Dudgeon and Sheringham Shoal Offshore Wind Farm Extensions

Preliminary Environmental Information Report

Volume 3

Appendix 22.7 - Onshore Ecology Desk Study

April 2021

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Title**:**
Dudgeon and Sheringham Shoal Offshore Wind Farm Extensions **Preliminary Environmental Information Report** **Appendix 22.7 Onshore Ecology Desk Study**
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WILD FRONTIER ECOLOGY

Sheringham Shoal and Dudgeon Extension Projects

Onshore Ecology Desk Study

April 2021

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The data which we have prepared and provided is accurate, and has been prepared and provided in accordance with the CIEEM's Code of Professional Conduct. We confirm that any opinions expressed are our best and professional bona fide opinions.

This report conforms to the British Standard 42020:2013 Biodiversity – Code of practice for planning and development.

CONTENTS

GLOSSARY OF TERMS

cCGS	Candidate County Geodiversity Site
CWS	County Wildlife Site
DEP	Dudgeon Extension Project
GCN	Great Crested Newt
Km	Kilometre
LNR	Local Nature Reserve
NBIS	Norfolk Biodiversity Information Service
NBSG	Norfolk Barbastelle Study Group
NBsT	Norfolk Badgers Trust
NBT	Norfolk Badger Trust (formerly the Norfolk Badger Protection Group)
NCG	Norfolk Crayfish Group
PEIR	Preliminary Environmental Information Report
RNR	Roadside Nature Reserve
SAC	Special Area of Conservation
SEP	Sheringham Shoal Extension Project
SPA	Special Protection Area
SSSI	Site of Special Scientific Interest
UCL	University College London
UCLPRRG	University College London Pond Restoration Research Group
WFE	Wild Frontier Ecology Ltd.

EXECUTIVE SUMMARY

Wild Frontier Ecology Ltd. was commissioned by Equinor New Energy Ltd. to undertake a desk study comprising a search for designated nature conservation sites and biological records within and up to 2 kilometres (km) from the Preliminary Environmental Information Report (PEIR) boundary associated with Dudgeon Offshore Wind Farm Extension Project (hereafter DEP) and Sheringham Shoal Offshore Wind Farm Extension Project (hereafter SEP).

The desk study involved consultation with the Norfolk Biodiversity Information Service (NBIS), Natural England and other relevant nature conservation organisations.

The desk search revealed that the following two statutory designated nature conservation sites are located within the PEIR boundary:

- River Wensum Special Area of Conservation (SAC) and Site of Special Scientific Interest (SSSI); and,
- Weybourne Cliffs SSSI.

There are a further 10 statutory designated nature conservation sites within 2km of the PEIR boundary (excluding offshore designations), including one site (North Norfolk Coast) designated as a Ramsar site, SAC, Special Protection Area (SPA) and SSSI, another six sites designated as SSSIs and three sites designated as Local Nature Reserves (LNR).

The data search also confirmed the following 11 non-statutory designated nature conservation sites within the PEIR boundary:

- Kelling Hard County Wildlife Site (CWS);
- Beach Lane, Weybourne CWS;
- Kelling Heath and 100 Acre Wood CWS;
- Marriott's Way CWS (which crosses the PEIR in two locations);
- Wensum Pastures at Morton Hall CWS;
- Hall Hills/Ringland Covert CWS;
- River Tud at Easton and Honingham CWS;
- Brook House Marshes CWS;
- Yare Valley (Colton Wood) CWS:
- Yare Valley (Marlingford Hall) CWS;
- The Carrs Woodland CWS; and,
- Roadside Nature Reserve (RNR) no.63: Matlaske Road at Corpusty.

The NBIS data also revealed 143 other non-statutory designated nature conservation sites within 2km of the PEIR boundary, including 103 CWS, six Roadside Nature Reserves (RNR) and 34 candidate County Geodiversity Sites (cCGS). The maps provided by NBIS show the locations of all statutory and non-statutory designated nature conservation sites relative to the PEIR boundary (as of January 2021) and are reproduced in Figures 1-10 in this report. Full citations (where provided by NBIS) on these designated sites are also provided in Annex 1 of this report.

The NBIS biological records search returned thousands of records relating to hundreds of species. Those relevant to specific species for which targeted surveys have been undertaken (e.g. bird records) are presented in the appropriate survey report and have not been repeated here. The remaining records are summarised in this document.

1. BACKGROUND

Equinor New Energy Limited (hereafter the Applicant) is proposing to extend the existing operational Dudgeon and Sheringham Shoal Offshore Wind Farms, named the Dudgeon Offshore Wind Farm Extension Project (hereafter DEP) and Sheringham Shoal Offshore Wind Farm Extension Project (hereafter SEP). DEP and SEP will consist of a number of offshore and onshore elements including the offshore wind turbines and subsea array cables, up to two offshore substations, offshore and onshore export cables, and one onshore substations to accommodate the connection of DEP and SEP to the transmission grid. A full description of DEP and SEP is provided within Chapter 5 Project Description of the Premilianry Environmental Infiormation Report (PEIR).

Maps showing the PEIR boundary (as of January 2021) plus the surrounding 2km area are provided in Figures 1-10, below.

