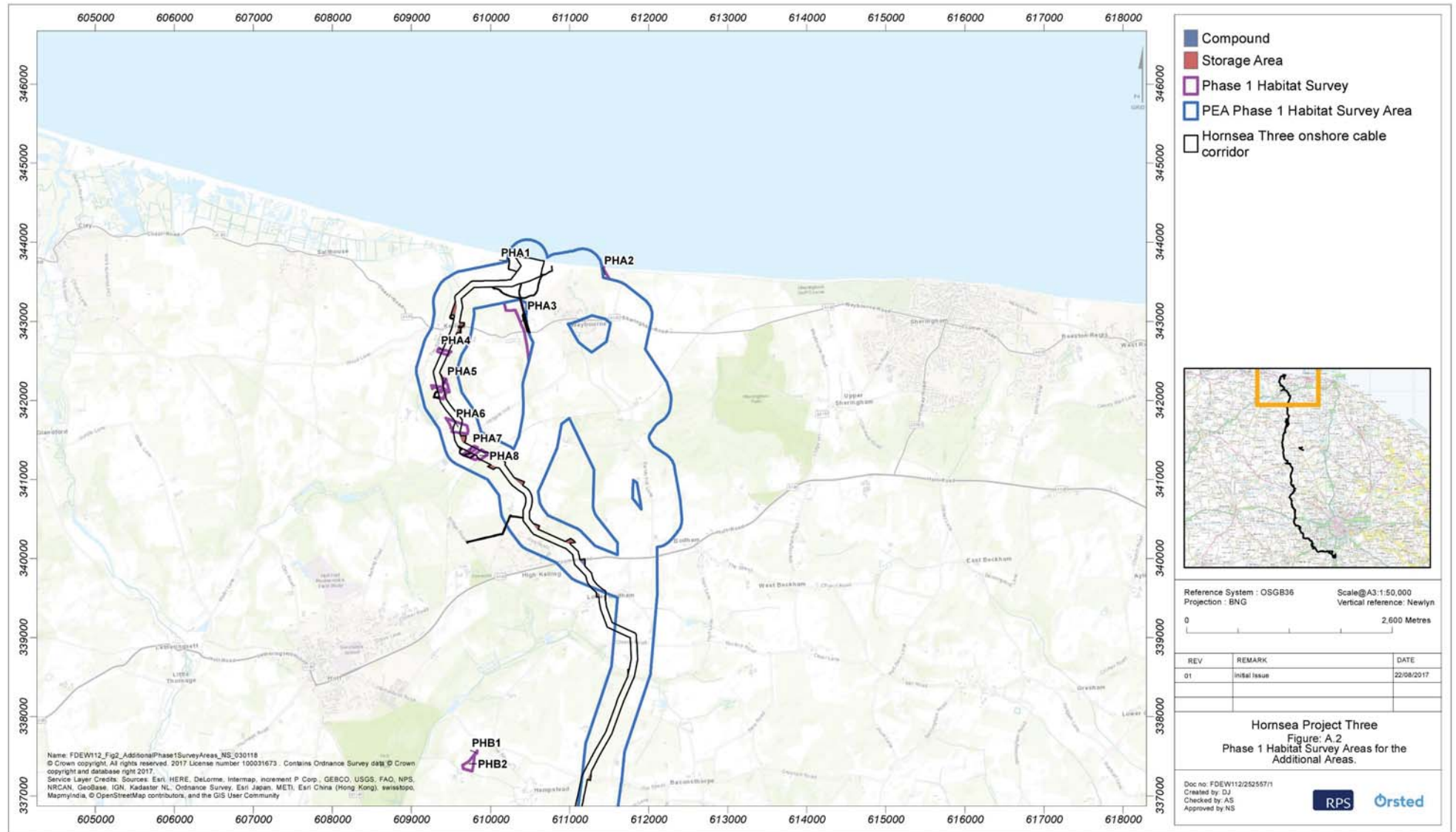


Figure A.2: Phase 1 habitat survey areas for the additional areas.

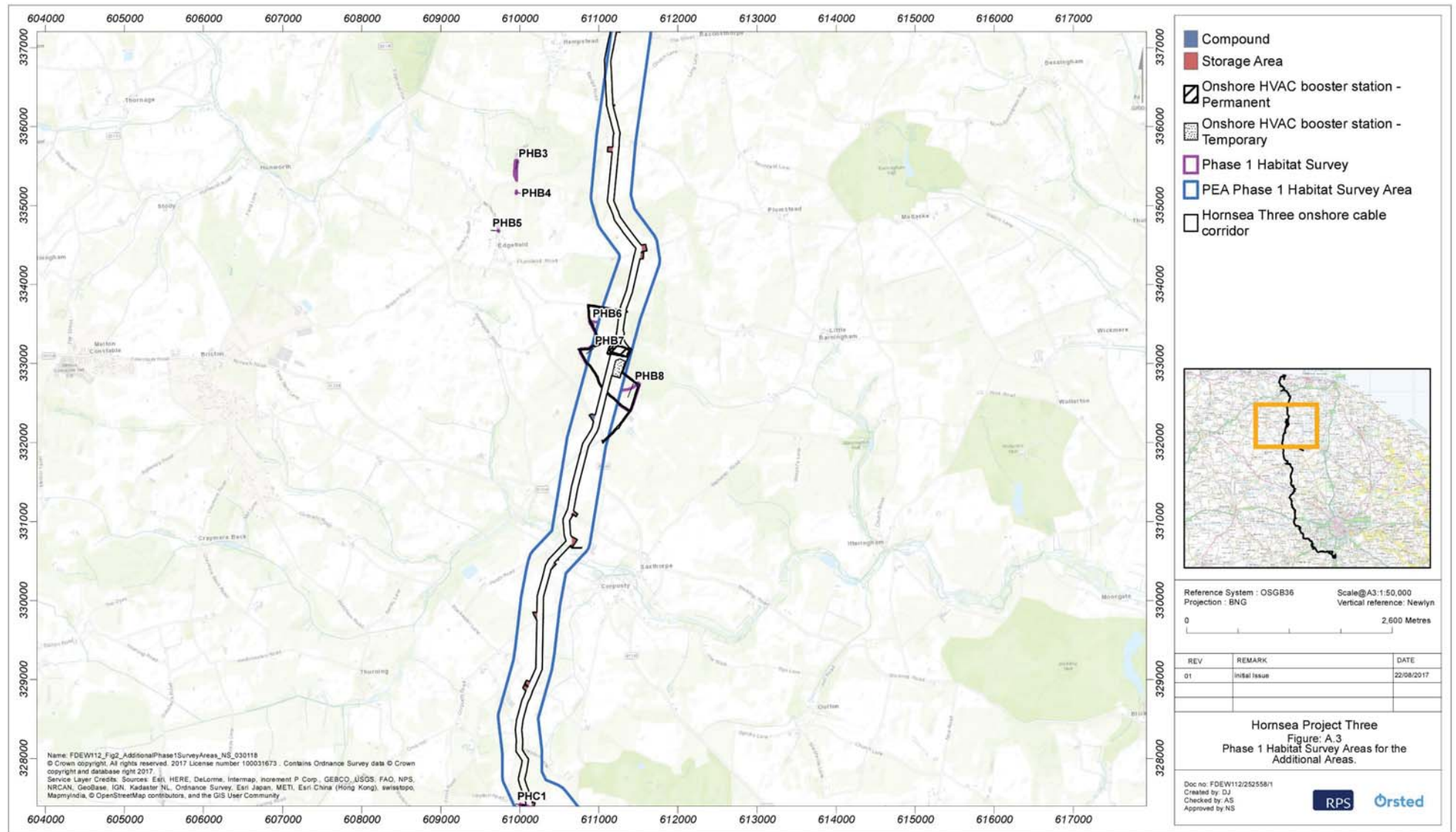


Figure A.3: Phase 1 habitat survey areas for the additional areas.

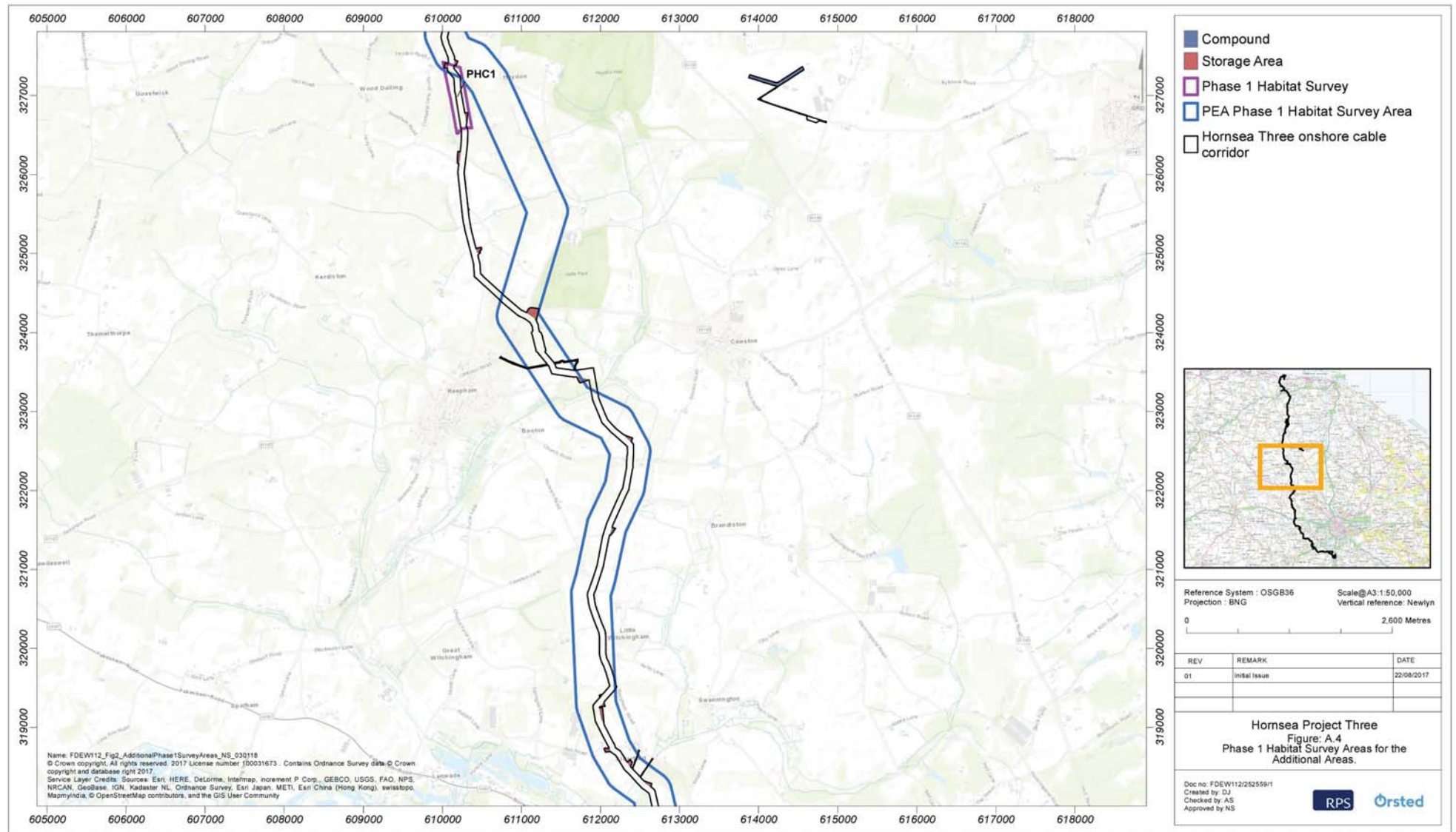


Figure A.4: Phase 1 habitat survey areas for the additional areas.

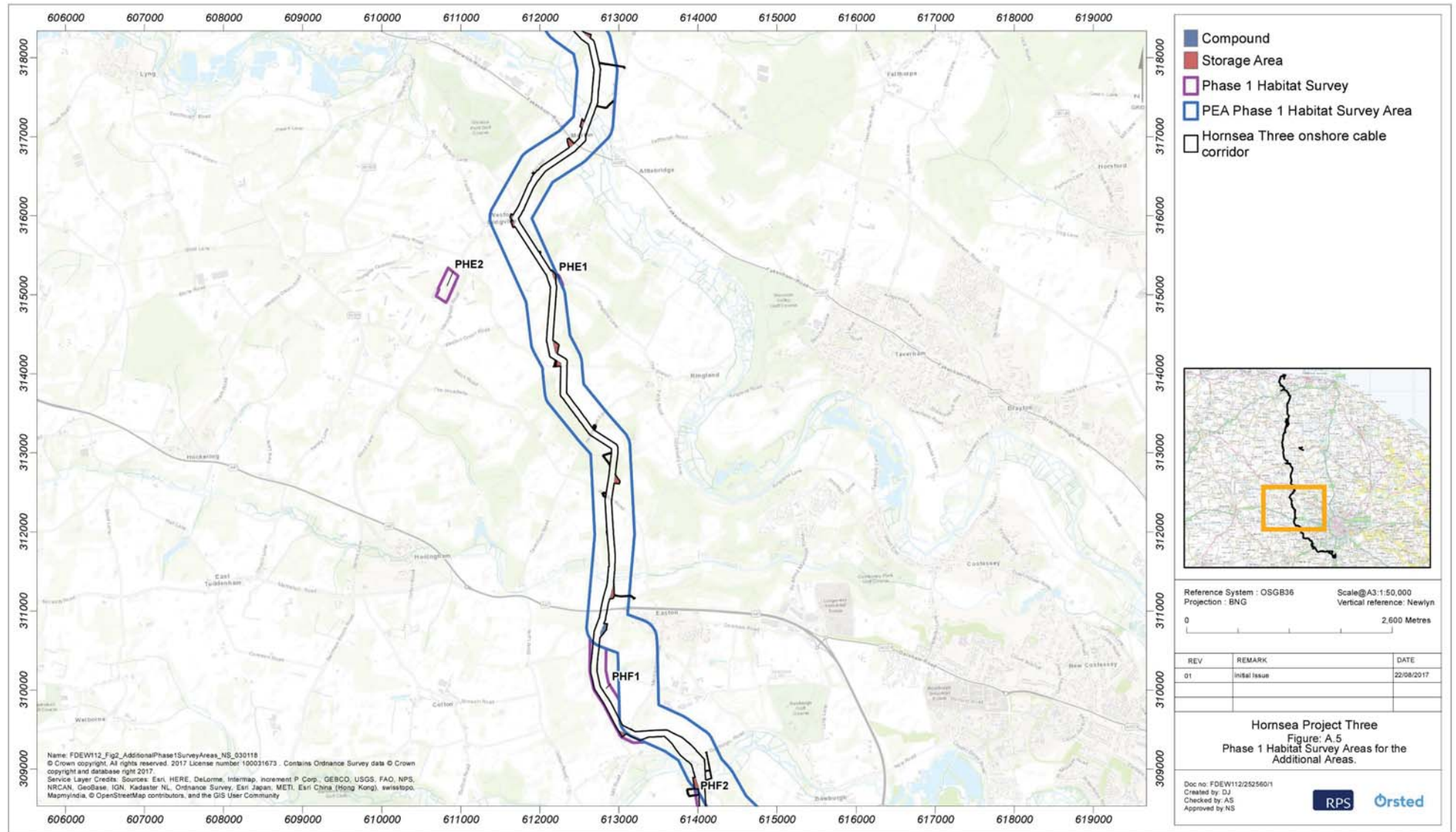


Figure A.5: Phase 1 habitat survey areas for the additional areas.

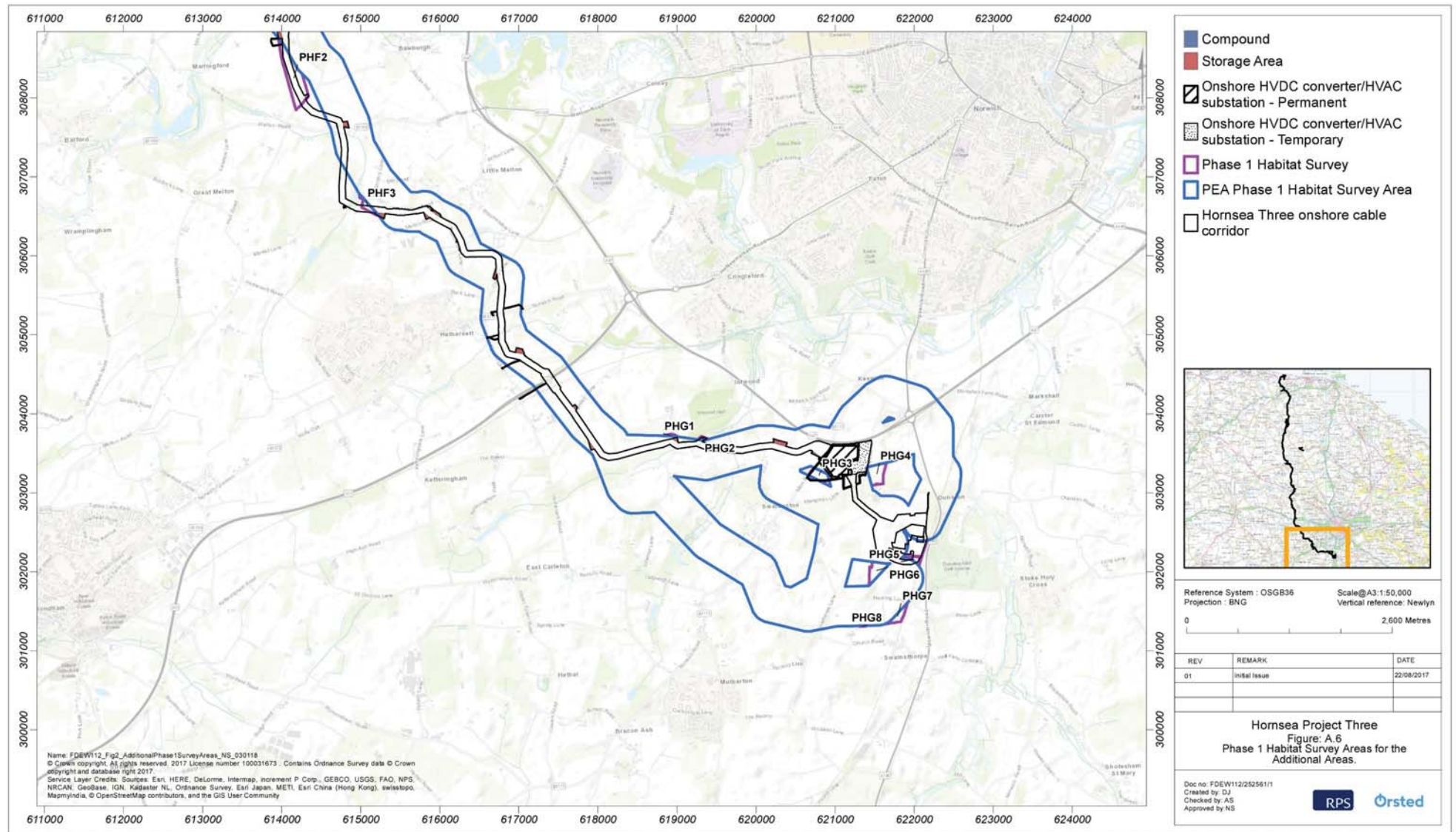


Figure A.6: Phase 1 habitat survey areas for the additional areas.