WFE was commissioned by the Applicant to undertake a desk study comprising searches with the local biological records centre (NBIS) and of online resources to obtain biological records and identify any designated nature conservation sites within and up to 2km from the PEIR boundary. This report presents the aims, methods and results of the desk study.

2. DESK STUDY METHODS

2.1. Search of Online Resources for Information on Statutory Designated Nature Conservation Sites

In November 2020, WFE reviewed the websites of Natural England[1,2] and the Joint Nature Conservation Committee[3] (JNCC) to identify on any statutory designated nature conservation sites (such as SAC, SPA, Ramsar sites, National Nature Reserves and SSSI) within and up to 2km from the PEIR boundary. These websites were also used to obtain the citations (where available) for any such sites within this search area.

2.2. Local Records Centre Search for Biological Records

In January 2021, WFE contacted NBIS to request all biological records and information on any non-statutory designated nature conservation sites (such as CWS and Roadside Nature Reserves) within and up to 2km from the PEIR boundary. This information was received from NBIS in January 2021.

2.3. Other Data Sources

NBIS advised that there are additional nature conservation organisations which may hold additional biological records for species of interest (such as legally protected species) but which are not included in NBIS's data set. Accordingly, the following organisations were also consulted to obtain any additional biological records which they may hold for the PEIR boundary and up to 2km from its boundaries, which were not included in the NBIS data set:

- County badger *Meles meles* recorder at the Norfolk Badgers Trust (NBsT): confirmed all records are submitted to NBIS, but records from 2020 were still being collated at the time of the enquiry in April 2021 (so are currently not available).
- Norfolk Badger Trust (NBT) (formerly Norfolk Badger Protection Group): confirmed the majority of records are submitted to NBIS but certain records are retained at the wishes of the person who submitted them to the NBT. These records have been requested but as of April 2021 have not yet been provided.
- Norfolk Barbastelle Study Group (NBSG): consulted in January 2021 and asked to provide information on barbastelle bats *Barbastella barbastellus* for the area around the River Wensum crossed by the PEIR boundary. As of April 2021, these records have not been provided.
- Norfolk Crayfish Group (NCG), part of the Norfolk Rivers Trust: NCG provided their 2020 report[4] to WFE in November 2020. The report summarises the status of the native white-clawed crayfish *Austropotamobius pallipes* and the non-native American signal crayfish *Pacifastacus leniusculus* in seven rivers and streams in

[1] https://magic.defra.gov.uk/magicmap.aspx

[2] https://designatedsites.naturalengland.org.uk/

[3] https://jncc.gov.uk/our-work/uk-protected-areas/

[4] Norfolk Crayfish Group (2020). *Norfolk Crayfish Group Actions 2020 Report*. Norfolk Rivers Trust, Holt, Norfolk.

Norfolk, including three (the River Bure, the River Glaven and Weybourne Stream) within or in close proximity to the PEIR boundary.

- University College London Pond Restoration Research Group (UCLPRRG): UCLPRRG contacted WFE in June 2020 to advise that they hold records on great crested newts *Triturus cristatus* and other species for the areas around Bodham, Baconshorpe and Heydon in North Norfolk, parts of which are within the PEIR boundary and surrounding 2km area. These records[5] were provided to WFE in June and July 2020.

Consultation with the following organisations was also considered but biological records have not been requested for the following reasons:

- Norfolk Amphibian and Reptile Group: this organisation does not hold biological records.
- Amphibian and Reptile Conservation Trust: closed due to COVID-19 and is not currently responding to biological records requests.
- Norfolk Bat Group: submits all records to NBIS.
- Norwich Bat Group: submits all records to NBIS.
- County bat recorder: submits all records to NBIS.
- Norfolk Bats in Churches: submits all records to NBIS.

[5] Sayer C. (2020). *Threats to pond networks associated with the Equinor cable – Information provided by Carl Sayer and the Norfolk Ponds Project.* Unpublished report.

3. RESULTS

3.1. Statutory Designated Nature Conservation Sites

Table 1 lists all known statutory designated nature conservation sites within and up to 2km from the PEIR boundary. Many of these designated site's citations are extensive, and therefore Table 1 provides a summary of each site's reasons for designation, with a copy of the full site citation provided in Annex 1. As this appendix relates to onshore ecology and ornithology, Table 1 does not include offshore designated sites such as The Wash and North Norfolk Coast SAC or Greater Wash SPA.

The maps provided by NBIS showing the locations of these designated sites (and all non-statutory designated sites) are reproduced in Figures 1-10. However, those maps and the rest of the data provided by NBIS is based on a search area covering the PEIR and the surrounding 2km area defined in January 2021; there have subsequently been ongoing refinements to the PEIR boundary, most of which are minor reductions in its extent (i.e. narrowing of the PEIR boundary), meaning some of the designated sites and biological records are now outside the 2km buffer surrounding the PEIR boundary. Where this is the case (e.g. where a designated site is beyond 2km from the refined PEIR boundary), the record is not included in this report.

Table 1: Statutory Designated Nature Conservation Sites within and up to 2km from the PEIR boundary (to be read in conjunction with Figures 1-10)

Designated Site Name	Designation	Distance and Direction from the PEIR boundary	Reasons for designation
River Wensum	SAC	Part of this designated site is within the PEIR boundary south of Attlebridge	<u>Annex I habitats that are a primary reason for selection of this site:</u> 3260: watercourses of plane to montane levels with the *Ranunculion fluitantis* and *Callitricho-Batrachion* vegetation. <u>Annex II species that are a primary reason for selection of this site:</u> 1092 White-clawed crayfish *Austropotamobius pallipes* <u>Annex II species present as a qualifying feature, but not a primary reason for site selection:</u> 1061 Desmoulin's whorl snail *Vertigo moulinsiana* 1096 Brook lamprey *Lampetra planeri* 1163 Bullhead *Cottus gobio*
	SSSI		The Wensum is one of a national series of rivers of special interest as an example of an enriched, calcareous lowland river. It has over 100 species of plants, a rich invertebrate fauna and a relatively natural corridor. The vegetation is characteristic of a chalk stream, and the surrounding, intrinsically linked reedbeds, floodplains and grasslands are also noted for their flora. In addition to the above SAC-listed species, the site also supports brown trout *Salmo truttur fario,* chub *Leuciscus cephalus,* pike *Esox licius,* eel *Anguilla anguilla* and barbel *Barbus barbus,* as well as breeding kingfisher *Alcedo atthis* and little grebe *Tachybaptus ruficollis.* The adjacent wetlands are noted for

Designated Site Name	Designation	Distance and Direction from the PEIR boundary	Reasons for designation
			populations of reed warblers *Acrocephalus scirpaceus,* sedge warblers *Acrocephalus schoenobaenus* and barn owls *Tyto alba.* The river and its aquatic vegetation also support diverse mollusc fauna and notable assemblages of water beetles, mayflies, stoneflies and flatworms.
Weybourne Cliffs	SSSI	Part of this designated site is within the PEIR boundary at the landfall location north of Weybourne	This SSSI is designated principally for its geological and paleontological interest. Ecological interest is provided by colonies of sand martins *Riparia riparia* in the cliff face and fulmars *Fulmaris glacialis* on the cliff ledges (based on 1980s data).
North Norfolk Coast	Ramsar site	Approximately 160 metres west of the PEIR boundary at the landfall location	The site qualifies under Ramsar criteria 1, 2, 5 and 6. Criterion 1: The site is one of the largest expanses of undeveloped coastal habitat of its type in Europe. It is a particularly good example of marshland coast with intertidal sand and mud, saltmarshes, shingle banks and sand dunes. There are a series of brackish lagoons and extensive areas of freshwater grazing marsh and reedbeds. Criterion 2: The site supports at least three British Red Sra Book and nine nationally scarce vascular plants, one British Red Data Book lichen and 38 British Red Data Book invertebrates. Criterion 5: The site supports an assemblage of international importance of 98,462 waterfowl over winter. Criterion 6: The site supports the following species/populations which occur in internationally important numbers: Species regularly supported during the breeding season: sandwich tern *Sterna sandvicensis* (4,275 apparently occupied nests - 7.7% of breeding population), common tern *Sterna hirundo* (408 apparently occupied nests – 4% of GB population) and little turn *Sterna albifrons* (291 apparently occupied nests – 2.5% of breeding population). Species with peak counts in spring/autumn: knot *Calidris canutus* (30,781 individuals – average of 6.8% of the population). Species with peak counts in winter: pink-footed goose *Aner brachyrhynchus* (16.787 individuals – average of 6.9% of the population), Brent goose *Branta bernicla* (8,690 individuals – average of 4% of the population), wigeon *Anas penelope* (17,940 individuals – average of 1.1% of the population) and pintail *Anas acuta* (1,148 individuals – 1.9% of the population). Species/populations identified subsequent to designation for possible future consideration under

Designated Site Name	Designation	Distance and Direction from the PEIR boundary	Reasons for designation
			Criterion 6: Species with peak counts in spring/autumn: ringed plover *Charadrius hiaticula* (1,740 individuals – average of 2.3% of the population), sanderling *Caldris alba* (1,303 individuals – average of 1% of the population) and bar-tailed godwit *Limosa lapponica* (3,933 individuals – average of 3.2% of the population).
	SAC		<u>Annex I habitats that are a primary reason for selection of this site:</u> 1150: Coastal lagoons * Priority feature 1220: Perennial vegetation of stony banks 1420: Mediterranean and thermo-Atlantic *halophilous* scrubs (*Sarcocornetea fruticosi*) 2110: Embryonic shifting dunes 2120: "Shifting dunes along the shoreline with Ammophila arenaria (""white dunes"")" 2130: "Fixed coastal dunes with herbaceous vegetation (""grey dunes"")" * Priority feature 2190: Humid dune slacks <u>Annex II species present as a qualifying feature, but not a primary reason for site selection:</u> 1355: Otter *Lutra lutra* 1395: Petalwort *Petalophyllum ralfsii*
	SPA		The SPA is noted for its internationally important populations of wintering wigeon, pink-footed goose, Brent goose, knot and avocet *Rucurvirostra avosetta,* and internationally important breeding populations of bittern *Botaurus stellaris,* marsh harrier *Circus aeruginosus,* avocet, little tern, common tern and sandwich tern. The site is also qualifies as an SPA because of its internationally important assemblage of birds, with an average of 91,536 waterfowl supported by the site over winter (including pink-footed goose, Brent goose, wigeon, avocet and knot).
	SSSI		The site is designated for its intertidal sands and muds, saltmarshes, shingle banks and sand dunes, plus extensive areas of brackish lagoons, reedbeds and grazing marshes. The site supports a wide range of coastal plant communities with many rate species. The site is of great ornithological interest, with nationally and internationally important breeding colonies of several species. It is also a valuable site for migratory birds, particularly Brent goose and pink-footed goose.
Weybourne Town Pit	SSSI	Approximately 450 metres east of the PEIR boundary in Weybourne	The site is designated for its geological interest only and its citation does not include any ecological or ornithological interests; however, this site has been included for completeness.