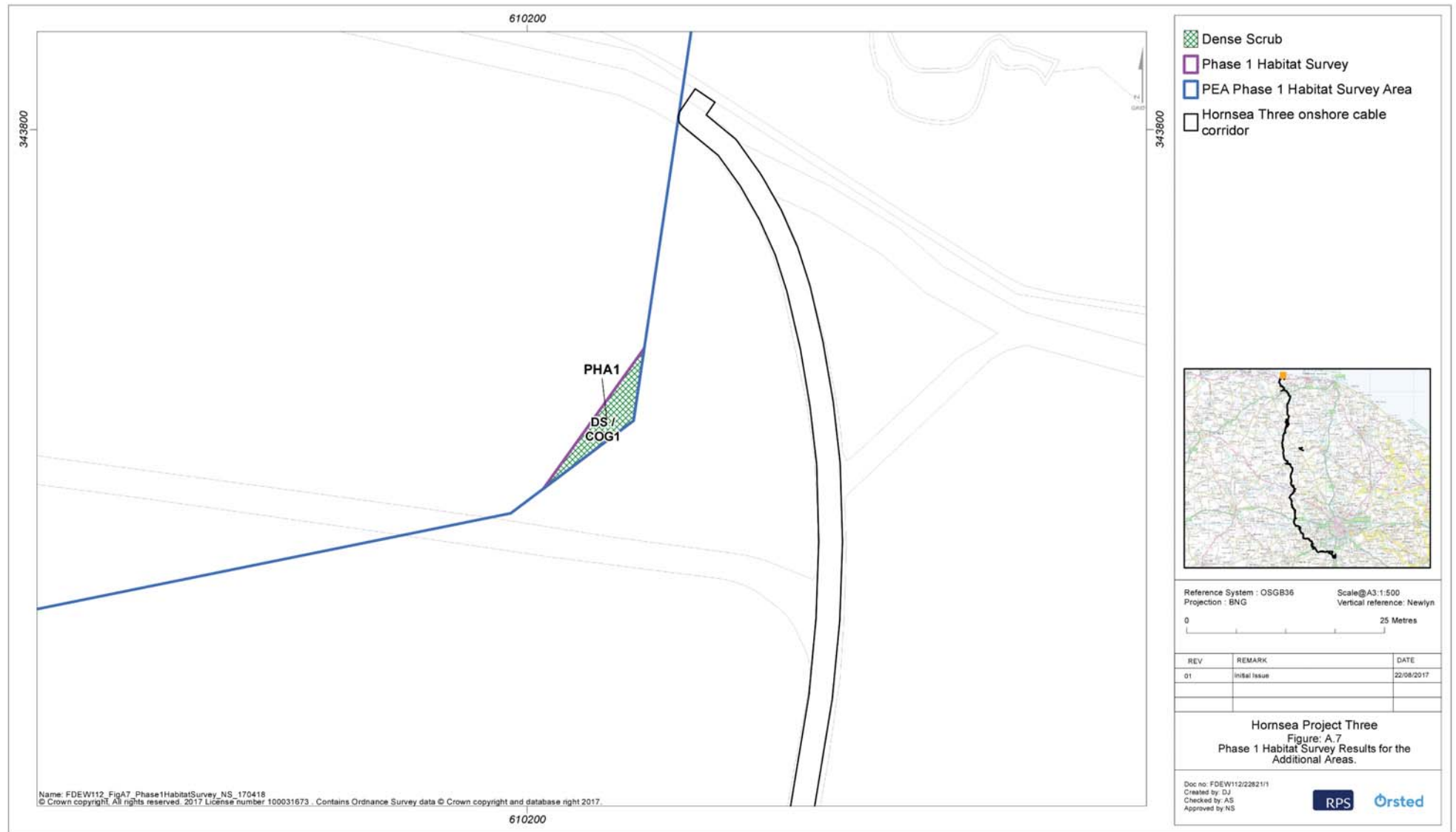


Figure A.7: Phase 1 habitat survey results for additional areas.

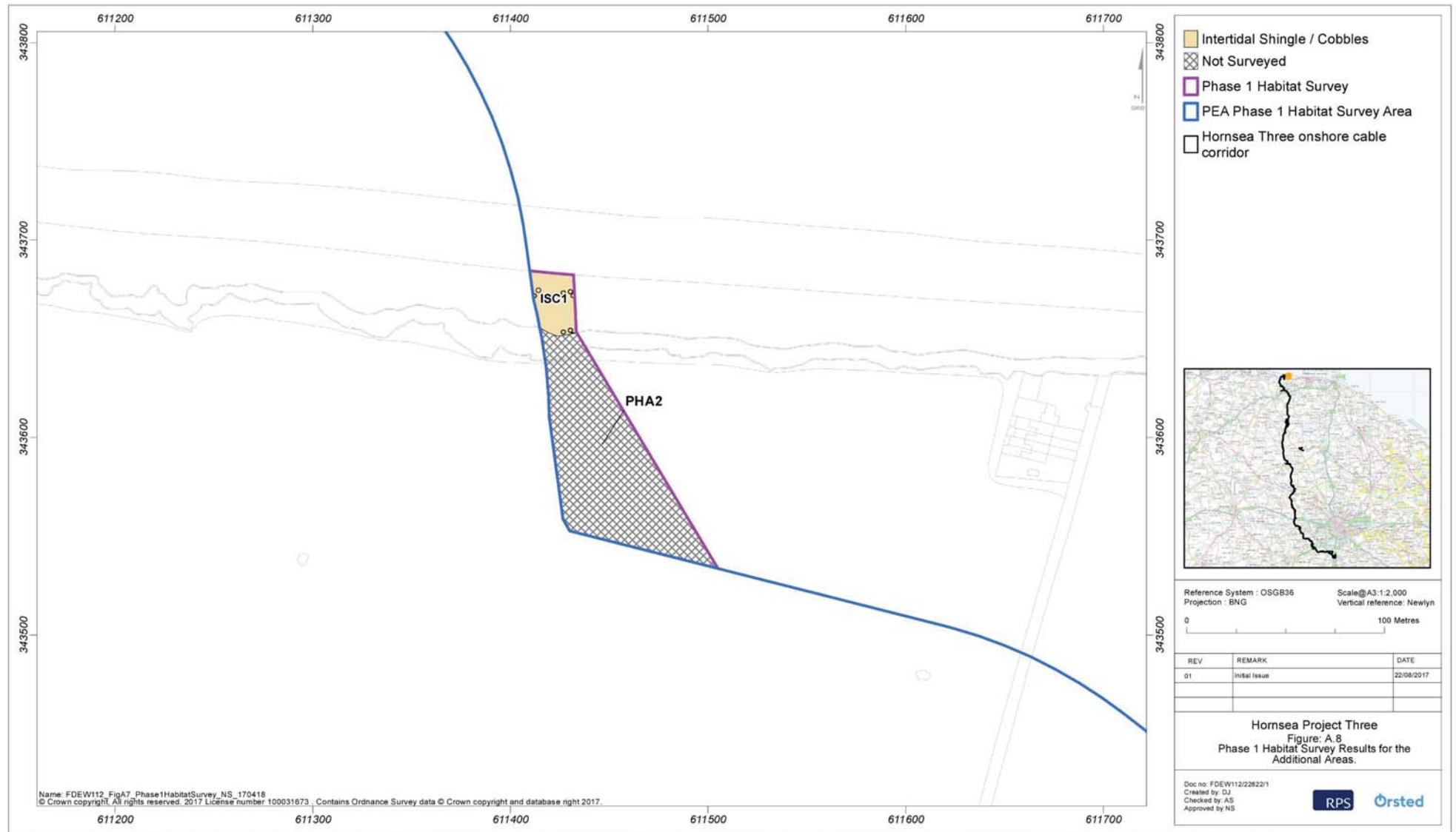


Figure A.8: Phase 1 habitat survey results for additional areas.



Figure A.9: Phase 1 habitat survey results for additional areas.



Figure A.10: Phase 1 habitat survey results for additional areas.



Figure A.11: Phase 1 habitat survey results for additional areas.



Figure A.12: Phase 1 habitat survey results for additional areas.

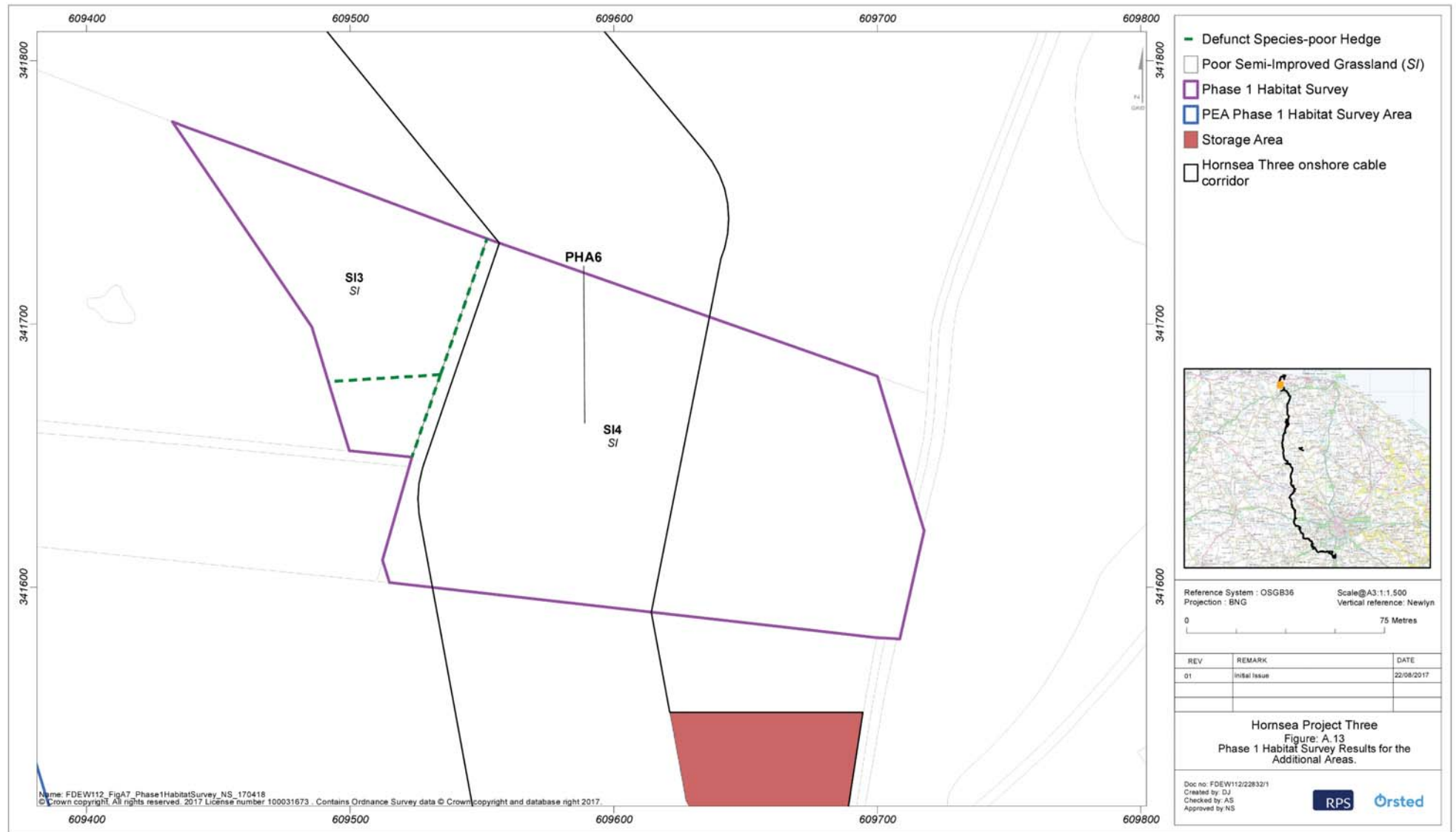


Figure A.13: Phase 1 habitat survey results for additional areas.

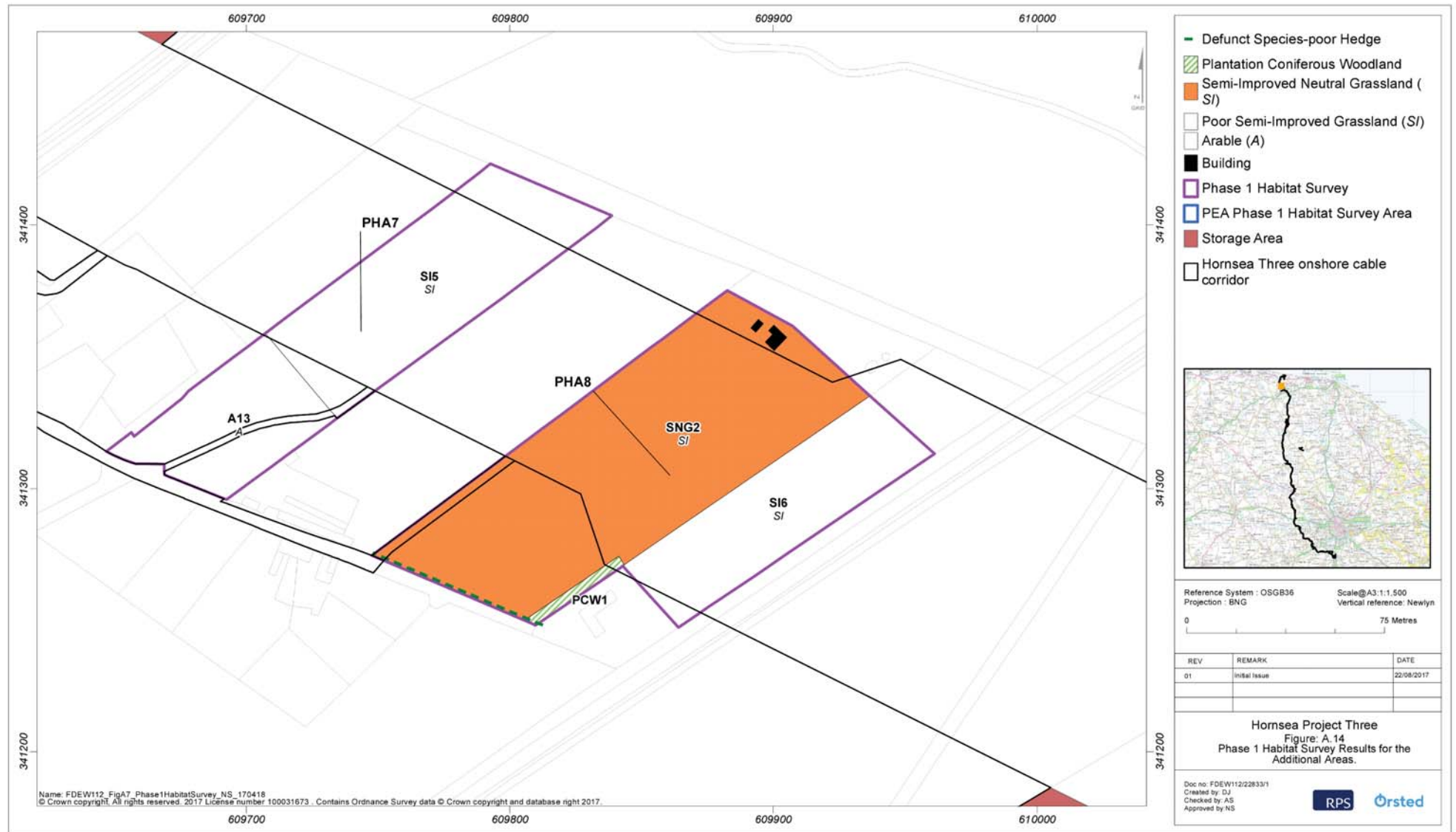


Figure A.14: Phase 1 habitat survey results for additional areas.

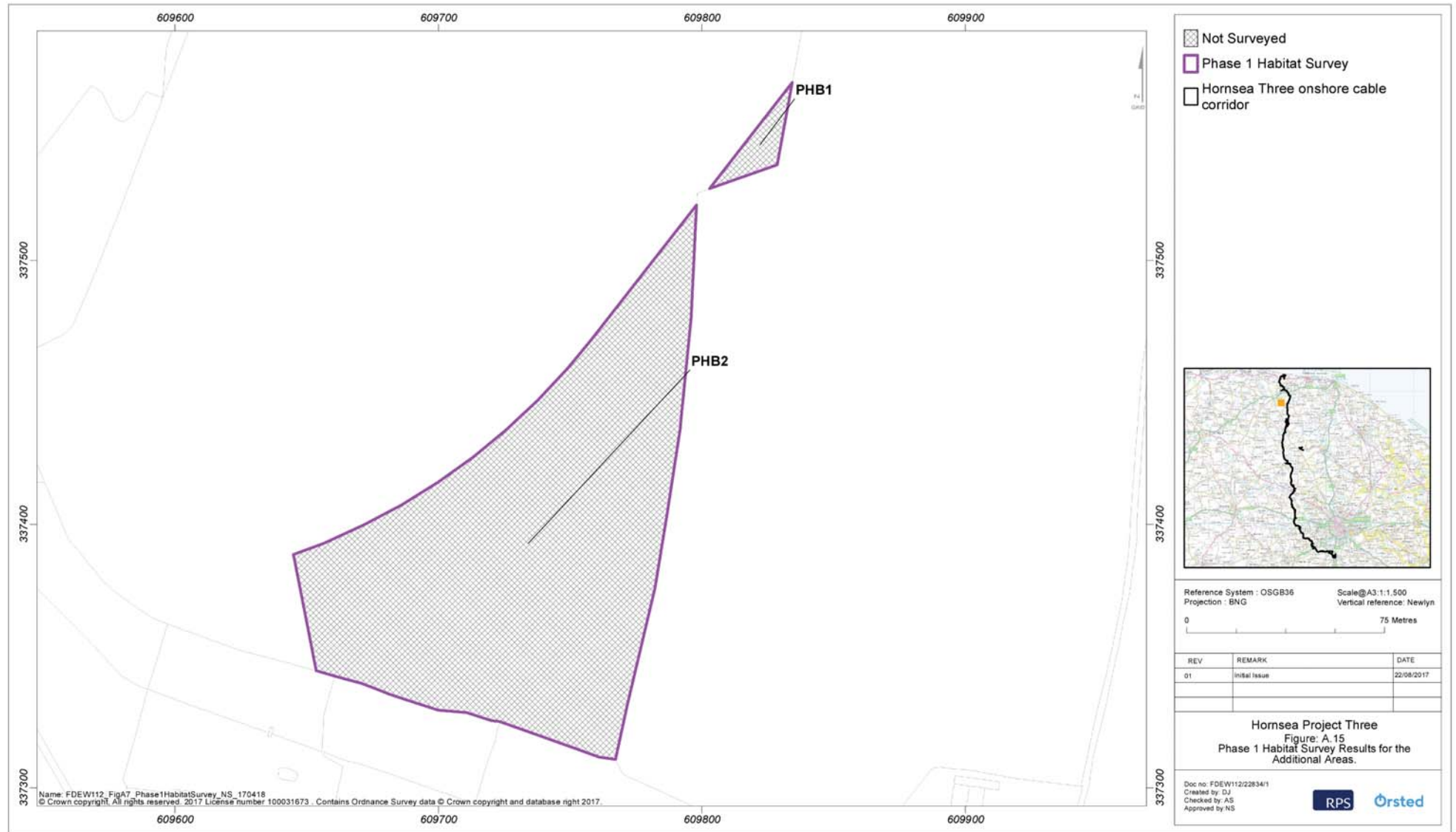


Figure A.15: Phase 1 habitat survey results for additional areas.



Figure A.16: Phase 1 habitat survey results for additional areas.



Figure A.17: Phase 1 habitat survey results for additional areas.



Figure A.18: Phase 1 habitat survey results for additional areas.

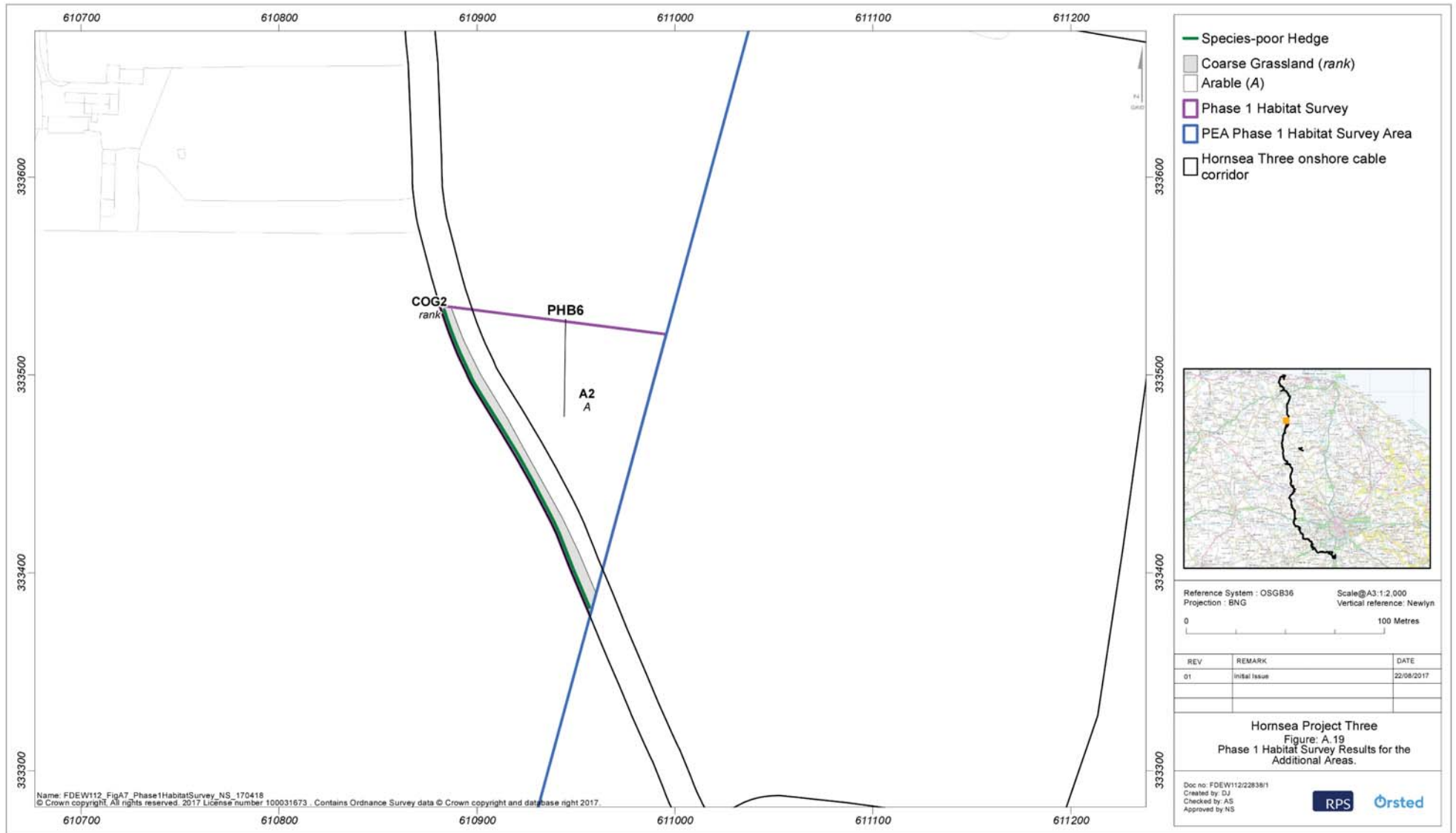


Figure A.19: Phase 1 habitat survey results for additional areas.

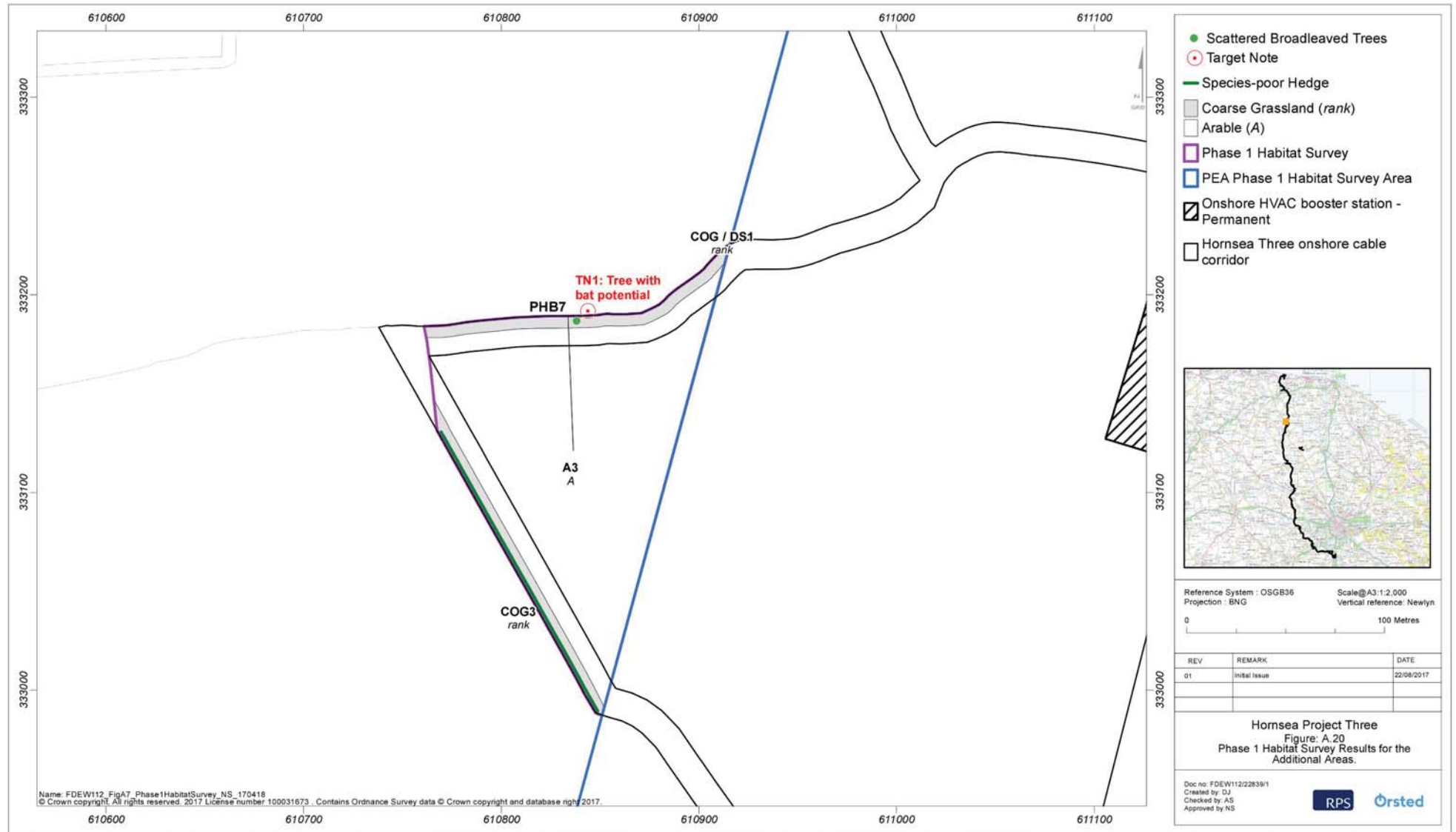


Figure A.20: Phase 1 habitat survey results for additional areas.



Figure A.21: Phase 1 habitat survey results for additional areas.

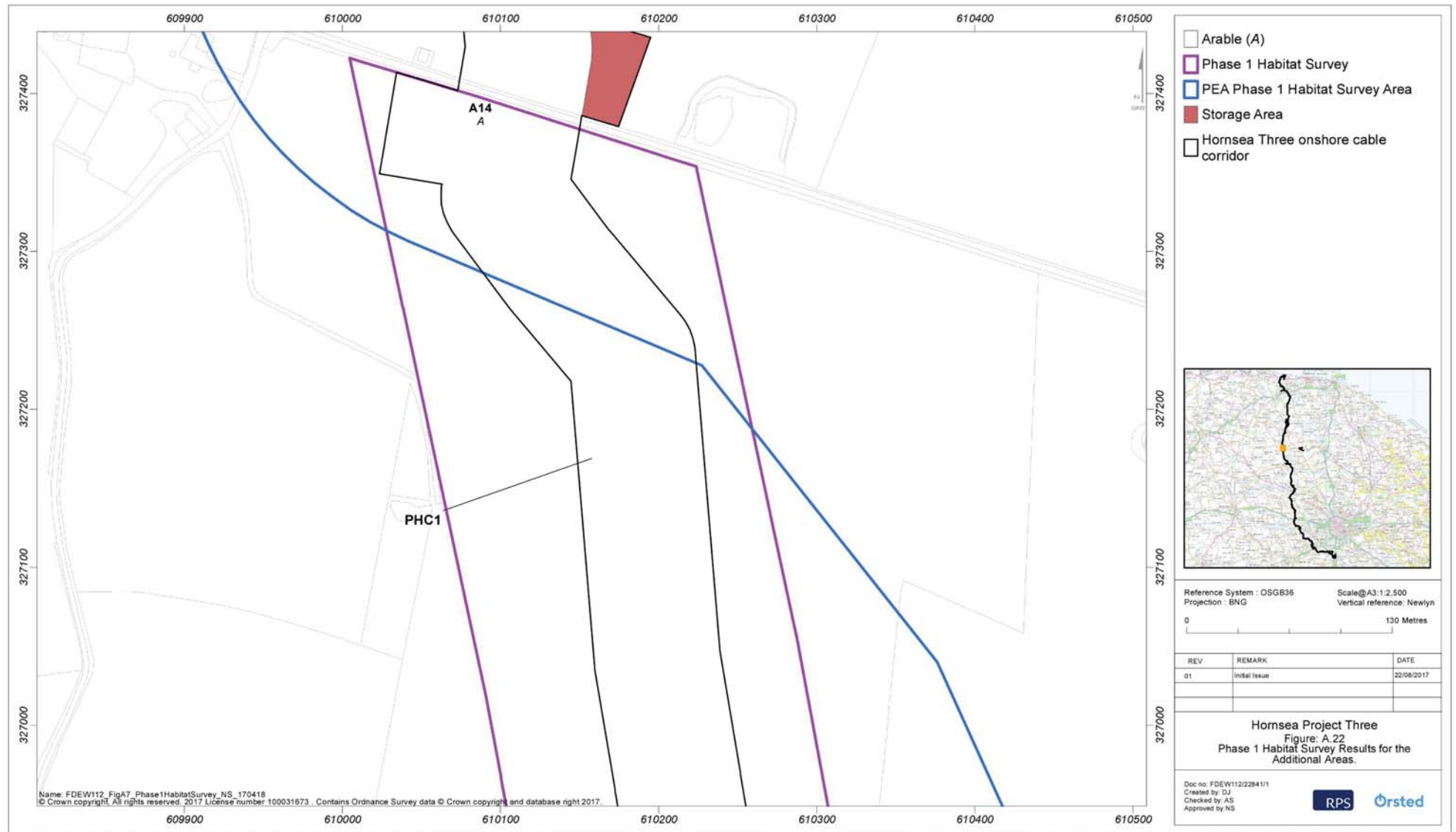


Figure A.22: Phase 1 habitat survey results for additional areas.

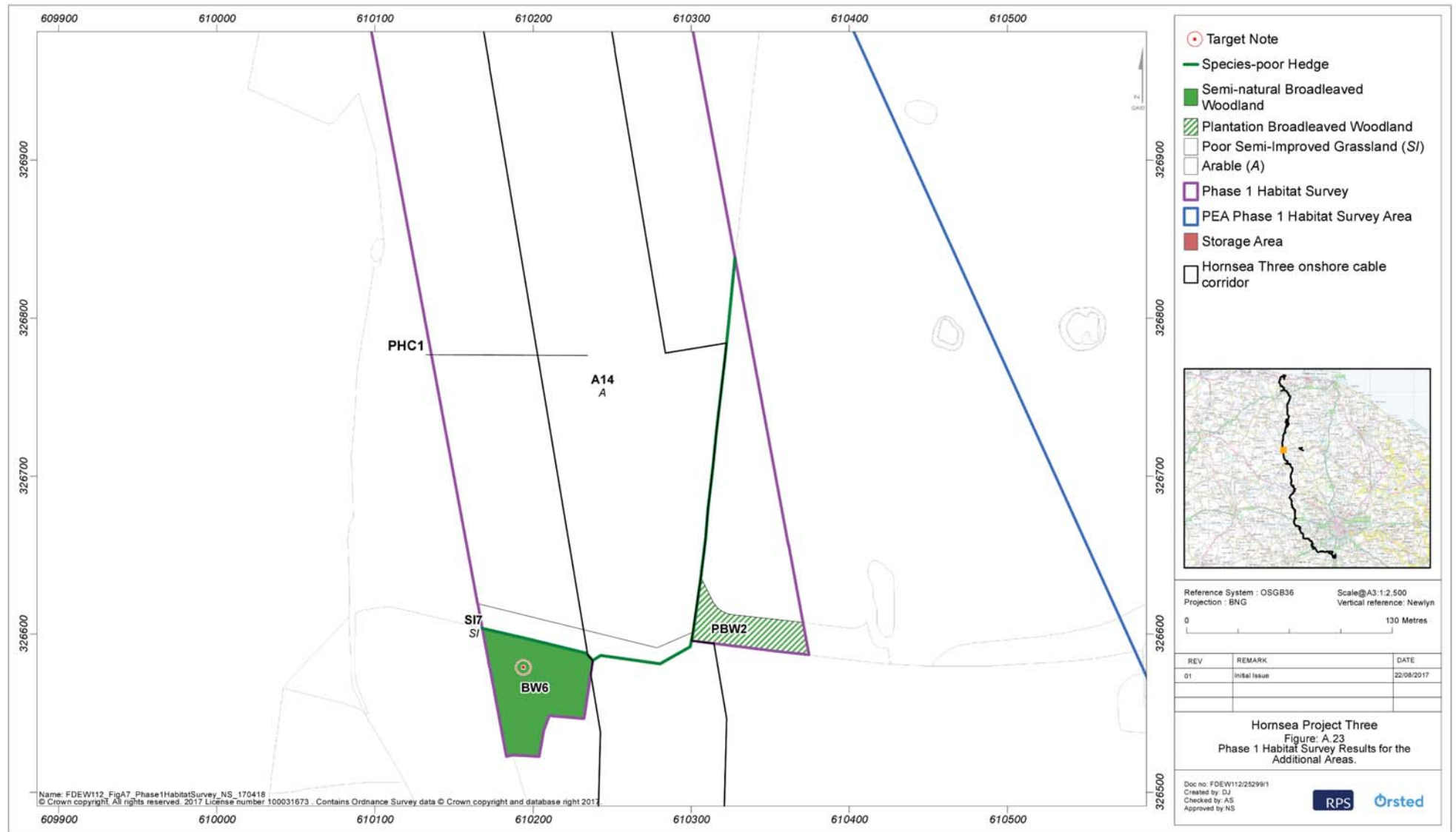


Figure A.23: Phase 1 habitat survey results for additional areas.

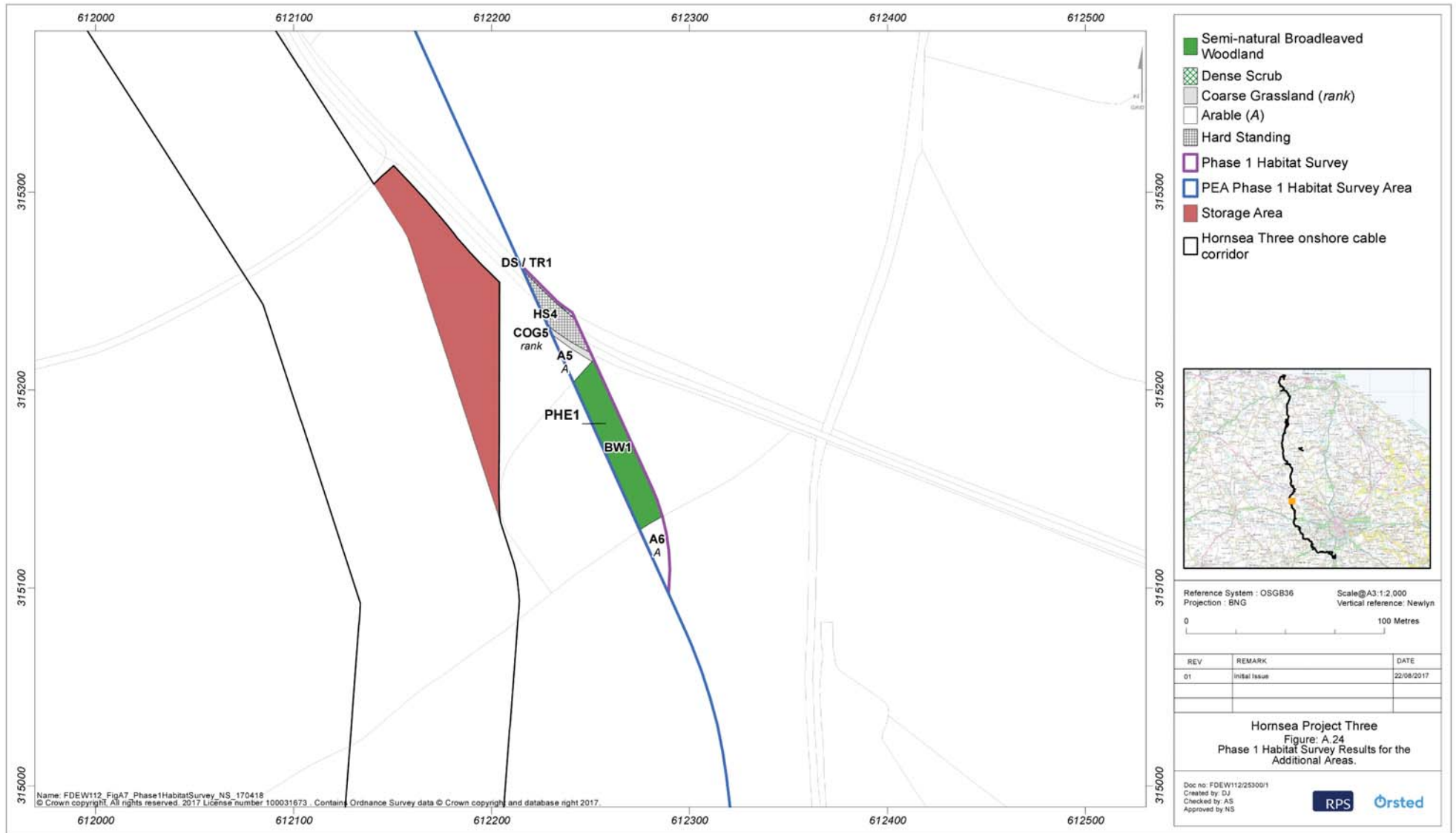


Figure A.24: Phase 1 habitat survey results for additional areas.