Designated Site Name	Designation	Distance and Direction from the PEIR boundary	Reasons for designation
Kelling Heath	SSSI	Approximately 220 metres west of the PEIR boundary near Kelling	The site is an area of dry acid heath with small areas of acidic grassland, bracken, woodland and scrub. The site supports common lizards *Zootoca vivipara* and adders *Vipera berus,* and heathland bird species including breeding nightjar *Caprimulgus europaeus* plus whitethroat *Sylvia communis,* nightingale *Luscinia megarhynchos* and linnet *Linaria cannabina.* The heath supports a hen harrier *Circus cyaneus* roost in winter.
Cawston and Marsham Heaths	SSSI	Approximately 900 metres south-east of the PEIR boundary near Cawston	The site is an area of heathland with some areas of wet heath and secondary woodland. The site is noted for its assemblage of lichens and for its heathland birds including tree pipit *Anthus trivialis*, whinchat *Saxicola rubetra*, nightjars, and as a winter roost for hen harriers.
Alderford Common	SSSI	Approximately 10 metres west of the PEIR boundary near Swannington	The site is noted for its species-rich chalk grassland, scrub, woodland, marshy grassland and ponds. The ponds support amphibians including great crested newts. The site also supports a range of breeding birds including nightingales, lesser whitethroat *Sylvia curruca*, whitethroat *Sylvia communis*, turtle dove *Streptopelia turtur,* woodcock *Scolopax rusticola* and hawfinch *Coccothraustes coccothraustes*. The citation also notes that the site has an old lime kiln which supports winter hibernating and summer roosting bats.
Swannington Upgate Common	SSSI	Approximately 210 metres south-east of the PEIR boundary near Swannington	The site supports a wide range of habitats including dry acid heath, wet heathland with acidic flushes, fen, birch *Betula* sp. and alder *Alnus glutinosa* woodland, scrub, bracken, rough grassland and ponds. The ponds, which support a rich assemblage of water-plants are also used by great crested newts. The variety of habitats also supports a wide range of birds including teal *Anas crecca,* woodcock, lesser whitethroat, sedge warbler and redpoll *Carduelis flammea.*
Shotesham Common	SSSI	Approximately 1.67km south-east of the PEIR boundary near the onshore substation area	This common occupies part of the valley of the River Tas. It is dominated by unimproved grassland habitats including wet marshy grassland, wet neutral grassland, dry grassland on the valley slopes and small areas of improved and semi-improved grassland. There is a small stream flowing through the site, with a small area of basic flush on the valley side. The site supports a rich flora with several uncommon species.
Dunston Common	Local Nature Reserve	Approximately 330 metres east of the PEIR boundary near Dunston	The site is noted for its grassland, semi-mature woodland and a small pond.
Eaton Common	Local Nature Reserve	Approximately 1.9km north of the PEIR	The site which is bordered by the River Yare to its south is noted for its neutral grassland which is marshy in places, with ditches and areas of tall herb and

Designated Site Name	Designation	Distance and Direction from the PEIR boundary	Reasons for designation
		boundary near the onshore substation area	broad-leaved woodland.
Marston Marsh	Local Nature Reserve	Approximately 2km north of the PEIR boundary near the onshore substation area	The site comprises floodplain grazing marsh on the north side of the River Yare. There are numerous dykes throughout the site, and small areas of damp woodland. Species of interest include water voles *Arvicola amphibius,* otter, orchids, dragonflies, geese and snipe *Gallinago gallinago.*

3.2. Non-Statutory Designated Nature Conservation Sites

Table 2a lists all CWS returned by NBIS that are located within the PEIR boundary. Table 2b lists all CWS' that are located within 2km of the PEIR boundary. All CWS' were last surveyed in 1985 unless otherwise stated. The descriptions of these sites given in Tables 2a and 2b are taken directly from the NBIS citations.