Figure A.25: Phase 1 habitat survey results for additional areas.

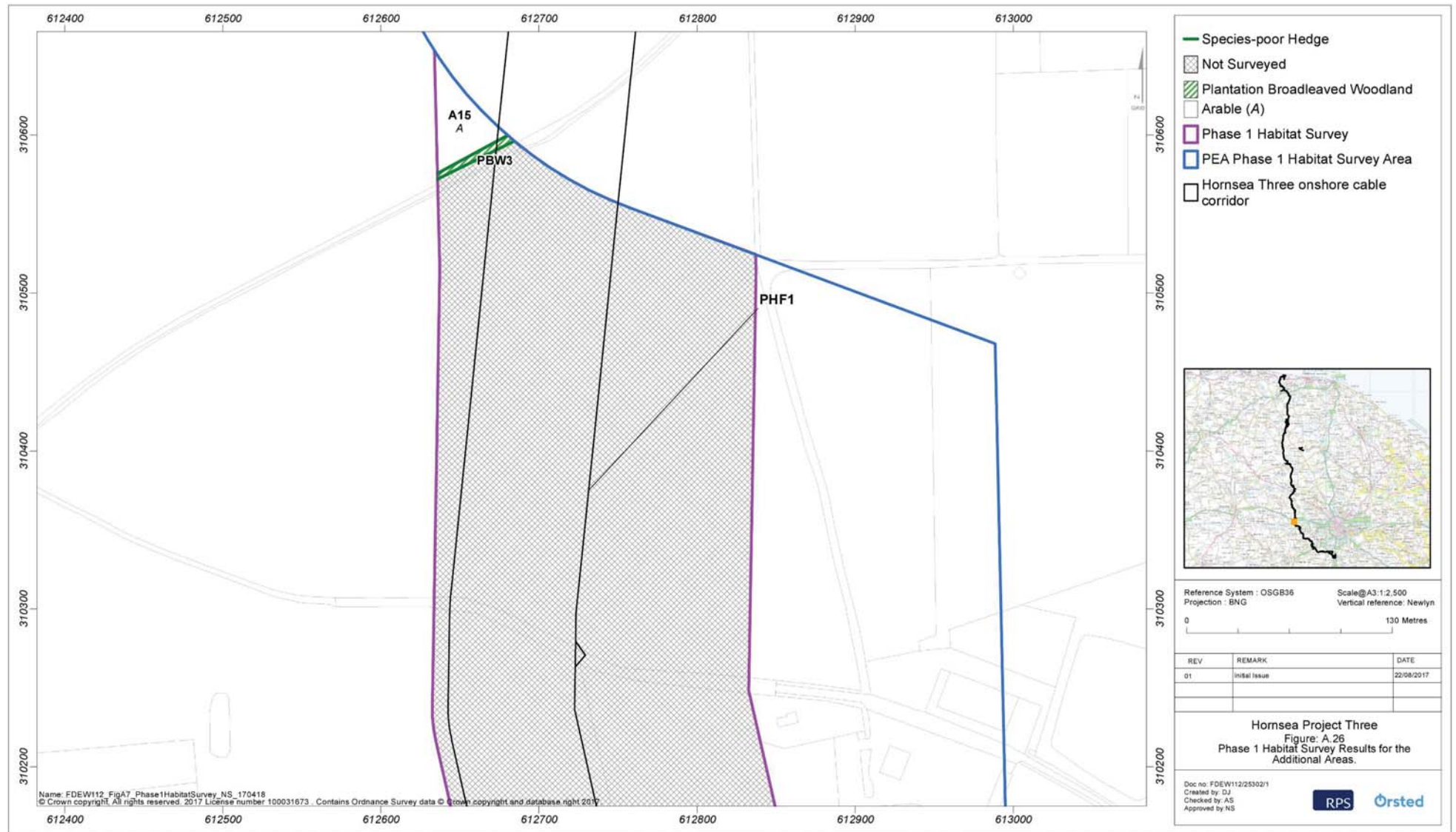


Figure A.26: Phase 1 habitat survey results for additional areas.

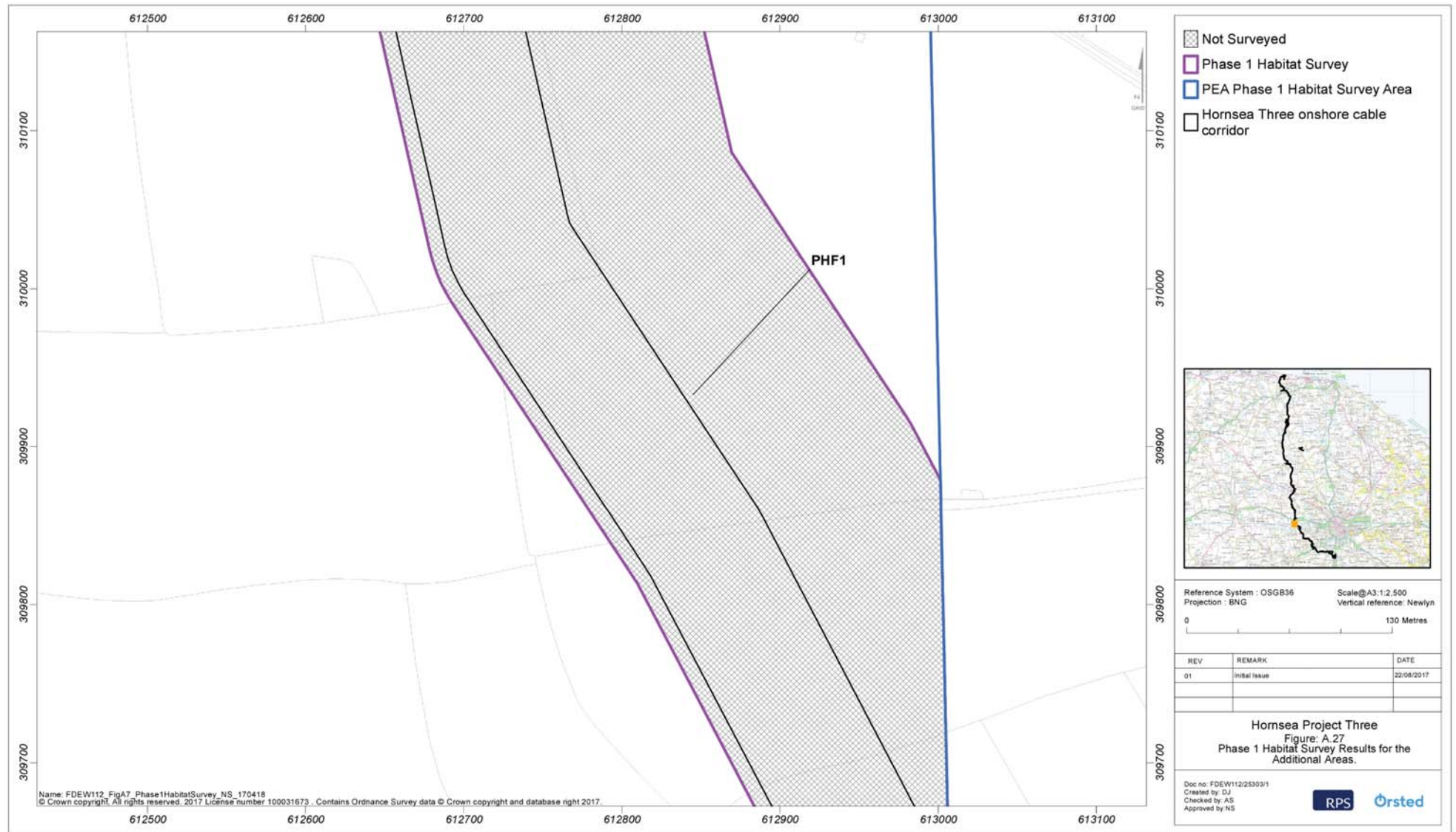


Figure A.27: Phase 1 habitat survey results for additional areas.

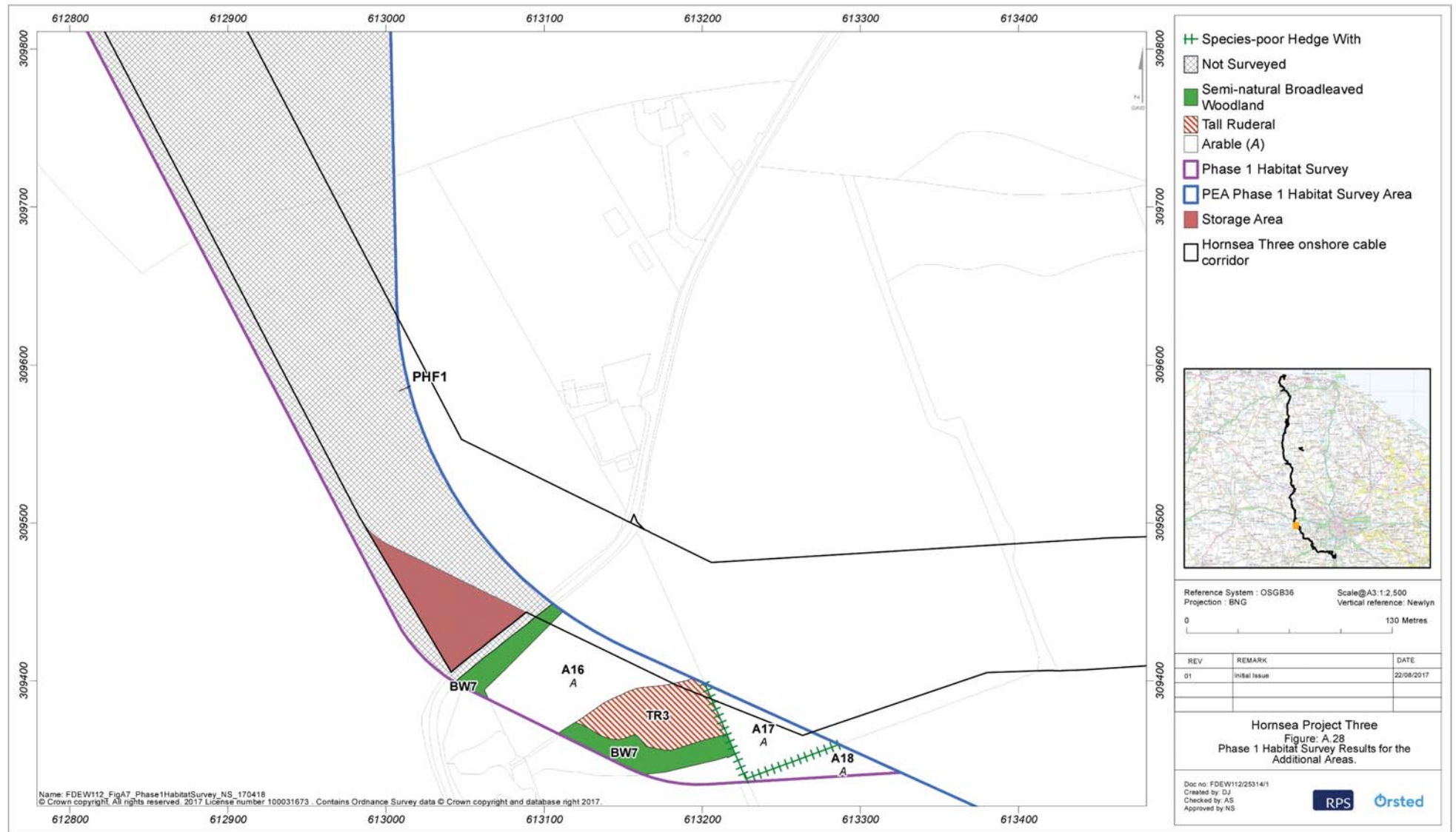


Figure A.28: Phase 1 habitat survey results for additional areas.



Figure A.29: Phase 1 habitat survey results for additional areas.

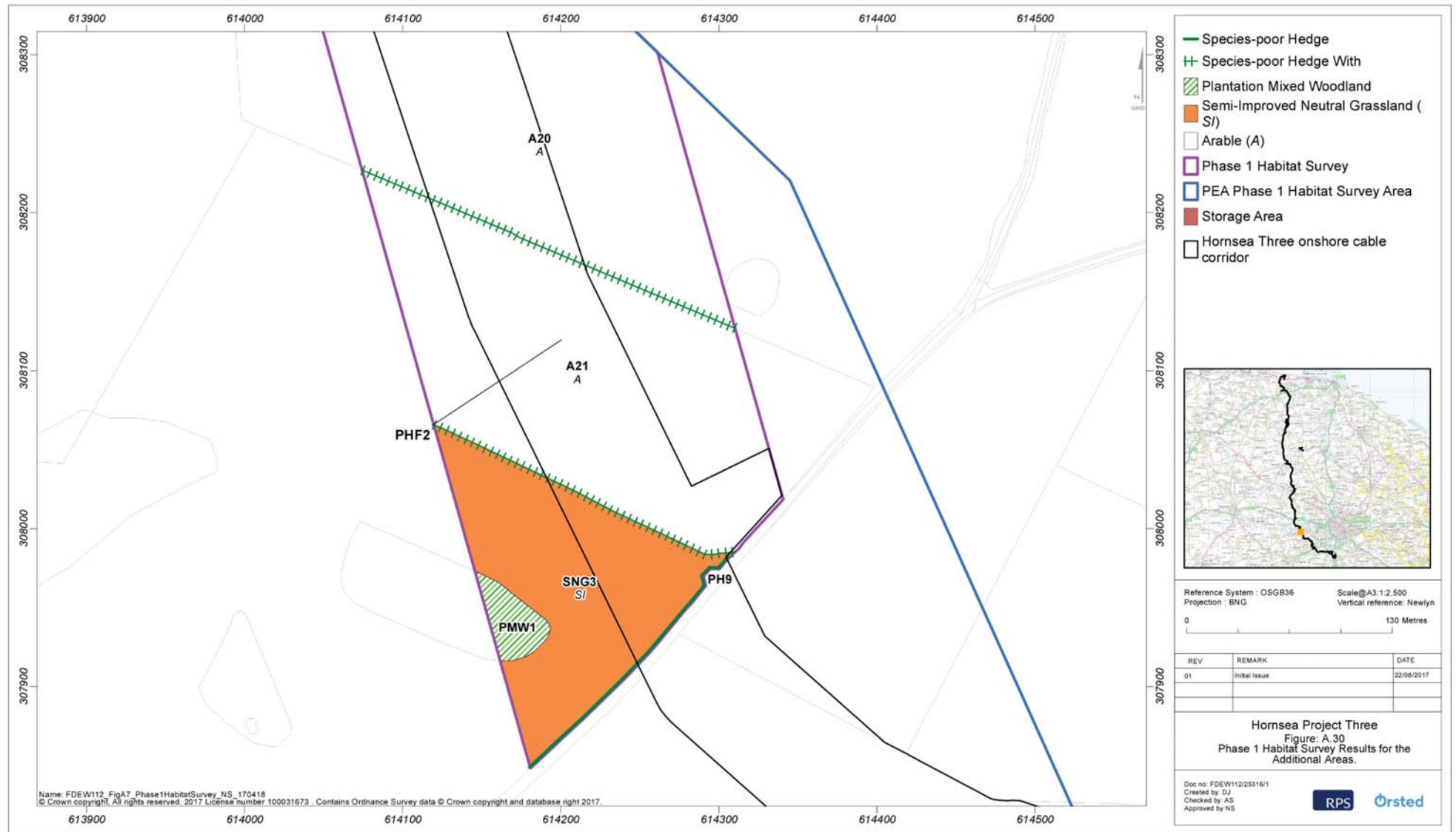


Figure A.30: Phase 1 habitat survey results for additional areas.



Figure A.31: Phase 1 habitat survey results for additional areas.

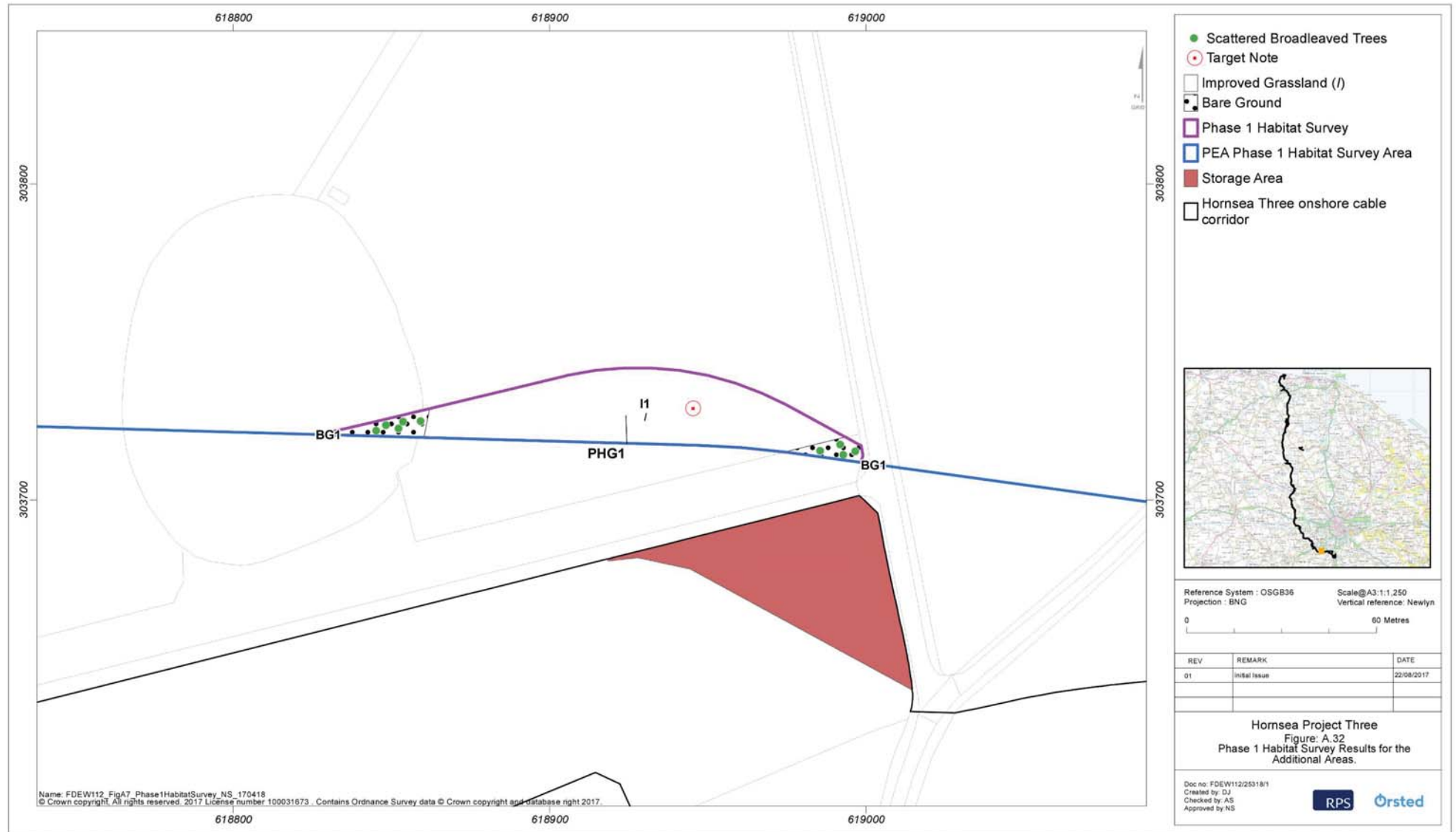


Figure A.32: Phase 1 habitat survey results for additional areas.

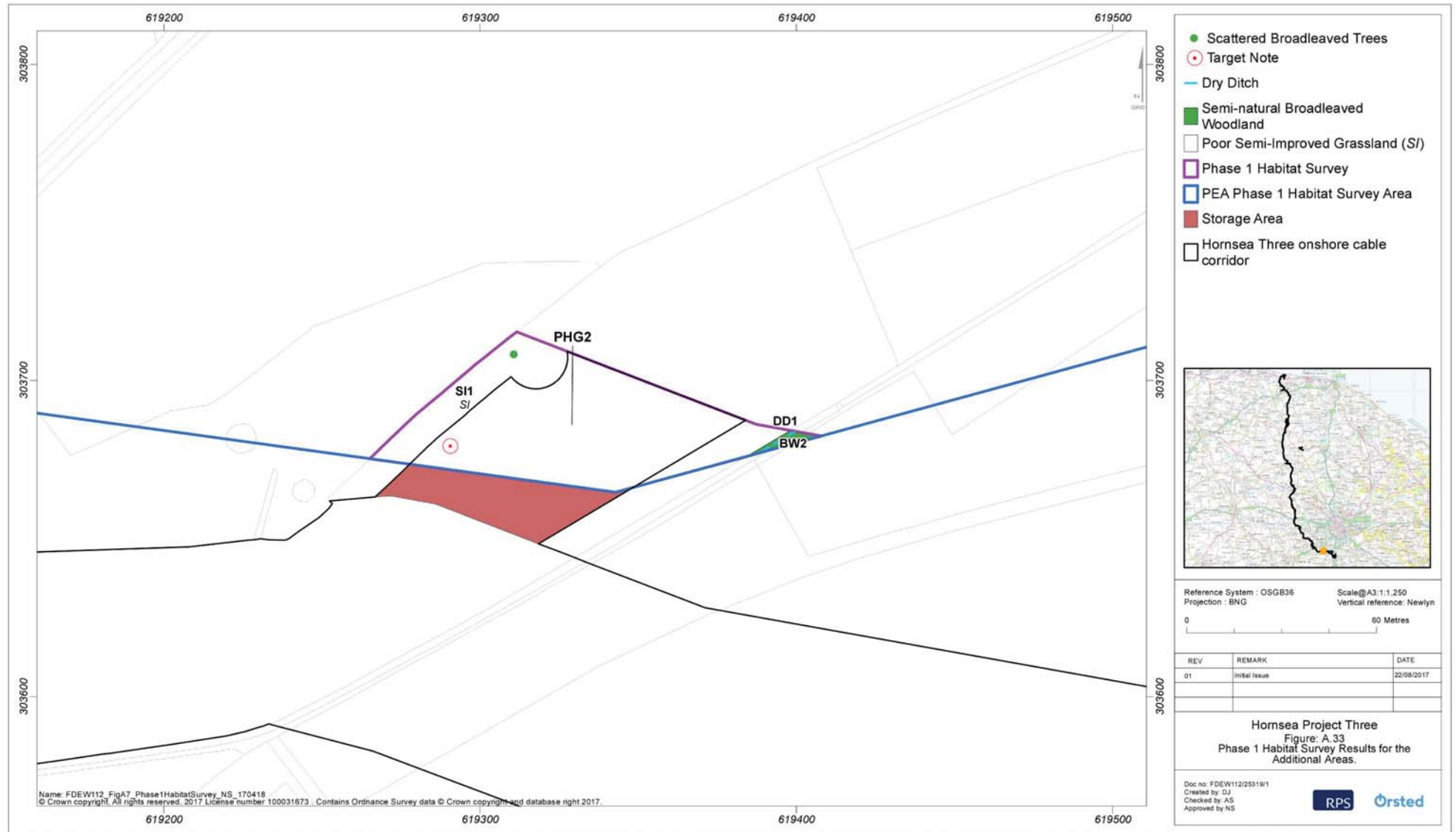


Figure A.33: Phase 1 habitat survey results for additional areas.

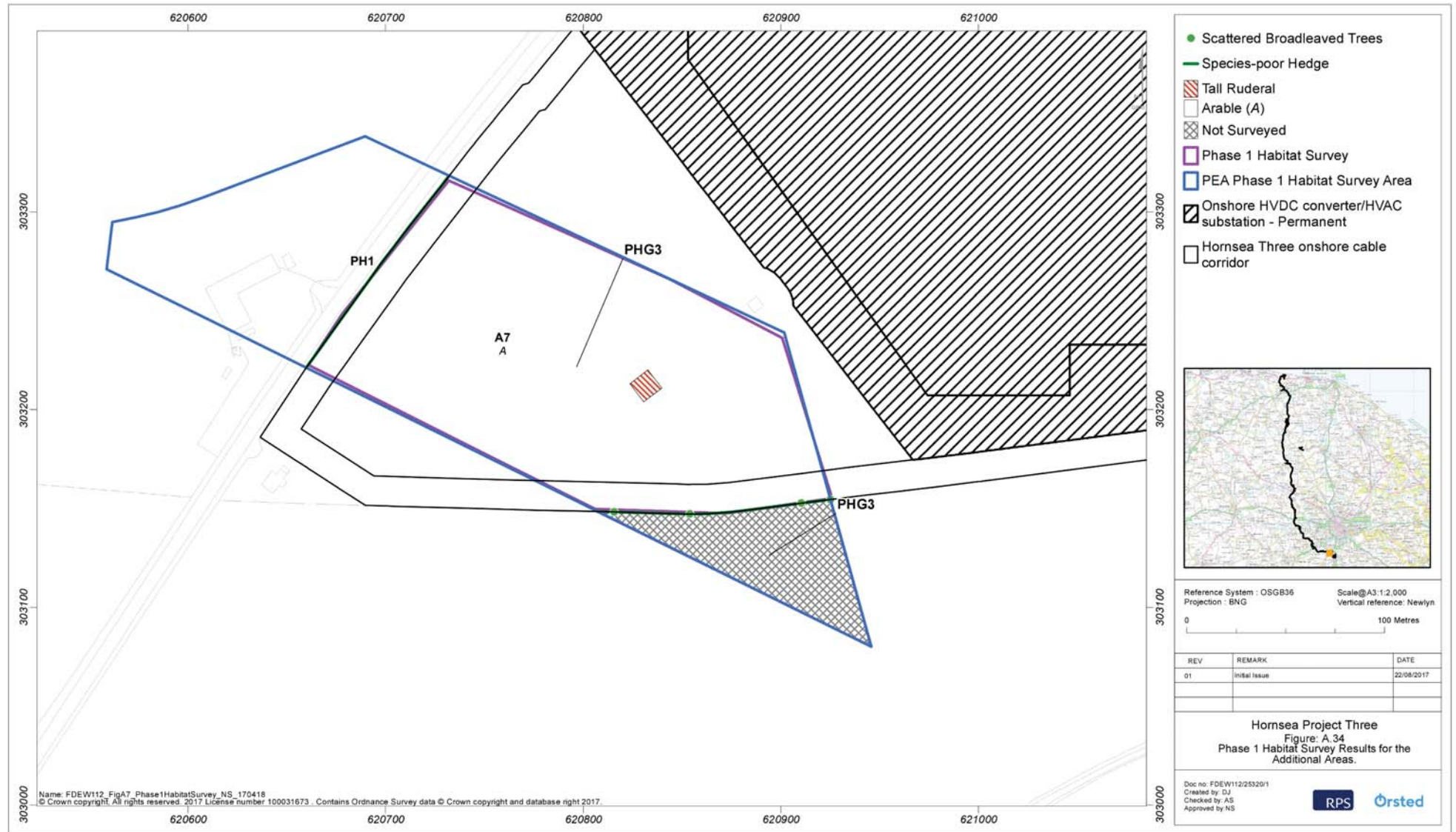


Figure A.34: Phase 1 habitat survey results for additional areas.

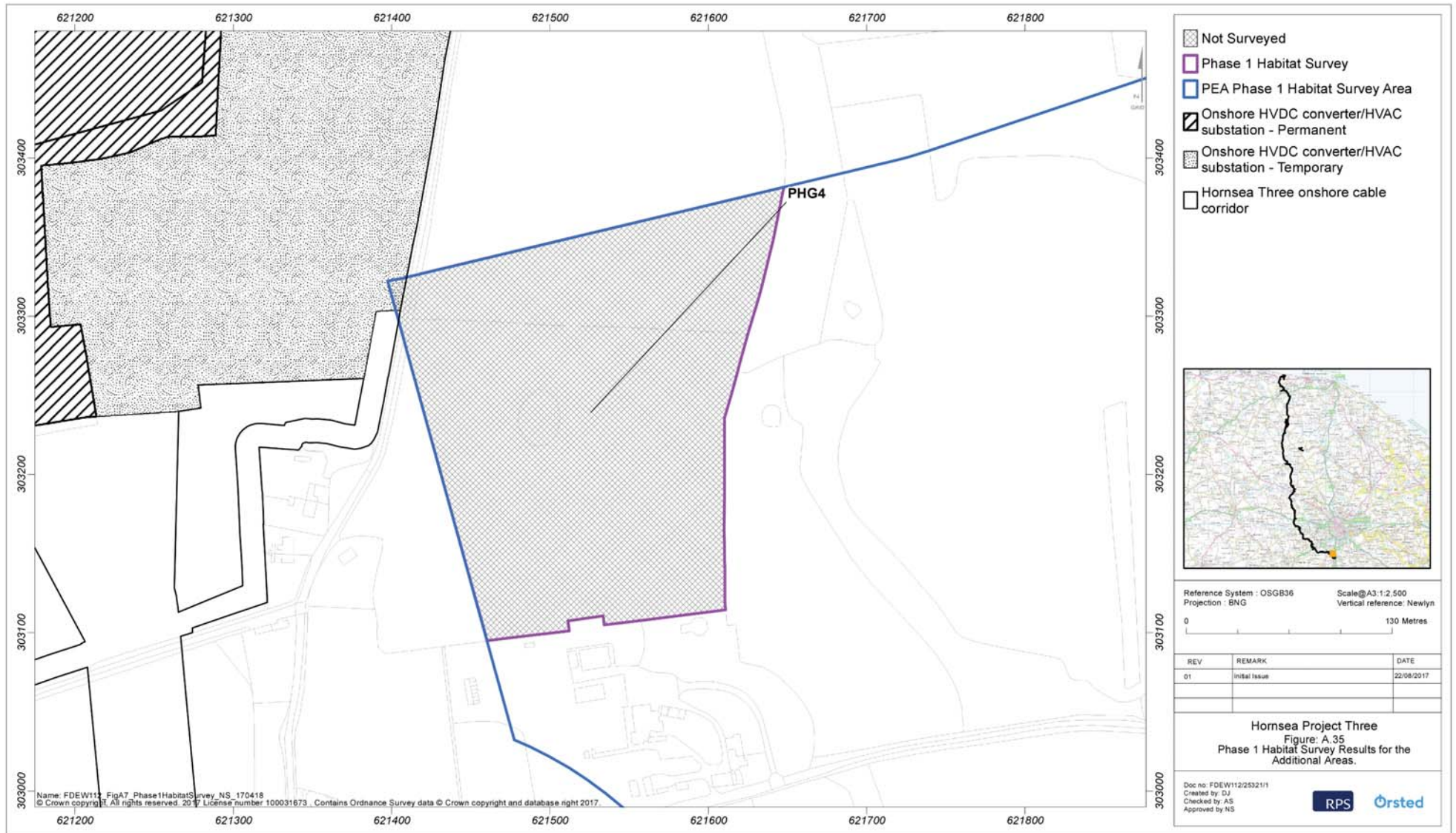


Figure A.35: Phase 1 habitat survey results for additional areas.



Figure A.36: Phase 1 habitat survey results for additional areas.

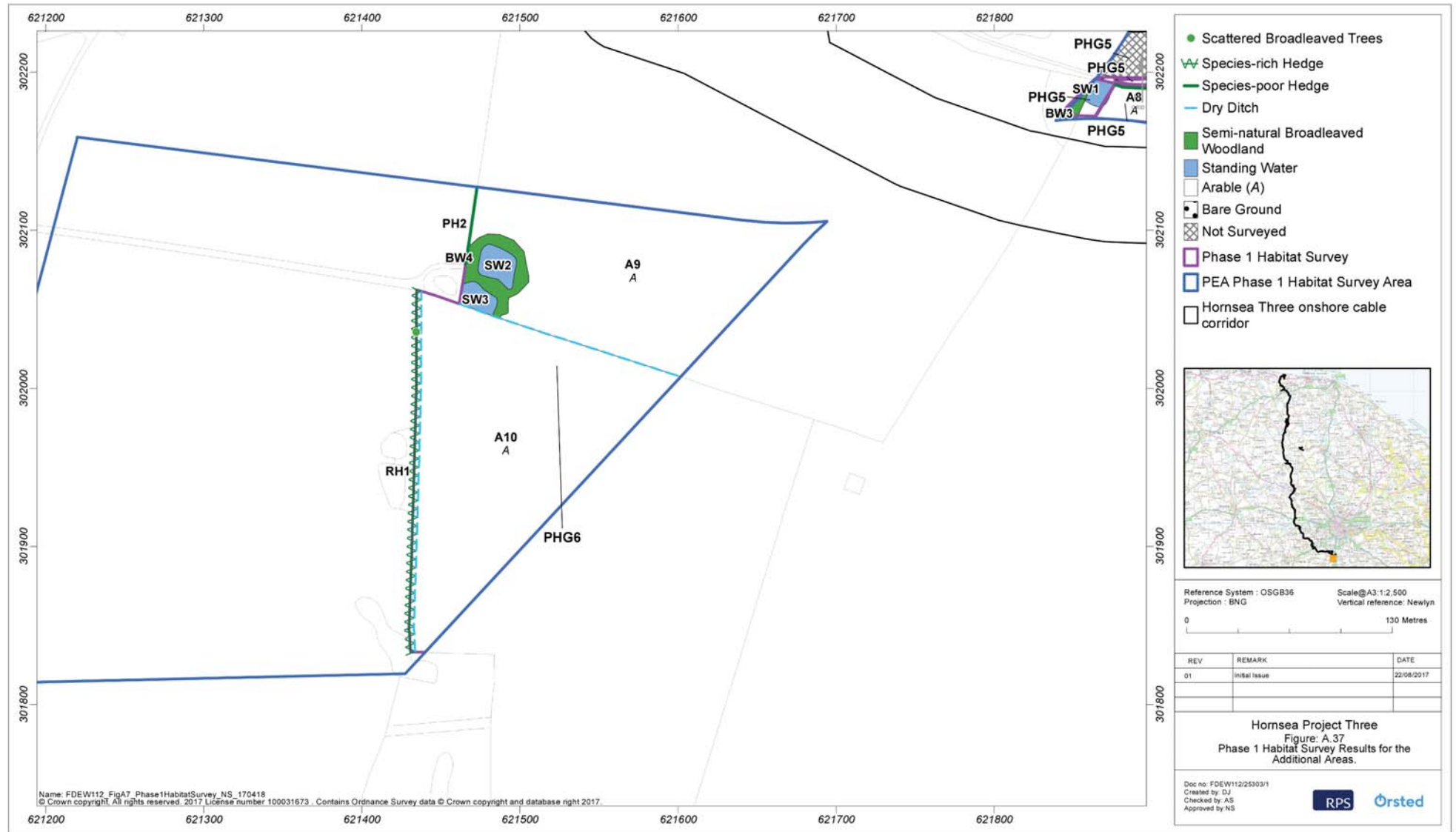


Figure A.37: Phase 1 habitat survey results for additional areas.



Figure A.38: Phase 1 habitat survey results for additional areas.



Figure A.39: Phase 1 habitat survey results for additional areas.

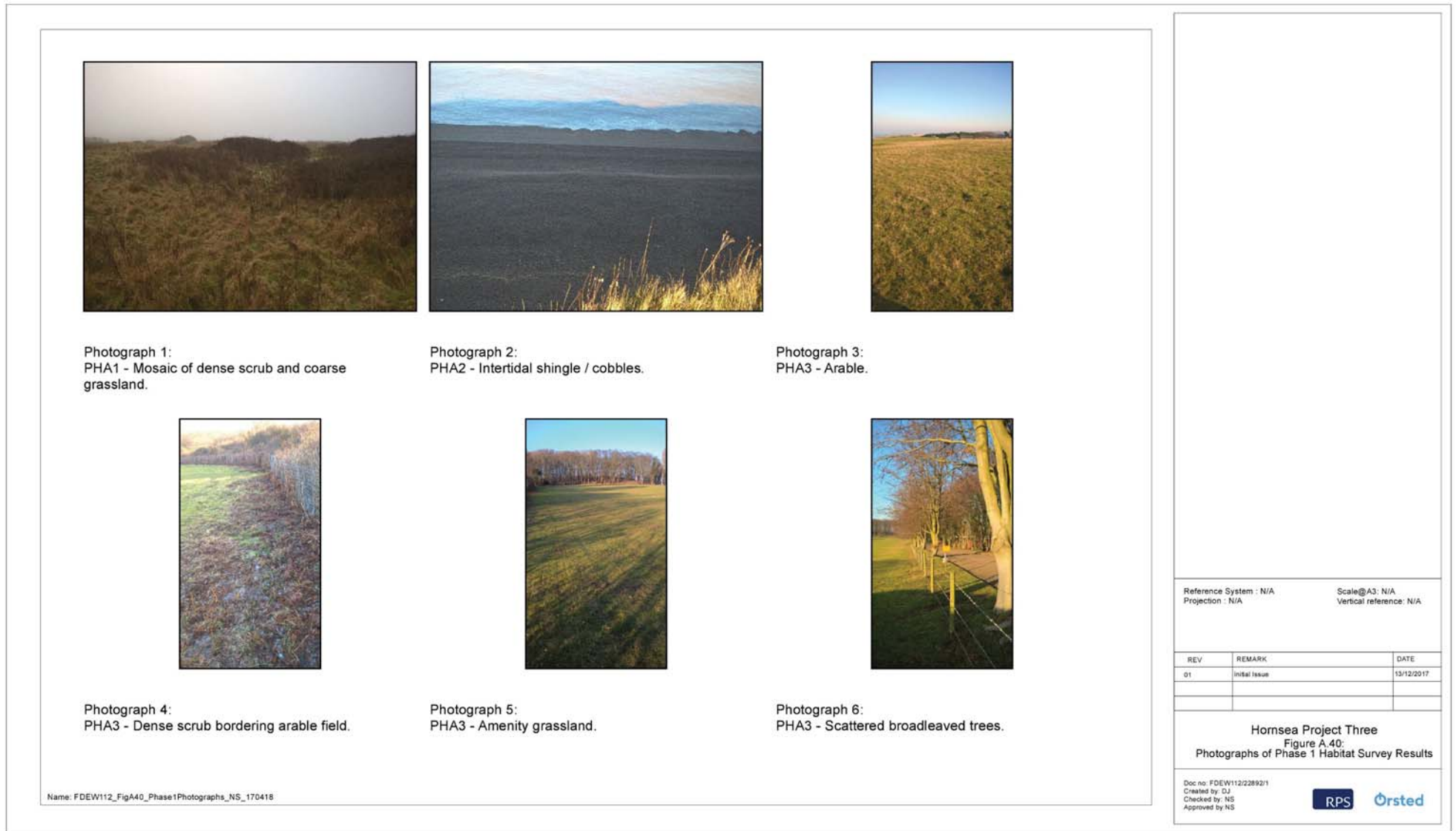


Figure A.40: Photographs of Phase 1 habitat survey results.