Table 2a: CWS within PEIR boundary (to be read in conjunction with Figure 1-10)

CWS Name and Number	Position within PEIR boundary	Description
The Carrs Woodland: 196	The northern edge of this CWS is within the PEIR boundary, near East Carleton	This is a large semi-natural woodland containing several ponds, fen areas and grassland. A stream and numerous dykes cross the site. Most of the site is woodland with a canopy of oak (Quercus robur), ash (Fraxinus excelsior), beech (Fagus sylvatica) and sycamore (Acer pseudoplatanus). Alder (Alnus glutinosa) is abundant in some places whilst in others conifers have been planted. The understorey is of hazel (Corylus avellana) coppice, some of which reaches the canopy, with box (Buxus sempervirens), elder (Sambucus nigra) and occasional cherry-laurel (Prunus laurocerasus). The ground flora contains abundant dog's mercury (Mercurialis perennis) and bramble (Rubus fruticosus agg.). Other herbs include ground-ivy (Glechoma hederacea), red campion (Silene dioica), bugle (Ajuga reptans) and ferns (Dryopteris spp.). In damp areas near to the stream are angelica (Angelica sylvestris), water mint (Mentha aquatica) and marsh thistle (Cirsium palustre). Areas of fen are found to the northeast of the site and contain abundant great willowherb (Epilobium hirsutum), meadowsweet (Filipendula ulmaria), rushes (Juncus spp.), sedges (Carex spp.) and fleabane (Pulicaria ulmaria). The grassland areas are basic to neutral and subject to flooding. They support species such as meadowsweet, brooklime (Veronica beccabunga), creeping thistle (Cirsium arvense) and Yorkshire fog (Holcus lanatus). The ponds lie near the centre of the site and have an aquatic vegetation of starwort (Callitriche sp.), marestail (Hippuris vulgaris) and pondweed (Potamogeton spp.). The margins support bulrush (Typha latifolia), greater pond-sedge (Carex riparia), hemp-agrimony (Eupatorium cannabinum), bittercress (Cardamine sp.), water mint and rushes. This grades into drier grassland areas with abundant Yorkshire fog

CWS Name and Number	Position within PEIR boundary	Description
		and knapweed (Centaurea nigra). (Based on the 1985 habitat survey (NWT))
Yare Valley (Colton Wood): 228	The eastern part of this CWS is within the PEIR boundary near Colton	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. Generally the sward is dominated by rye-grass (Lolium perenne) and creeping bent (Agrostis stolonifera) with frequent reed sweet-grass (Glyceria maxima) and reed canary-grass (Phalaris arundinacea). The richest area contains a low growth of jointed rush (Juncus articulatus), carnation sedge (Carex panicea) and blunt-flowered rush (Juncus subnodulosus). Square-stalked St. John's-wort (Hypericum tetrapterum) is common here whilst bristle club-rush (Isolepsis setacea) and long-stalked yellow-sedge (Carex lepidocarpa) occur occasionally. Ungrazed fen areas have a tall vegetation consisting of reed sweet-grass (Glyceria maxima), meadowsweet (Filipendula ulmaria), great willowherb (Epilobium hirsutum) and more locally reed (Phragmites australis). Nettle (Urtica dioica) and purple-loosestrife (Lythrum salicaria) are scattered but common. Ditches crossing the fen support bulrush (Typha latifolia) and greater pond-sedge (Carex riparia). Scrub is scattered throughout the site but in places forms large blocks. Sallow (Salix cinerea), elder (Sambucus nigra) and alder (Alnus glutinosa) are the most frequent components. To the north of the site this has developed into an area of woodland with a canopy of alder and ash (Fraxinus excelsior). Last surveyed in 1995.
Yare Valley (Marlingford Hall): 229	The western part of this CWS is within the PEIR boundary, near Barford	This site comprises woodland, marshy grassland and fen either side of the R.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. Much of the grassland contains rushes (Juncus spp.), sedges, reed sweetgrass (Glyceria maxima) and meadowsweet (Filipendia ulmaria). The wettest areas may be spring-fed with a possibly more basic influence. In these damper parts the flora is more diverse and include quaking grass (Brizia media), marsh arrow grass (Triglochin palustre), marsh marigold (Caltha palustris) and glaucous sedge (Carex flacca). The fen area lies adjacent to the river and grassland and is dominated by reed sweetgrass and meadowsweet. The woodland on the site comprises some areas of planted poplar (Populus sp.). In the western blocks the trees are over tall fen vegetation, whilst to the east, following Melton Beck, there is a shrub layer which includes willow (Salix sp.), alder (Alnus glutinosa) and hazel (Corylus avellana). The herb layer here includes dog's mercury (Mercurialis perennis) and great willow herb (Epilobium hirsutum). The areas known as The Carrs and River Plantation have been left largely undisturbed. Ash (Fraxinus excelsior) and willow (Salix sp.) dominate although there is a considerable amount of oak (Quercus robur) and some sweet chestnut (Castanea sativa). The shrub layer is varied but most common are willow and dogwood (Cornus sanguinea). The ground flora is largely nettles (Urtica dioica) with dogs mercury and ground ivy (Glechoma hederacea). There are, however, some species- rich patches which include enchanters nightshade (Circaea lutetiana), violets (Viola sp.) and wood avens