Figure A.41: Photographs of Phase 1 habitat survey results.



Figure A.42: Photographs of Phase 1 habitat survey results.



Figure A.43: Photographs of Phase 1 habitat survey results.



Photograph 25:
PHG3 - Tall ruderal under pylon.



Photograph 26:
PHG5 - Semi-natural broadleaved woodland and arable.



Photograph 27:
PHG5 - Footpath in semi-natural broadleaved woodland.



Photograph 28:
PHG5 - Semi-natural broadleaved woodland.



Photograph 29:
PHG5 - Species-poor hedge and arable field.



Photograph 30:
PHG6 - Arable field.

Name: FDEW112_FigA40_Phase1Photographs_NS_170418

Reference System : N/A
Projection : N/A
Scale@A3: N/A
Vertical reference: N/A

REV	REMARK	DATE
01	Initial Issue	13/12/2017

Hornsea Project Three
Figure A.44:
Photographs of Phase 1 Habitat Survey Results

Doc no: FDEW112/22896/1
Created by: GJ
Checked by: NS
Approved by: NS



Figure A.44: Photographs of Phase 1 habitat survey results.



Photograph 31:
PHG6 - Semi-natural broadleaved woodland and arable field.



Photograph 32:
PHG6 - Species-rich hedge and arable field.



Photograph 33:
PHG6 - Arable field bordered by species-rich hedge.



Photograph 34:
PHG6 - Arable field and semi-natural broadleaved woodland.



Photograph 35:
PHG7 - Arable, tall ruderal and semi-natural mixed woodland.



Photograph 36:
PHG7 - Coarse grassland track with tall ruderal and semi-natural mixed woodland.

Name: FDEW112_FigA40_Phase1Photographs_NS_170418

Reference System : N/A
Projection : N/A
Scale@A3: N/A
Vertical reference: N/A

REV	REMARK	DATE
01	Initial Issue	13/12/2017

Hornsea Project Three
Figure A.45:
Photographs of Phase 1 Habitat Survey Results

Doc no: FDEW112/22897/1
Created by: GJ
Checked by: NS
Approved by: NS



Figure A.45: Photographs of Phase 1 habitat survey results.



Photograph 37:
PHG7 - Coarse grassland track, tree and arable field.



Photograph 38:
PHG8 - Dry ditch, species-poor hedge and arable fields.

Name: FDEW112_FigA40_Phase1Photographs_NS_170418

Reference System : N/A
Projection : N/A
Scale@A3: N/A
Vertical reference: N/A

REV	REMARK	DATE
01	initial issue	13/12/2017

Hornsea Project Three
Figure A.46:
Photographs of Phase 1 Habitat Survey Results

Doc no: FDEW112/22898/1
Created by: GJ
Checked by: NS
Approved by: NS



Figure A.46: Photographs of Phase 1 habitat survey results.

A.10 References

CIEEM (2013) Guidelines for Preliminary Ecological Appraisal. Chartered Institute of Ecology and Environmental Management, Winchester, England.

Institute of Environmental Assessment (1995) Guidelines for Baseline Ecological Assessment. E & FN Spon, London, England.

JNCC (2010) Handbook for Phase 1 habitat survey: A technique for environmental audit. Joint Nature Conservancy Committee, Peterborough, England.

RPS Group Ltd (2016) Hornsea Three Preliminary Ecological Appraisal. Report prepared for DONG Energy.

Stace, C. (2010) New Flora of the British Isles (third edition). Cambridge University Press, Cambridge, England.

Thomson Ecology (2017a). Red squirrel, hazel dormouse and freshwater pearl mussel desk study. Report Reference: FDEW112/011/001/002.

Thomson Ecology (2017b) Hornsea Three Onshore ECR Cable Route Badger Survey Interim Report. Report Reference FDEW112/017/001/003.

Thomson Ecology (2017c) Hornsea Three Onshore ECR Cable Route Great Crested Newt Habitat Suitability Index Assessment and Desmoulin's Whorl Snail Habitat Suitability Assessment Survey Interim Report. Report Reference FDEW112/007/001/003.

Thomson Ecology (2017d) Hornsea Three onshore ECR Cable Route Bat Habitat Assessment Survey Interim Report. Report Reference FDEW112/013/001/003.

Appendix B Thomson Ecology Phase 1 Habitat Survey – Assessment Methodology

B.1 Identification of legal and planning policy issues in England

B.1.1 Scope of assessment

B.1.1.1 The first step is to identify any biodiversity features found in the survey area that are subject to legal or policy controls, as follows:

B.1.2 Protected species

B.1.2.1 The species known to occur in the survey area (as a result of the Phase 1 habitat survey) are compared with those listed in nature conservation legislation i.e. the Wildlife and Countryside Act 1981 (as amended), the Conservation of Habitats Regulations 2010.

B.1.2.2 In addition, the species known to occur in the survey area (as a result of the Phase 1 habitat survey) are compared with those listed in animal welfare legislation, i.e. the Badgers Act 1992 and the Wild Mammals (Protection) Act 1996.

B.1.3 Priority species

B.1.3.1 The species known to occur in the survey area are compared with those listed as priority species (i.e. Species of Principal Importance for the Conservation of Biodiversity in the country concerned) or those requiring action on the local priority species lists (Local Biodiversity Action Plans).

B.1.4 Other species of conservation concern

B.1.4.1 The species known to occur in the survey area are compared with other nature conservation listings, such as red data books.

B.1.5 Review of legislation and policy

B.1.5.1 If any of the above are found to occur on or near the survey area and could be impacted by Hornsea Three, the relevant legislation and planning policy (including national, regional, local policies) are examined to determine the steps which must be taken by the proposed development to ensure legal compliance (see volume 6, chapter 3: Ecology and Nature Conservation of the Environmental Statement.

B.2 Identification of potential further ecological issues

B.2.1.1 Further ecological issues are those which fall outside the scope of, or could not be closed out during, the Phase 1 habitat survey. These include the following:

- Suitable habitat is present on or near the survey area for a protected species/species of conservation concern and specialist survey techniques are required for their detection;
- Suitable habitat is present on or near the survey area for a protected species/species of conservation concern and the Phase 1 habitat survey was not undertaken at a suitable time of year for their detection; and
- A protected species/species of conservation concern was found on or near the survey area but further information on population size or distribution is required in order to inform the impact assessment.

B.2.1.2 Given the above, no attempt is made within this Phase 1 report to evaluate the importance of the survey area for species not yet confirmed to be on or near the survey area, nor to discuss the implications for the development if the species were to be found in the survey area. This has been undertaken in stand-alone reports which form volume 6, annex 3.2 – 3.13 of the Environmental Statement.

Appendix C Thomson Ecology Phase 1 Habitat Survey – Plant species and abundance

Table C.1: PHA1.

Common Name	Scientific Name	Abundance
<i>Dense scrub/Coarse grassland (DS/ COG1)</i>		
Bramble	<i>Rubus fruticosus</i> agg.	D
Yorkshire-fog	<i>Holcus lanatus</i>	D
Common Bent	<i>Agrostis capillaris</i>	A
Creeping Thistle	<i>Cirsium arvense</i>	F
Ribwort Plantain	<i>Plantago lanceolata</i>	F
Cleavers	<i>Galium aparine</i>	O
Ground-ivy	<i>Glechoma hederacea</i>	O
Wild Teasel	<i>Dipsacus fullonum</i>	O

PHA2

No species present within accessible area

Table C.2: PHA3.

Common Name	Scientific Name	Abundance
<i>Plantation broadleaved woodland (PBW1)</i>		
Sycamore	<i>Acer pseudoplatanus</i>	D
Wood Avens	<i>Geum urbanum</i>	D
Ground-ivy	<i>Glechoma hederacea</i>	A
Ash	<i>Fraxinus excelsior</i>	F
Common Ivy	<i>Hedera helix</i>	F
Common Nettle	<i>Urtica dioica</i>	R
<i>Dense scrub (DS1)</i>		
Bracken	<i>Pteridium aquilinum</i>	D

Common Name	Scientific Name	Abundance
Bramble	<i>Rubus fruticosus</i> agg.	D
Arable (A1)		
Wheat	<i>Triticum turgidum</i>	D
<i>Amenity grassland (AM1)</i>		
Perennial Rye-grass	<i>Lolium perenne</i>	D
Yorkshire-fog	<i>Holcus lanatus</i>	A
Common Bent	<i>Agrostis capillaris</i>	F
Dandelion	<i>Taraxacum officinale</i> agg.	O
Creeping Thistle	<i>Cirsium arvense</i>	O
Common Nettle	<i>Urtica dioica</i>	R
Ground-ivy	<i>Glechoma hederacea</i>	R
Wood Avens	<i>Geum urbanum</i>	R
Creeping Cinquefoil	<i>Potentilla reptans</i>	F
Red Clover	<i>Trifolium pratense</i>	O
Common Chickweed	<i>Stellaria media</i>	R
Bracken	<i>Pteridium aquilinum</i>	LA
Hard standing		
<i>Scattered Broadleaved trees</i>		
Ash	<i>Fraxinus excelsior</i>	F
Pedunculate Oak	<i>Quercus robur</i>	R

Table C.3: PHA4.

Common Name	Scientific Name	Abundance
<i>Poor Semi-improved grassland (SI2)</i>		
Common Bent	<i>Agrostis capillaris</i>	A
Yorkshire-fog	<i>Holcus lanatus</i>	A
False Oat-grass	<i>Arrhenatherum elatius</i>	F
Red Fescue	<i>Festuca rubra</i>	F
Lady's Bedstraw	<i>Galium verum</i>	F

Common Name	Scientific Name	Abundance
Cat's-ear	<i>Hypochaeris radicata</i>	F
Ribwort Plantain	<i>Plantago lanceolata</i>	F
Common Ragwort	<i>Senecio jacobaea</i>	F
Sweet Vernal-grass	<i>Anthoxanthum odoratum</i>	O
Smooth Hawk's-beard	<i>Crepis capillaris</i>	O
Cock's-foot	<i>Dactylis glomerata</i>	O
<i>Rumex acetosa</i>	<i>Rumex acetosa</i>	O
Broad-leaved Dock	<i>Rumex obtusifolius</i>	O
Germander Speedwell	<i>Veronica chamaedrys</i>	O
Yarrow	<i>Achillea millefolium</i>	R
Creeping Thistle	<i>Cirsium arvense</i>	R
Field Horsetail	<i>Equisetum arvense</i>	R
Hogweed	<i>Heracleum sphondylium</i>	R
Common Bird's-foot-trefoil	<i>Lotus corniculatus</i>	R
Creeping Cinquefoil	<i>Potentilla reptans</i>	R
Creeping Buttercup	<i>Ranunculus repens</i>	R
Common Nettle	<i>Urtica dioica</i>	R
Species-poor Hedge with trees (PHT1 and PHT2)		
Hawthorn	<i>Crataegus monogyna</i>	R
Bramble	<i>Rubus fruticosus agg.</i>	R
Blackthorn	<i>Prunus spinosa</i>	R
Common Nettle	<i>Urtica dioica</i>	R

Table C.4: PHA5.

Common Name	Scientific Name	Abundance
Semi-improved neutral grassland (SNG1)		
Common Bent	<i>Agrostis capillaris</i>	A
Red Fescue	<i>Festuca rubra</i>	A
Yorkshire-fog	<i>Holcus lanatus</i>	A
Ribwort Plantain	<i>Plantago lanceolata</i>	A

Common Name	Scientific Name	Abundance
Common Mouse-ear	<i>Cerastium fontanum</i>	F
Smooth Hawk's-beard	<i>Crepis capillaris</i>	F
Common Ragwort	<i>Senecio jacobaea</i>	F
White Clover	<i>Trifolium repens</i>	F
Creeping Bent	<i>Agrostis stolonifera</i>	LO
Creeping Buttercup	<i>Ranunculus repens</i>	LO
False Oat-grass	<i>Arrhenatherum elatius</i>	O
Field Bindweed	<i>Convolvulus arvensis</i>	O
Cat's-ear	<i>Hypochaeris radicata</i>	O
Perennial Rye-grass	<i>Lolium perenne</i>	O
Black Medick	<i>Medicago lupulina</i>	O
Autumn Hawkbit	<i>Scorzoneroides autumnalis</i>	O
Yellow Oat-grass	<i>Trisetum flavescens</i>	O
Germander Speedwell	<i>Veronica chamaedrys</i>	O
Lady's Bedstraw	<i>Galium verum</i>	O/LF
Sweet Vernal-grass	<i>Anthoxanthum odoratum</i>	R
Small-fruited Prickly-sedge	<i>Carex muricata subsp. pairae</i>	R
Spear Thistle	<i>Cirsium vulgare</i>	R
Hawthorn	<i>Crataegus monogyna</i>	R
Cock's-foot	<i>Dactylis glomerata</i>	R
Ground-ivy	<i>Glechoma hederacea</i>	R
Field Scabious	<i>Knautia arvensis</i>	R
Common Bird's-foot-trefoil	<i>Lotus corniculatus</i>	R
Creeping Cinquefoil	<i>Potentilla reptans</i>	R
Selfheal	<i>Prunella vulgaris</i>	R
Bracken	<i>Pteridium aquilinum</i>	R
Bramble	<i>Rubus fruticosus agg.</i>	R
Curled Dock	<i>Rumex crispus</i>	R
Common Nettle	<i>Urtica dioica</i>	R

Common Name	Scientific Name	Abundance
Semi-improved neutral grassland (SNG/SB1)		
Bracken	<i>Pteridium aquilinum</i>	R
Common Bent	<i>Agrostis capillaris</i>	A
Red Fescue	<i>Festuca rubra</i>	A
Yorkshire-fog	<i>Holcus lanatus</i>	A
Ribwort Plantain	<i>Plantago lanceolata</i>	A
Common Mouse-ear	<i>Cerastium fontanum</i>	F
Smooth Hawk's-beard	<i>Crepis capillaris</i>	F
Common Ragwort	<i>Senecio jacobaea</i>	F
White Clover	<i>Trifolium repens</i>	F
Creeping Bent	<i>Agrostis stolonifera</i>	LO
Creeping Buttercup	<i>Ranunculus repens</i>	LO
False Oat-grass	<i>Arrhenatherum elatius</i>	O
Field Bindweed	<i>Convolvulus arvensis</i>	O
Cat's-ear	<i>Hypochaeris radicata</i>	O
Perennial Rye-grass	<i>Lolium perenne</i>	O
Black Medick	<i>Medicago lupulina</i>	O
Autumn Hawkbit	<i>Scorzoneroides autumnalis</i>	O
Yellow Oat-grass	<i>Trisetum flavescens</i>	O
Germander Speedwell	<i>Veronica chamaedrys</i>	O
Lady's Bedstraw	<i>Galium verum</i>	O/LF
Sweet Vernal-grass	<i>Anthoxanthum odoratum</i>	R
Small-fruited Prickly-sedge	<i>Carex muricata subsp. pairae</i>	R
Spear Thistle	<i>Cirsium vulgare</i>	R
Hawthorn	<i>Crataegus monogyna</i>	R
Cock's-foot	<i>Dactylis glomerata</i>	R
Ground-ivy	<i>Glechoma hederacea</i>	R
Field Scabious	<i>Knautia arvensis</i>	R
Common Bird's-foot-trefoil	<i>Lotus corniculatus</i>	R
Creeping Cinquefoil	<i>Potentilla reptans</i>	R

Common Name	Scientific Name	Abundance
Selfheal	<i>Prunella vulgaris</i>	R
Bracken	<i>Pteridium aquilinum</i>	R
Bramble	<i>Rubus fruticosus agg.</i>	R
Curled Dock	<i>Rumex crispus</i>	R
Common Nettle	<i>Urtica dioica</i>	R
Semi-natural Broadleaved Woodland (BW5)		
Pedunculate Oak	<i>Quercus robur</i>	F
Silver Birch	<i>Betula pendula</i>	F
Bracken	<i>Pteridium aquilinum</i>	F
Yorkshire-fog	<i>Holcus lanatus</i>	R

Table C.5: PHA6.

Common Name	Scientific Name	Abundance
Poor semi-improved Grassland (SI3)		
Pedunculate Oak	<i>Quercus robur</i>	R
Yorkshire-fog	<i>Holcus lanatus</i>	D
Smooth Hawk's-beard	<i>Crepis capillaris</i>	F
Common Mouse-ear	<i>Cerastium fontanum</i>	O
Common Ragwort	<i>Senecio jacobaea</i>	O
White Clover	<i>Trifolium repens</i>	O
Yarrow	<i>Achillea millefolium</i>	R
Creeping Thistle	<i>Cirsium arvense</i>	R
Black Medick	<i>Medicago lupulina</i>	R
Ribwort Plantain	<i>Plantago lanceolata</i>	R
Autumn Hawkbit	<i>Scorzoneroides autumnalis</i>	R
Poor semi-improved Grassland (SI4)		
Pedunculate Oak	<i>Quercus robur</i>	R
Smooth Hawk's-beard	<i>Crepis capillaris</i>	A
Yorkshire-fog	<i>Holcus lanatus</i>	D

Common Name	Scientific Name	Abundance
Common Bent	<i>Agrostis capillaris</i>	F
White Clover	<i>Trifolium repens</i>	F
Yarrow	<i>Achillea millefolium</i>	O
Creeping Thistle	<i>Cirsium arvense</i>	O
Spear Thistle	<i>Cirsium vulgare</i>	O
Cock's-foot	<i>Dactylis glomerata</i>	O
Ground-ivy	<i>Glechoma hederacea</i>	O
Common Bird's-foot-trefoil	<i>Lotus corniculatus</i>	O
Ribwort Plantain	<i>Plantago lanceolata</i>	O
Creeping Buttercup	<i>Ranunculus repens</i>	O
Bramble	<i>Rubus fruticosus agg.</i>	O
Common Ragwort	<i>Senecio jacobaea</i>	O
Defunct Species-poor Hedge (PH-2)		
Pedunculate Oak	<i>Quercus robur</i>	R

Table C.6: PHA7.

Common Name	Scientific Name	Abundance
Poor semi-improved (S15)		
White Clover	<i>Trifolium repens</i>	A/LD
Yorkshire-fog	<i>Holcus lanatus</i>	D
Common Bent	<i>Agrostis capillaris</i>	F
Smooth Hawk's-beard	<i>Crepis capillaris</i>	F
Black Medick	<i>Medicago lupulina</i>	O
Ribwort Plantain	<i>Plantago lanceolata</i>	O
Creeping Buttercup	<i>Ranunculus repens</i>	O
Common Ragwort	<i>Senecio jacobaea</i>	O
Perennial Rye-grass	<i>Lolium perenne</i>	O/LF
Silver Hair-grass	<i>Aira caryophylla</i>	R
<i>Anagallis arvensis</i>	<i>Anagallis arvensis</i>	R

Common Name	Scientific Name	Abundance
Arable(A13)		
Wheat	<i>Triticum turgidum</i>	D

Table C.7: PHA8.