CWS Name and Number	Position within PEIR boundary	Description
		(Geum rivale). Many of the dykes leading to the river contain a variety of aquatic flora which include arrowhead (Sagittaria sagittifolia), water plantain (Alisma plantago-aquatica), flowering rush (Butomus umbellatus) and frogbit (Hydrocharis morsus-raviae). The dyke sides are dominated by sedges (Carex spp.) and reedmace (Typha latifolia) together with herbs such as fleabane (Pulicaria vulgaris). Last surveyed in 1995.
River Tud at Easton and Honingham: 250	Part of the western section of this CWS is within the PEIR boundary, near Easton	Length 5.2km This site meets the following CWS criteria: · Species-rich aquatic, marginal and emergent riverine flora. · Otter and water vole recorded. · Presence of natural physical features. This site originally extended from Ringland Road in the west to the parish boundary in Bog wood in the east; in 2017, the western section from Church Farm to the A47 at Honingham was added, along with a section from the district boundary in the west to Bog Wood in the east. A new section east of Taverham road was added in 2020. The river runs through agricultural land in a corridor which is dominated by grassland and wet woodland. A weir and sluice near Easton Lodge creates a barrier to fish and a ponded section to the eastern sections of the watercourse. The channel is narrow at Ringland Road bridge at only 3m wide but quickly widens to an average of 5-6m. By the house the channel is artificially widened to 10m. There is some variation in depth from 25cm to 1.3m at the weir. Natural features include submerged berms of sand and silt just east of the Ringland Road bridge. 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. The wooded west end of the stretch has an abundance of coarse woody debris, mainly composed of fallen branches but also including an old ligger. The eastern half has almost no coarse woody debris. The banks are densely wooded at the western end with abundant overhanging trees including alder Alnus glutinosa, white willow Salix alba and crack willow Salix fragilis with planted poplars Populus x canadensis along the southern bank. Aquatic species include lesser water parsnip Berula erecta and unbranched bur-reed Sparganium emersum. The wooded western end also has some stream water crowfoot Ranunculus pencillatus with lesser duckweed Lemna minor and blanket weed abundant near the weir. East of the weir stream water crowfoot is frequent. The western end of the river has only occasional emergent branched bur-reed Sparganium erectum whereas the eastern half has a more open channel supporting a range of emergents. Large banks of watercress Nasturtium officinale grow across the river and branched bur-reed and reed sweet grass Glyceria maxima grow on the edges or as stands in the river. Lesser pond sedge Carex acutiformis becomes dominant in places. Marginal species west of Lodge Farm bridge include dogs mercury Mercuralis perennis, hemp agrimony Euaptorium cannabinum, small teasel Dipsacus pilosus, rough chervil Chaerophyllum temulum, herb robert Geranium robertianum and wild angelica Angelica sylvestris on the southern bank. Butterbur Petasites hybridus is found on the northern wooded bank. Purple loosestrife Lythrum salicaria is notable on the southern bank with

CWS Name and Number	Position within PEIR boundary	Description
		locally frequent great willowherb Epilobium hirsutum. East of the weirs a 20m wide grassland margin gradually gets wider, dominated by nettle Urtica diocia but also supporting grassland species such as wild carrot Daucus carota, greater birds-foot trefoil Lotus pedunculatus and common fleabane Pulicaria dysenterica. West of Church Farm, the river comprises a naturally functioning chalk stream watercourse with a sand and gravel bottom, broadly similar to the eastern section. The channel is narrow, varying from 2-3m with some variation in depth from shallow 'rapids' to slightly ponded sections close to the alder carr. Natural features include submerged berms of sand and silt and dense rafts of emergent vegetation include brooklime Veronica beccabunga, and watercress. Faster-flowing sections are scoured by periodic spate flows to leave bare earth 'cliffs'. The section adjacent to and upstream of Alder Carr features plant species associated with shadier conditions, including large bittercress Cardamine amara and small teasel Dipsacus pilosus. Further east, in the section which flows through cattle-grazed meadows, the channel features common club-rush Schoenoplectus lacustris, water plantain Alisma plantago-aquatica and branched bur-reed Sparganium erectum. Beds of submerged stream water crowfoot Ranunculus pencillatus, water starwort Callitriche spp. and river water dropwort Oenanthe fluviatile are frequent. The new extension east of Taverham road is very similar to that described above. The channel is relatively straight on the upstream sections, starting to meander further downstream. There are areas of light & shade with mature ash Fraxinus excelsior and alder on the banks, some with limbs over-hanging the channel. Fallen woody debris are acting as deflectors and watercress is abundant where silt is bulding up forming berms. Marginals include lesser water parsnip, fools water cress Apium nodiflorum, water mint Mentha aquatica, brooklime, water forget-me-not Myosotis scorpioides, common valerian Valeriana offcinalis and meadowsweet Filipendula ulmaria. Aquatics include water crowfoot species Ranunculus sp. and un-branched bur-reed. Fish records include trout, bullhead, dace, eel, gudgeon and stone loach. Last surveyed in 2019.
Kelling Hard: 1107	The central and eastern parts of this CWS are within the PEIR boundary, near the landfall location	This site comprises a mosaic of unimproved, slightly calcareous and neutral grassland, common reed (Phragmites australis) 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. It once formed part of the disused Weybourne Military Camp, and it lies immediately inland from the shingle sea defences 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 with frequent wild carrot (Daucus carota), greater knapweed (Centaurea scabiosa), field scabious (Knautia arvensis), ribbed melilot (Mellitus officinalis) and lady's bedstraw (Galium verum). Where the sward is shorter, typically on the numerous tracks, hawkbit (Leontodon sp.) and bird's-foot trefoil (Lotus corniculatus) are abundant. Towards the peripheries the sward becomes ranker and includes frequent sea couch (Elymus pycanthus), with ragwort (Senecio jacobaea) and common poppy (Papaver rhoeas) in a disturbed area. A much sparser, shorter sward