Common Name	Scientific Name	Abundance
Semi-Improved Neutral Grassland (SNG2)		
Common Bent	<i>Agrostis capillaris</i>	A
Silver Hair-grass	<i>Aira caryophylla</i>	A
Smooth Hawk's-beard	<i>Crepis capillaris</i>	A
Wavy Hair-grass	<i>Deschampsia flexuosa</i>	A
Yorkshire-fog	<i>Holcus lanatus</i>	A
Ribwort Plantain	<i>Plantago lanceolata</i>	A
Bronze Pirri-pirri-bur	<i>Acaena anserinifolia</i>	F
Red Fescue	<i>Festuca rubra</i>	F
Common Centaury	<i>Centaureum erythraea</i>	O
Common Mouse-ear	<i>Cerastium fontanum</i>	O
Ground-ivy	<i>Glechoma hederacea</i>	O
Unidentified Hawkweed	<i>Hieracium sp.</i>	O
Cat's-ear	<i>Hypochaeris radicata</i>	O
Selfheal	<i>Prunella vulgaris</i>	O
Autumn Hawkbit	<i>Scorzoneroides autumnalis</i>	O
Common Ragwort	<i>Senecio jacobaea</i>	O
White Clover	<i>Trifolium repens</i>	O
Yarrow	<i>Achillea millefolium</i>	R
Heather	<i>Calluna vulgaris</i>	R
Wild Strawberry	<i>Fragaria vesca</i>	R
Hogweed	<i>Heracleum sphondylium</i>	R
Field Wood-rush	<i>Luzula campestris</i>	R
Black Medick	<i>Medicago lupulina</i>	R
Bird's-foot	<i>Ornithopus perpusillus</i>	R

Common Name	Scientific Name	Abundance
Mouse-ear-hawkweed	<i>Pilosella officinarum</i>	R
Tormentil	<i>Potentilla erecta</i>	R
Creeping Buttercup	<i>Ranunculus repens</i>	R
Bramble	<i>Rubus fruticosus agg.</i>	R
Dandelion	<i>Taraxacum officinale agg.</i>	R
Lesser Trefoil	<i>Trifolium dubium</i>	R
Common Nettle	<i>Urtica dioica</i>	R
Poor semi-improved Grassland (SI6)		
White Clover	<i>Trifolium repens</i>	A/LD
Yorkshire-fog	<i>Holcus lanatus</i>	D
Common Bent	<i>Agrostis capillaris</i>	F
Smooth Hawk's-beard	<i>Crepis capillaris</i>	F
Ribwort Plantain	<i>Plantago lanceolata</i>	O
Creeping Buttercup	<i>Ranunculus repens</i>	O
Common Ragwort	<i>Senecio jacobaea</i>	O
Perennial Rye-grass	<i>Lolium perenne</i>	O/LF
Plantation Coniferous Woodland (PCW1)		
Scots Pine	<i>Pinus sylvestris</i>	A
Common Nettle	<i>Urtica dioica</i>	R
Bramble	<i>Rubus fruticosus agg.</i>	D
Defunct Species-Poor Hedge (PH-3)		
Hawthorn	<i>Crataegus monogyna</i>	D
Common Nettle	<i>Urtica dioica</i>	F
Garlic Mustard	<i>Alliaria petiolata</i>	O

PHB1

Area not accessible

PHB2

Area not accessible

Table C.8: PHB3.

Common Name	Scientific Name	Abundance
Plantation Broadleaved woodland / Dense Scrub (PDW/ DS1)		
Alder	<i>Alnus glutinosa</i>	F
Silver Birch	<i>Betula pendula</i>	F
Ash	<i>Fraxinus excelsior</i>	R
Wild Cherry	<i>Prunus avium</i>	R
Beech	<i>Fagus sylvatica</i>	R
Pedunculate oak	<i>Quercus robur</i>	R
Bramble	<i>Rubus fruticosus agg.</i>	A
Holly	<i>Ilex sp.</i>	R
Cock's foot	<i>Dactylis glomerata</i>	A
Perennial Rye-grass	<i>Lolium perenne</i>	F
Ribwort Plantain	<i>Plantago lanceolata</i>	R
Oxeye Daisy	<i>Leucanthemum vulgare</i>	R

Table C.9: PHB4.

Common Name	Scientific Name	Abundance
Tall ruderal/ Scattered broadleaved trees/ Scattered scrub (TR/ SBW/ SS1)		
Couch grass	<i>Elymus repens</i>	F
Common Knapweed	<i>Centaurea nigra</i>	O
Common nettle	<i>Urtica dioica</i>	O
Cleavers	<i>Galium aparine</i>	O
Bramble	<i>Rubus fruticosus agg.</i>	F
Yarrow	<i>Achillea millefolium</i>	R
Cow Parsley	<i>Anthriscus sylvestris</i>	O
Cock's foot	<i>Dactylis glomerata</i>	O
Common bent	<i>Agrostis capillaris</i>	F
Germander speedwell	<i>Veronica chamaedrys</i>	R
False Oat grass	<i>Arrhenatherum elatius</i>	F
Spear thistle	<i>Cirsium vulgare</i>	O

Common Name	Scientific Name	Abundance
Pedunculate oak	<i>Quercus robur</i>	O
Blackthorn	<i>Prunus spinosa</i>	R
Sycamore	<i>Acer pseudoplatanus</i>	R
Austrian oak	<i>Quercus cerris</i>	O

Table C.10: PHB5.

Common Name	Scientific Name	Abundance
Coarse grassland (COG1)		
Common Ivy	<i>Hedera helix</i>	D
Holly	<i>Ilex sp.</i>	D
Common nettle	<i>Urtica dioica</i>	F
Cock's foot	<i>Dactylis glomerata</i>	D

Table C.11: PHB6.

Common Name	Scientific Name	Abundance
Coarse grassland (COG2)		
Cock's foot	<i>Dactylis glomerata</i>	D
Common nettle	<i>Urtica dioica</i>	O
Common bent	<i>Agrostis capillaris</i>	A
Cleavers	<i>Galium aparine</i>	F
Ground Ivy	<i>Glechoma hederacea</i>	O
Arable (A2)		
Wheat	<i>Triticum turgidum</i>	D
Species-poor hedge (PH4)		
Hawthorn	<i>Crataegus monogyna</i>	R
Bramble	<i>Rubus fruticosus</i> agg.	D

Table C.12: PHB7.

Common Name	Scientific Name	Abundance
Coarse grassland/ Dense scrub (COG/ DS1)		
Cock's-foot	<i>Dactylis glomerata</i>	D
Ribwort Plantain	<i>Plantago lanceolata</i>	A
Cleavers	<i>Galium aparine</i>	O
Common Nettle	<i>Urtica dioica</i>	O
Hemlock	<i>Conium maculatum</i>	O
Hogweed	<i>Heracleum sphondylium</i>	O
Yarrow	<i>Achillea millefolium</i>	O
Dock species	<i>Rumex</i> sp.	R
Dove's-foot Crane's-bill	<i>Geranium molle</i>	R
Bramble	<i>Rubus fruticosus</i> agg.	D
Bracken	<i>Pteridium aquilinum</i>	
Coarse grassland (COG3)		
Cock's-foot	<i>Dactylis glomerata</i>	D
Ribwort Plantain	<i>Plantago lanceolata</i>	A
Cleavers	<i>Galium aparine</i>	O
Common Nettle	<i>Urtica dioica</i>	O
Hemlock	<i>Conium maculatum</i>	O
Hogweed	<i>Heracleum sphondylium</i>	O
Yarrow	<i>Achillea millefolium</i>	O
Dock species	<i>Rumex</i> sp.	R
Dove's-foot Crane's-bill	<i>Geranium molle</i>	R
Species-poor hedge (PH5)		
Hawthorn	<i>Crataegus monogyna</i>	O
Arable (A3)		
Wheat	<i>Triticum turgidum</i>	D
Scattered Broadleaved Trees		
Beech	<i>Fagus sylvatica</i>	R

Table C.13: PHB8.

Common Name	Scientific Name	Abundance
Coarse grassland (COG4)		
Cock's-foot	<i>Dactylis glomerata</i>	D
Ribwort Plantain	<i>Plantago lanceolata</i>	A
Cleavers	<i>Galium aparine</i>	O
Common Nettle	<i>Urtica dioica</i>	O
Hemlock	<i>Conium maculatum</i>	O
Hogweed	<i>Heracleum sphondylium</i>	O
Yarrow	<i>Achillea millefolium</i>	O
Dock species	<i>Rumex</i> sp.	R
Dove's-foot Crane's-bill	<i>Geranium molle</i>	R
Defunct Species-poor Hedge (PH-1)		
Hawthorn	<i>Crataegus monogyna</i>	O
Horse-chestnut	<i>Aesculus hippocastanum</i>	R
Pedunculate Oak	<i>Quercus robur</i>	R
Sycamore	<i>Acer pseudoplatanus</i>	R
Arable (A4)		
Wheat	<i>Triticum turgidum</i>	D

Table C.14: PHC1.

Common Name	Scientific Name	Abundance
Poor Semi-Improved Grassland (S17)		
Pedunculate Oak	<i>Quercus robur</i>	R
Common Bent	<i>Agrostis capillaris</i>	A
Yorkshire-fog	<i>Holcus lanatus</i>	A
Creeping Thistle	<i>Cirsium arvense</i>	F
Cock's-foot	<i>Dactylis glomerata</i>	F
White Clover	<i>Trifolium repens</i>	F
Common Nettle	<i>Urtica dioica</i>	LF

Common Name	Scientific Name	Abundance
Common Mouse-ear	<i>Cerastium fontanum</i>	O
Smaller Cat's-tail	<i>Phleum bertolonii</i>	O
Germander Speedwell	<i>Veronica chamaedrys</i>	O
Ground-ivy	<i>Glechoma hederacea</i>	R
Black Medick	<i>Medicago lupulina</i>	R
Curled Dock	<i>Rumex crispus</i>	R
Common Ragwort	<i>Senecio jacobaea</i>	R
Semi-Natural Broadleaved Woodland (BW6)		
Pedunculate Oak	<i>Quercus robur</i>	A
Ash	<i>Fraxinus excelsior</i>	R
Bramble	<i>Rubus fruticosus</i> agg.	A
Hawthorn	<i>Crataegus monogyna</i>	O
Elder	<i>Sambucus nigra</i>	O
Ground-ivy	<i>Glechoma hederacea</i>	O
Red Campion	<i>Silene dioica</i>	F
Indian Balsam	<i>Impatiens glandulifera</i>	D
Yorkshire-fog	<i>Holcus lanatus</i>	O
Bracken	<i>Pteridium aquilinum</i>	O
Common Nettle	<i>Urtica dioica</i>	O
Common Hemp-nettle	<i>Galeopsis tetrahit</i>	R
Nipplewort	<i>Lapsana communis</i>	R
Dog's Mercury	<i>Mercurialis perennis</i>	R
Common Chickweed	<i>Stellaria media</i>	R
Plantation Broadleaved Woodland (BPW2)		
Pedunculate Oak	<i>Quercus robur</i>	A
Silver Birch	<i>Betula pendula</i>	F
Ash	<i>Fraxinus excelsior</i>	F
Field Maple	<i>Acer campestre</i>	O
Beech	<i>Fagus sylvatica</i>	O
Sycamore	<i>Acer pseudoplatanus</i>	R

Common Name	Scientific Name	Abundance
Hawthorn	<i>Crataegus monogyna</i>	LD
Bramble	<i>Rubus fruticosus</i> agg.	O
Hazel	<i>Corylus avellana</i>	R
Unidentified Bent	<i>Agrostis</i> sp.	F
Ground-ivy	<i>Glechoma hederacea</i>	O
Yorkshire-fog	<i>Holcus lanatus</i>	O
Common Nettle	<i>Urtica dioica</i>	O
Hogweed	<i>Heracleum sphondylium</i>	R
Dog's Mercury	<i>Mercurialis perennis</i>	R
Selfheal	<i>Prunella vulgaris</i>	R
Arable (A14)		
Wheat	<i>Triticum turgidum</i>	D
Species poor hedge (PH7)		
Hawthorn	<i>Crataegus monogyna</i>	D

Table C.15: PHE1.

Common Name	Scientific Name	Abundance
Semi-natural broadleaved woodland (BW1)		
Ash	<i>Fraxinus excelsior</i>	D
Dog's Mercury	<i>Mercurialis perennis</i>	D
Common Ivy	<i>Hedera helix</i>	A
Common Nettle	<i>Urtica dioica</i>	A
Pedunculate Oak	<i>Quercus robur</i>	A
Lords-and-Ladies	<i>Arum maculatum</i>	O
Sycamore	<i>Acer pseudoplatanus</i>	O
Beech	<i>Fagus sylvatica</i>	R
Wild Cherry	<i>Prunus avium</i>	R
Coarse grassland (COG5)		
Cock's-foot	<i>Dactylis glomerata</i>	D

Common Name	Scientific Name	Abundance
Bracken	<i>Pteridium aquilinum</i>	A
Ground-ivy	<i>Glechoma hederacea</i>	A
Common Bent	<i>Agrostis capillaris</i>	O
Cleavers	<i>Galium aparine</i>	R
Pedunculate Oak	<i>Quercus robur</i>	R
Dense scrub /Tall ruderal (DS/ TR1)		
Bracken	<i>Pteridium aquilinum</i>	D
Common Nettle	<i>Urtica dioica</i>	D
Bramble	<i>Rubus fruticosus</i> agg.	A
Cock's-foot	<i>Dactylis glomerata</i>	A
Yarrow	<i>Achillea millefolium</i>	F
Ribwort Plantain	<i>Plantago lanceolata</i>	O
Hogweed	<i>Heracleum sphondylium</i>	O
Common Chickweed	<i>Stellaria media</i>	O
Hazel	<i>Corylus avellana</i>	R
Pedunculate Oak	<i>Quercus robur</i>	R
Arable (A5 and A6)		
Perennial Rye-grass	<i>Lolium perenne</i>	D
Ribwort Plantain	<i>Plantago lanceolata</i>	F
Yorkshire-fog	<i>Holcus lanatus</i>	F
Dandelion	<i>Taraxacum officinale</i> agg.	O
Red Clover	<i>Trifolium pratense</i>	O
Common Ragwort	<i>Senecio jacobaea</i>	R

Table C.16: PHF1

Common Name	Scientific Name	Abundance
Species poor hedgerow (PH8)		
Hawthorn	<i>Crataegus monogyna</i>	A
Field Maple	<i>Acer campestre</i>	F

Common Name	Scientific Name	Abundance
Hazel	<i>Corylus avellana</i>	F
Dogwood	<i>Cornus sanguinea</i>	R
Unidentified <i>Prunus</i>	<i>Prunus sp.</i>	R
Blackthorn	<i>Prunus spinosa</i>	R
Species poor hedge with trees (PHT3)		
Pedunculate Oak	<i>Quercus robur</i>	F
Hawthorn	<i>Crataegus monogyna</i>	F
Elder	<i>Sambucus nigra</i>	O
Bramble	<i>Rubus fruticosus agg.</i>	R
Unidentified Elm	<i>Ulmus sp.</i>	R
False Oat-grass	<i>Arrhenatherum elatius</i>	A
Common Nettle	<i>Urtica dioica</i>	A
Hemlock	<i>Conium maculatum</i>	F
Common Bent	<i>Agrostis capillaris</i>	O
Cock's-foot	<i>Dactylis glomerata</i>	O
Perennial Rye-grass	<i>Lolium perenne</i>	O
Barren Brome	<i>Anisantha sterilis</i>	R
Ground-ivy	<i>Glechoma hederacea</i>	R
Hogweed	<i>Heracleum sphondylium</i>	R
Yorkshire-fog	<i>Holcus lanatus</i>	R
Broad-leaved Dock	<i>Rumex obtusifolius</i>	R
Red Campion	<i>Silene dioica</i>	R
Hedge Woundwort	<i>Stachys sylvatica</i>	R
Plantation broadleaved woodland (PBW3)		
Alder	<i>Alnus glutinosa</i>	O
Hornbeam	<i>Carpinus betulus</i>	O
Pedunculate Oak	<i>Quercus robur</i>	O
Silver Birch	<i>Betula pendula</i>	R
Apple	<i>Malus pumila</i>	R
Unidentified Lime	<i>Tilia sp.</i>	R

Common Name	Scientific Name	Abundance
Hawthorn	<i>Crataegus monogyna</i>	A
Field Maple	<i>Acer campestre</i>	F
Hazel	<i>Corylus avellana</i>	F
Dogwood	<i>Cornus sanguinea</i>	O
Blackthorn	<i>Prunus spinosa</i>	O
Dog-rose	<i>Rosa canina</i>	O
Guelder-rose	<i>Viburnum opulus</i>	R
False Oat-grass	<i>Arrhenatherum elatius</i>	A
Red Fescue	<i>Festuca rubra</i>	A
Yorkshire-fog	<i>Holcus lanatus</i>	F
Ribwort Plantain	<i>Plantago lanceolata</i>	F
Greater Plantain	<i>Plantago major</i>	F
White Clover	<i>Trifolium repens</i>	F
Unidentified Bent	<i>Agrostis sp.</i>	O
Dandelion	<i>Taraxacum officinale agg.</i>	O
False-brome	<i>Brachypodium sylvaticum</i>	R
Broad-leaved Dock	<i>Rumex obtusifolius</i>	R
Goat's-beard	<i>Tragopogon pratensis</i>	R
Broadleaved woodland (BW7)		
Beech	<i>Fagus sylvatica</i>	A
Pedunculate Oak	<i>Quercus robur</i>	A
Wild Cherry	<i>Prunus avium</i>	F
Ash	<i>Fraxinus excelsior</i>	O
Hawthorn	<i>Crataegus monogyna</i>	O
Bramble	<i>Rubus fruticosus agg.</i>	O
Elder	<i>Sambucus nigra</i>	O
Bluebell	<i>Hyacinthoides non-scripta</i>	A
Bracken	<i>Pteridium aquilinum</i>	A
Wood Sage	<i>Teucrium scorodonia</i>	LA
Common Nettle	<i>Urtica dioica</i>	LD

Common Name	Scientific Name	Abundance
Ground-ivy	<i>Glechoma hederacea</i>	LF
Red Campion	<i>Silene dioica</i>	R
Arable (A15,A16,A17.A18)		
Wheat	<i>Triticum turgidum</i>	D
Tall ruderal (TR3)		
Common Nettle	<i>Urtica dioica</i>	F
Broad-leaved Dock	<i>Rumex obtusifolius</i>	A
Cleavers	<i>Galium aparine</i>	F
Cock's-foot	<i>Dactylis glomerata</i>	F
Ground-ivy	<i>Glechoma hederacea</i>	O
Bramble	<i>Rubus fruticosus agg.</i>	O
Hogweed	<i>Heracleum sphondylium</i>	R

Table C.17: PHF2.

Common Name	Scientific Name	Abundance
Semi- Natural Broadleaved woodland (BW8)		
Beech	<i>Fagus sylvatica</i>	A
Pedunculate Oak	<i>Quercus robur</i>	A
Wild Cherry	<i>Prunus avium</i>	F
Ash	<i>Fraxinus excelsior</i>	O
Hawthorn	<i>Crataegus monogyna</i>	O
Bramble	<i>Rubus fruticosus agg.</i>	O
Elder	<i>Sambucus nigra</i>	O
Bluebell	<i>Hyacinthoides non-scripta</i>	A
Bracken	<i>Pteridium aquilinum</i>	A
Wood Sage	<i>Teucrium scorodonia</i>	LA
Common Nettle	<i>Urtica dioica</i>	LD
Ground-ivy	<i>Glechoma hederacea</i>	LF
Red Campion	<i>Silene dioica</i>	R

Common Name	Scientific Name	Abundance
Poor Semi-improved grassland (SI8)		
Pedunculate Oak	<i>Quercus robur</i>	R
Common Bent	<i>Agrostis capillaris</i>	D
Common sorrel	<i>Rumex acetosa</i>	F
Cock's-foot	<i>Dactylis glomerata</i>	O
Yorkshire-fog	<i>Holcus lanatus</i>	O
Perennial Rye-grass	<i>Lolium perenne</i>	O
Smooth Meadow-grass	<i>Poa pratensis</i>	O
Yarrow	<i>Achillea millefolium</i>	R
Sweet Vernal-grass	<i>Anthoxanthum odoratum</i>	R
Small-fruited Prickly-sedge	<i>Carex muricata subsp. pairae</i>	R
Common Mouse-ear	<i>Cerastium fontanum</i>	R
Creeping Thistle	<i>Cirsium arvense</i>	R
Common Cudweed	<i>Filago vulgaris</i>	R
Ground-ivy	<i>Glechoma hederacea</i>	R
Common Ragwort	<i>Senecio jacobaea</i>	R
Dandelion	<i>Taraxacum officinale agg.</i>	R
White Clover	<i>Trifolium repens</i>	R
Common Nettle	<i>Urtica dioica</i>	R
Plantation mixed woodland (PMW1)		
Silver Birch	<i>Betula pendula</i>	A
Scots Pine	<i>Pinus sylvestris</i>	A
Beech	<i>Fagus sylvatica</i>	O
Pedunculate Oak	<i>Quercus robur</i>	O
False Oat-grass	<i>Arrhenatherum elatius</i>	A
Unidentified Bent	<i>Agrostis sp.</i>	F
Common Nettle	<i>Urtica dioica</i>	LA
Spear Thistle	<i>Cirsium vulgare</i>	O
Yorkshire-fog	<i>Holcus lanatus</i>	O
Ribwort Plantain	<i>Plantago lanceolata</i>	O

Common Name	Scientific Name	Abundance
Red Campion	<i>Silene dioica</i>	O
Bladder Campion	<i>Silene vulgaris</i>	O
Lesser Burdock	<i>Arctium minus</i>	R
Hogweed	<i>Heracleum sphondylium</i>	R
Common Ragwort	<i>Senecio jacobaea</i>	R
Defunct Species-poor hedgerow with trees (PHT-2)		
Hawthorn	<i>Crataegus monogyna</i>	A
Blackthorn	<i>Prunus spinosa</i>	A
Bramble	<i>Rubus fruticosus agg.</i>	O
Common Nettle	<i>Urtica dioica</i>	F
Garlic Mustard	<i>Alliaria petiolata</i>	O
Cow Parsley	<i>Anthriscus sylvestris</i>	O
Cleavers	<i>Galium aparine</i>	O
Ground-ivy	<i>Glechoma hederacea</i>	O
Common Ivy	<i>Hedera helix</i>	O
Species-poor hedgerow (PH9)		
Hawthorn	<i>Crataegus monogyna</i>	A
Hazel	<i>Corylus avellana</i>	F
Blackthorn	<i>Prunus spinosa</i>	F
Dog-rose	<i>Rosa canina</i>	F
Wild Plum	<i>Prunus domestica</i>	O
Unidentified <i>Prunus</i>	<i>Prunus sp.</i>	O
Bramble	<i>Rubus fruticosus agg.</i>	O
Common Nettle	<i>Urtica dioica</i>	F
Bracken	<i>Pteridium aquilinum</i>	LA
Garlic Mustard	<i>Alliaria petiolata</i>	O
Cow Parsley	<i>Anthriscus sylvestris</i>	O
False Oat-grass	<i>Arrhenatherum elatius</i>	O
Cleavers	<i>Galium aparine</i>	O
Ground-ivy	<i>Glechoma hederacea</i>	O

Common Name	Scientific Name	Abundance
Common Ivy	<i>Hedera helix</i>	O
Herb-Robert	<i>Geranium robertianum</i>	R
Hogweed	<i>Heracleum sphondylium</i>	R
Species-poor hedgerow with trees (PHT4)		
Pedunculate Oak	<i>Quercus robur</i>	O
Hawthorn	<i>Crataegus monogyna</i>	D
White Bryony	<i>Bryonia dioica</i>	O
Common Ivy	<i>Hedera helix</i>	O
Cherry Plum	<i>Prunus cerasifera</i>	O
Blackthorn	<i>Prunus spinosa</i>	O
Bramble	<i>Rubus fruticosus agg.</i>	O
Unidentified Elm	<i>Ulmus sp.</i>	R
<i>Arrhenatherum album</i>	<i>Arrhenatherum album</i>	O
Hemlock	<i>Conium maculatum</i>	O
Common Ivy	<i>Hedera helix</i>	O
Bramble	<i>Rubus fruticosus agg.</i>	O
Common Nettle	<i>Urtica dioica</i>	O
Garlic Mustard	<i>Alliaria petiolata</i>	R
Species-poor hedgerow with trees (PHT5)		
Pedunculate Oak	<i>Quercus robur</i>	O
Hawthorn	<i>Crataegus monogyna</i>	A
Unidentified <i>Prunus</i>	<i>Prunus sp.</i>	F
Blackthorn	<i>Prunus spinosa</i>	F
Dogwood	<i>Cornus sanguinea</i>	O
Common Ivy	<i>Hedera helix</i>	O
Bramble	<i>Rubus fruticosus agg.</i>	O
Field Maple	<i>Acer campestre</i>	R
Dog-rose	<i>Rosa canina</i>	R
Elder	<i>Sambucus nigra</i>	R
Unidentified Elm	<i>Ulmus sp.</i>	R

Common Name	Scientific Name	Abundance
Common Nettle	<i>Urtica dioica</i>	F
False Oat-grass	<i>Arrhenatherum elatius</i>	O
Cleavers	<i>Galium aparine</i>	O
Semi-improved neutral grassland (SNG3)		
Ribwort Plantain	<i>Plantago lanceolata</i>	A
<i>Festuca ovina agg.</i>	<i>Festuca ovina agg.</i>	D
Cock's-foot	<i>Dactylis glomerata</i>	F
Lady's Bedstraw	<i>Galium verum</i>	F
Oxeye Daisy	<i>Leucanthemum vulgare</i>	F
Yarrow	<i>Achillea millefolium</i>	O
Common Bent	<i>Agrostis capillaris</i>	O
Common Knapweed	<i>Centaurea nigra</i>	O
Creeping Thistle	<i>Cirsium arvense</i>	O
Hemlock	<i>Conium maculatum</i>	O
Smooth Hawk's-beard	<i>Crepis capillaris</i>	O
Yorkshire-fog	<i>Holcus lanatus</i>	O
Selfheal	<i>Prunella vulgaris</i>	O
Autumn Hawkbit	<i>Scorzoneroides autumnalis</i>	O
Dandelion	<i>Taraxacum officinale agg.</i>	O
Dove's-foot Crane's-bill	<i>Geranium molle</i>	R
Hedgerow Crane's-bill	<i>Geranium pyrenaicum</i>	R
Ground-ivy	<i>Glechoma hederacea</i>	R
Common Ivy	<i>Hedera helix</i>	R
Hogweed	<i>Heracleum sphondylium</i>	R
Black Medick	<i>Medicago lupulina</i>	R
Common Ragwort	<i>Senecio jacobaea</i>	R
<i>Vicia sativa</i>	<i>Vicia sativa</i>	R
Improved grassland (SI8)		
White Clover	<i>Trifolium repens</i>	A
Cock's-foot	<i>Dactylis glomerata</i>	D

Common Name	Scientific Name	Abundance
Ribwort Plantain	<i>Plantago lanceolata</i>	F
Unidentified Bent	<i>Agrostis sp.</i>	O
Yorkshire-fog	<i>Holcus lanatus</i>	O
Dandelion	<i>Taraxacum officinale agg.</i>	O
Small-flowered Crane's-bill	<i>Geranium pusillum</i>	R
Common Ragwort	<i>Senecio jacobaea</i>	R

Table C.18: PHF3.

Common Name	Scientific Name	Abundance
Poor Semi-improved grassland (SI9)		
Pedunculate Oak	<i>Quercus robur</i>	R
Common Bent	<i>Agrostis capillaris</i>	A
Yorkshire-fog	<i>Holcus lanatus</i>	A
Creeping Thistle	<i>Cirsium arvense</i>	F
Cock's-foot	<i>Dactylis glomerata</i>	F
White Clover	<i>Trifolium repens</i>	F
Common Nettle	<i>Urtica dioica</i>	LF
Common Mouse-ear	<i>Cerastium fontanum</i>	O
Smaller Cat's-tail	<i>Phleum bertolonii</i>	O
Germander Speedwell	<i>Veronica chamaedrys</i>	O
Ground-ivy	<i>Glechoma hederacea</i>	R
Black Medick	<i>Medicago lupulina</i>	R
Curled Dock	<i>Rumex crispus</i>	R
Common Ragwort	<i>Senecio jacobaea</i>	R
Dense Scrub (DS2)		
Ash	<i>Fraxinus excelsior</i>	O
Pedunculate Oak	<i>Quercus robur</i>	O
Hawthorn	<i>Crataegus monogyna</i>	F
Blackthorn	<i>Prunus spinosa</i>	F
Unidentified Willow	<i>Salix sp.</i>	F

Common Name	Scientific Name	Abundance
Elder	<i>Sambucus nigra</i>	F
White Bryony	<i>Bryonia dioica</i>	O
Bramble	<i>Rubus fruticosus agg.</i>	O
Common Nettle	<i>Urtica dioica</i>	A
False Oat-grass	<i>Arrhenatherum elatius</i>	F
Ground-ivy	<i>Glechoma hederacea</i>	F
Ground-elder	<i>Aegopodium podagraria</i>	O
Hogweed	<i>Heracleum sphondylium</i>	O
Creeping Thistle	<i>Cirsium arvense</i>	R
Arable (A22)		
Wheat	<i>Triticum turgidum</i>	D
Species poor hedge (PH10)		
Hawthorn	<i>Crataegus monogyna</i>	D
Elder	<i>Sambucus nigra</i>	R
Bramble	<i>Rubus fruticosus agg.</i>	O
Common Nettle	<i>Urtica dioica</i>	F
Common Bent	<i>Agrostis capillaris</i>	R
Cock's-foot	<i>Dactylis glomerata</i>	O
Perennial Rye-grass	<i>Lolium perenne</i>	O
Barren Brome	<i>Anisantha sterilis</i>	R
Ground-ivy	<i>Glechoma hederacea</i>	R
Hogweed	<i>Heracleum sphondylium</i>	R
Yorkshire-fog	<i>Holcus lanatus</i>	R
Species poor hedge (PH11)		
Hawthorn	<i>Crataegus monogyna</i>	D
Elder	<i>Sambucus nigra</i>	R
Bramble	<i>Rubus fruticosus agg.</i>	O
Common Nettle	<i>Urtica dioica</i>	F
Common Bent	<i>Agrostis capillaris</i>	R
Cock's-foot	<i>Dactylis glomerata</i>	O

Common Name	Scientific Name	Abundance
Perennial Rye-grass	<i>Lolium perenne</i>	F
Ground-ivy	<i>Glechoma hederacea</i>	R

Table C.19: PHG1.

Common Name	Scientific Name	Abundance
Improved grassland (I1)		
Perennial Rye-grass	<i>Lolium perenne</i>	D
Common Bent	<i>Agrostis capillaris</i>	A
Dock species	<i>Rumex sp.</i>	R
Yorkshire-fog	<i>Holcus lanatus</i>	F
Scattered Broadleaved Trees		
Ash	<i>Fraxinus excelsior</i>	R/E
Hazel	<i>Corylus avellana</i>	R/E
Pedunculate Oak	<i>Quercus robur</i>	R/E
Sessile Oak	<i>Quercus petraea</i>	R/E
Wild Cherry	<i>Prunus avium</i>	R/E

Table C.20: PHG2.

Common Name	Scientific Name	Abundance
Semi-improved grassland (SI1)		
Perennial Rye-grass	<i>Lolium perenne</i>	D
Creeping Buttercup	<i>Ranunculus repens</i>	A
Yorkshire-fog	<i>Holcus lanatus</i>	A
Common Nettle	<i>Urtica dioica</i>	F
Ground-ivy	<i>Glechoma hederacea</i>	F
Rush species	<i>Juncus sp.</i>	O
Spear Thistle	<i>Cirsium vulgare</i>	O
Bramble	<i>Rubus fruticosus agg.</i>	R
Dock species	<i>Rumex sp.</i>	R

Common Name	Scientific Name	Abundance
Pedunculate Oak	<i>Quercus robur</i>	R
Semi-natural broadleaved woodland (BW2)		
Sycamore	<i>Acer pseudoplatanus</i>	D
Bramble	<i>Rubus fruticosus</i> agg.	A
Common Nettle	<i>Urtica dioica</i>	F
Pedunculate Oak	<i>Quercus robur</i>	A
Creeping Thistle	<i>Cirsium arvense</i>	F
Hawthorn	<i>Crataegus monogyna</i>	O
Scattered broadleaved trees		
Pedunculate Oak	<i>Quercus robur</i>	D

Table C.21: PHG3.

Common Name	Scientific Name	Abundance
Scattered broadleaved trees		
Pedunculate Oak	<i>Quercus robur</i>	D
Tall ruderal (TR1)		
Common Nettle	<i>Urtica dioica</i>	D
Cleavers	<i>Galium aparine</i>	O
Species-poor hedge (PH1)		
Cock's-foot	<i>Dactylis glomerata</i>	D
Hawthorn	<i>Crataegus monogyna</i>	D
Cleavers	<i>Galium aparine</i>	A
Common Ivy	<i>Hedera helix</i>	A
Common Nettle	<i>Urtica dioica</i>	F
Arable (A7)		
Perennial Rye-grass	<i>Lolium perenne</i>	D

Table C.22: PHG5.

Common Name	Scientific Name	Abundance
Semi-natural broadleaved woodland (BW3)		
Sycamore	<i>Acer pseudoplatanus</i>	D
Bramble	<i>Rubus fruticosus</i> agg.	A
Common Nettle	<i>Urtica dioica</i>	A
Pedunculate Oak	<i>Quercus robur</i>	A
Creeping Thistle	<i>Cirsium arvense</i>	F
Norway Maple	<i>Acer platanoides</i>	F
Hawthorn	<i>Crataegus monogyna</i>	O
Hazel	<i>Corylus avellana</i>	O
Wild Cherry	<i>Prunus avium</i>	O
Dog-rose	<i>Rosa canina</i>	R
Arable (A8)		
Perennial Rye-grass	<i>Lolium perenne</i>	D
Species poor hedge		
Species-Poor Hedge (PH6)		
Hazel		
Bramble	<i>Rubus fruticosus</i> agg.	O
Sycamore	<i>Acer pseudoplatanus</i>	R
Field Maple	<i>Acer campestre</i>	A
Elder	<i>Sambucus nigra</i>	R
Common Nettle	<i>Urtica dioica</i>	F
Couch grass	<i>Elymus repens</i>	F
Cock's-foot	<i>Dactylis glomerata</i>	O/E
Scattered Broadleaved trees		
Pedunculate Oak	<i>Quercus robur</i>	O

Table C.23: PHG6

Common Name	Scientific Name	Abundance
Semi-natural broadleaved woodland (BWA)		
Pedunculate Oak	<i>Quercus robur</i>	D
Blackthorn	<i>Prunus spinosa</i>	A
Common Ivy	<i>Hedera helix</i>	A
Hawthorn	<i>Crataegus monogyna</i>	A
Common Nettle	<i>Urtica dioica</i>	F
Field Maple	<i>Acer campestre</i>	F
Cleavers	<i>Gallium aparine</i>	O
Crack-willow	<i>Salix fragilis</i>	O
Dog-rose	<i>Rosa canina</i>	O
Ground-ivy	<i>Glechoma hederacea</i>	R
Herb-Robert	<i>Geranium robertianum</i>	R
Species-poor hedge (PH2)		
Hawthorn	<i>Crataegus monogyna</i>	D
Field Maple	<i>Acer campestre</i>	A
Species-rich hedge (RH1)		
Ash	<i>Fraxinus excelsior</i>	D
False Oat-grass	<i>Arrhenatherum elatius</i>	A
Field Maple	<i>Acer campestre</i>	A
Creeping Thistle	<i>Cirsium arvense</i>	F
Curled Dock	<i>Rumex crispus</i>	F
Hawthorn	<i>Crataegus monogyna</i>	F
Hazel	<i>Corylus avellana</i>	F
Pedunculate Oak	<i>Quercus robur</i>	F
Blackthorn	<i>Prunus spinosa</i>	O
Common Ivy	<i>Hedera helix</i>	O
Wild Cherry	<i>Prunus avium</i>	O
Bramble	<i>Rubus fruticosus</i> agg.	R
Dog-rose	<i>Rosa canina</i>	R

Common Name	Scientific Name	Abundance
Arable (A9, A10)		
Perennial Rye-grass	<i>Lolium perenne</i>	D
Cock's-foot	<i>Dactylis glomerata</i>	O/E
False Oat-grass	<i>Arrhenatherum elatius</i>	O/E
Common Bent	<i>Agrostis capillaris</i>	R/E
Dandelion	<i>Taraxacum officinale</i> agg.	R/E
Timothy	<i>Phleum pratense</i>	R/E

Table C.24: PHG7.

Common Name	Scientific Name	Abundance
Semi-natural mixed woodland (MW1)		
Scots Pine	<i>Pinus sylvestris</i>	D
Ash	<i>Fraxinus excelsior</i>	A
Pedunculate Oak	<i>Quercus robur</i>	F
Beech	<i>Fagus sylvatica</i>	O
Tall ruderal (TR2)		
Common Nettle	<i>Urtica dioica</i>	D
Broad-leaved Dock	<i>Rumex obtusifolius</i>	A
Cleavers	<i>Gallium aparine</i>	F
Cock's-foot	<i>Dactylis glomerata</i>	F
Ground-ivy	<i>Glechoma hederacea</i>	O
Defunct Species-poor hedge with trees (PHT-1)		
Elder	<i>Sambucus nigra</i>	D
Common Ivy	<i>Hedera helix</i>	A
Alder	<i>Alnus glutinosa</i>	O
Ash	<i>Fraxinus excelsior</i>	O
Hawthorn	<i>Crataegus monogyna</i>	O
Hazel	<i>Corylus avellana</i>	O
Bramble	<i>Rubus fruticosus</i> agg.	R

Common Name	Scientific Name	Abundance
<i>Arable (A11)</i>		
Perennial Rye-grass	<i>Lolium perenne</i>	D
Ash	<i>Fraxinus excelsior</i>	R

Table C.25: PHG8.

Common Name	Scientific Name	Abundance
<i>Species-poor hedge (PH3)</i>		
Hawthorn	<i>Crataegus monogyna</i>	D
Field Maple	<i>Acer campestre</i>	A
Bramble	<i>Rubus fruticosus</i> agg.	O
Dog-rose	<i>Rosa canina</i>	O
Elder	<i>Sambucus nigra</i>	R
<i>Arable (A12)</i>		
Perennial Rye-grass	<i>Lolium perenne</i>	D
Annual Meadow-grass	<i>Poa annua</i>	F
Cleavers	<i>Galium aparine</i>	F
Common Nettle	<i>Urtica dioica</i>	F
Cock's-foot	<i>Dactylis glomerata</i>	O