CWS Name and Number	Position within PEIR boundary	Description
		reminiscent of maritime cliff top communities occurs in a central southern area of the site where topsoil has been removed. Here common centuary (Centaurium erythraea) and buck's-horn plantain (Plantago coronopus) are abundant, with mouse-ear hawkweed (Hieracium pilosella), bird's-foot trefoil and squirreltail fescue (Vulpia bromoides). This area is partially enclosed by banks supporting blackthorn (Prunus spinosa) and bramble (Rubus fruticosus agg.) scrub with frequent false oat-grass (Arrhenatherum elatius) and teasel (Dipsacus fullonum sylvestris). A metalled track separates this area from unimproved neutral grassland to the east which includes nettle (Urtica dioica) and bramble with some black knapweed (Centaurea nigra). A high rabbit population helps maintain a short grazed sward in places and here bryophytes and buck's-horn plantain dominate over smooth meadow-grass (Poa pratensis), daisy (Bellis perennis) and common mouse-ear (Cerastium fontanum). In the north-east, the sandy soil becomes more clayey, with a high water level. Here a small patch of common reed dominated vegetation occurs with false-fox sedge (Carex otrubae). The presence of sea arrowgrass (Triglochin maritimum) suggests a saline influence. A small stand of flag iris (Iris pseudacorus) occurs in the adjacent gateway. The reed is surrounded by an area of marshy grassland. Here common fleabane (Pulicaria dysenterica), silverweed (Potentilla anserina) and spear thistle (Cirsium vulgare) are the only frequent herbaceous species present in a grassy sward which includes velvet bent (Agrostis canina), creeping bent (Agrostis stolonifera) and red fescue (Festuca rubra), together with large patches of hard rush (Juncus inflexus) and jointed rush (Juncus articulatus). Last surveyed in 1994.
Kelling Heath Park & 100 Acre Wood: 1150	The eastern part of this CWS is within the PEIR boundary, near Kelling	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, in the east, is an extensive area of continuous broad-leaved woodland. The canopy is sycamore (Acer pseudoplatanus), oak (Quercus robur) and silver birch (Betula pendula), less frequent beech (Fagus sylvatica) and sweet chestnut (Castanea sativa) are present with derelict coppiced hazel (Corylus avellana) and goat willow (Salix caprea). A sparse field layer has locally dense bracken (Pteridium aquilinum) interspersed with bare leaf litter with bramble (Rubus fruticosus agg.) and honeysuckle (Lonicera periclymenum). Occasioanlly heather (Calluna vulgaris) 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 (including occasional pollards) and sycamore, with elder (Sambucus nigra) with a rowan (Sorbus aucuparia) understorey. Typical bracken - bramble field layer includes less dense areas where there is a local cover of bryophytes (Atrichum undulatum, Mnium hornum and Eurhyncium praelongum) with frequent male-fern (Dryopteris filix-mas). At the foot of the slopes bluebell (Hyacinthoides non-scripta), herb-Robert (Geranium robertianum), and wood avens (Geum urbanum) are frequent with occasional wood sorrel (Oxalis acetosella). A small steep-sided, shallow fish pond in the damp valley bottom is surrounded by coppiced goat willow and ash (Fraxinus excelsior) with a small area of managed alder (Alnus glutinosa) carr to the south. The pond, fed by small streams, contains large bittercress (Cardamine amara),

CWS Name and Number	Position within PEIR boundary	Description
		opposite-leaved golden saxifrage (Chrysosplenium oppositifolium) and toad rush (Juncus bufonius), with lady-fern (Athyrium felix-femina) on the banks. Occasional remnant hazel coppice and holly (Ilex aquifolium) occur on the drier ridge slopes with broad-buckler fern (Dryopteris dilatata). As the land flattens out to the west, birch dominated secondary woodland grades to heathland on the Kelling Heath Caravan Park. The heathland in the centre of the caravan site comprises mature heather containing occasional invasive gorse (Ulex europaeus) and also bramble and birch seedlings with occasional broom (Cytisus scoparius). Heath vegetation is also found bordering the many sandy tracks where regular mowing allows a greater number of species to flourish, such as sheep's sorrel (Rumex acetosella), heath bedstraw (Galium saxatile), bird's-foot trefoil (Lotus corniculatus), bell heather (Erica cinerea), common bent (Agrostis capillaris), early hair-grass (Aira praecox), wavy hair-grass (Deshampsia flexuosa), sheep's fescue (Festuca ovina), pill sedge (Carex pilulifera), and heath wood-rush (Luzula multiflora). Well trampled paths also support short acrocarpous bryophytes and Cladonia lichens. Last surveyed in 1994.
Beach Lane, Weybourne: 1156	This CWS is entirely within the PEIR boundary, near Weybourne	This site is an area of reed bed 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 freshwater stream entering from the east. Reed swamp occupies a large part of the site. The stand is dominated by uniform common reed (Phragmites communis) and has evidently not been cut for some time. A small patch of bulrush (Typha latifolia) is present towards the centre of the site. Occasional willow (Salix sp.) also occurs, becoming dense in a slightly raised, drier patch adjacent to Beach Lane, where great willowherb (Epilobium hirsutum) is also present. 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 reed bed. Enteromorpha spp. is abundant in the deeper water. To the south reed grades into a drier tall herb community around the level of the small inflowing stream. This is characterised by Alexander's (Smyrnium olusatrum) and fennel (Foeniculum vulgare), with rosebay willowherb (Chamerion angustifolium) replacing great willowherb. The sward is generally tall, including frequent coarse grasses such as false oat grass (Arrhenatherum elatius) and cock's foot (Dactylis glomerata), with locally abundant wall barley (Hordeum murinum). Other herbaceous species present include common mallow (Malva sylvestris), mugwort (Artemesia vulgaris), perennial sow thistle (Sonchus arvensis), broad-leaved dock (Rumex obtusifolius), creeping thistle (Cirsium arvense), great plantain (Plantago major), and spear-leaved orache (Atriplex prostrata), with silverweed (Potentilla anserina), amphibious bistort (Polygonum amphibium), and sea club-rush (Scirpus maritimus) in damper areas. There is also a little hawthorn (Crataegus monogyna) scrub and a defunct elder (Sambucus nigra). The freshwater stream is very overgrown, but supports a small amount of water cress (Nasturtium officinale) and brooklime (Veronica beccabunga). Last surveyed in 1994.

CWS Name and Number	Position within PEIR boundary	Description
Wensum Pastures at Morton Hall: 2070	The northern part of this CWS is within the PEIR boundary, near Attlebridge	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. Yorkshire fog (Holcus lanatus), cock's foot (Dactylis glomerata) and perennial rye grass (Lolium perenne) are predominant, with frequent creeping bent (Agrostis stolonifera). At the peripheries, the vegetation is frequently taller and less intensively grazed, with nettle (Urtica diocia), and creeping thistle (Cirsium arvense) and there are patches of damper grassland where finer herbs, including silverweed (Potentilla anserina), meadow buttercup (Ranunculus acris) and creeping cinquefoil (Potentilla reptans) are frequent. The grassland is wetter towards the southeastern end of the site, with patches of dominant tufted hair grass (Deschampsia cespitosa) and creeping buttercup (Ranunculus repens). There are tree lines and occasional trees and scrub scattered across the site. Species include grey poplar (Poplar x canescens), oak (Quercus robur) and crack willow (Salix fragilis). A low lying loop adjacent to the river holds standing surface water with emergent reed sweet grass (Glyceria maxima) and patches of water starwort (Callitriche), with pink water speedwell (Veronica catenata), water pepper (Polygonum hydropiper) and whorl grass (Catabrosa aquatica). 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. Reed sweet grass is dominant in places and there are large patches of common reed (Phragmites australis). Water starwort, Canadian pond weed (Elodea canadensis), water crow foot (Ranunculus), fool's water cress (Apium nodiflorum), branched bur reed (Sparganium erectum) and small pond weed (Potomogeton berchtoldii) are present, with water cress (Nasturtium officinale) and lesser water parsnip (Berula erecta) in shallow, fast flowing sections of the principle drain. Marginal species include meadowsweet (Filipendula ulmaria), great willowherb (Epilobium hirsutum), wild angelica (Angelica sylvestris), hemp agrimony (Eupartorium cannabinum), common marsh bedstraw (Galium palustre), ragged robin (Lychnis flos-cuculi), purple loosestrife (Lythrum salicaria), water mint (Mentha aquatica), water figwort (Scrophularia auriculata), green figwort (Scrophularia umbrosa), marsh wouundwort (Stachys palustris) and common meadow rue (Thalictrum flavum), reed canary grass (Phalaris arundinacea), cyperus sedge (Carex pseudocyperus), greater tussock sedge (Carex paniculata), pond sedge (Carex) and jointed rush (Juncus articulatus). Trees, including alder (Alnus glutinosa), white willow (Salix alba agg), grey willow (Salix cineria), oak and ash (Fraxinus excelsior) line the banks of the drains in places. Last surveyed in 1998.
Hall Hills/Ringland Covert: 2105	The northern part of this CWS is within the PEIR	A large woodland, listed as ancient woodland and lying between the river valleys of the Tud and the Wensum. The woodland is composed largely of standards, with small areas of coppice. The site is bisected by a track, running south-east to north west, that divides the site into Hall Hills to the south and Ringland Covert to the north. The Hall Hills

CWS Name and Number	Position within PEIR boundary	Description
	boundary, near Ringland	area is mainly high forest, dominated by sycamore (Acer pseudoplanatus) in the west, with occasional oak (Quercus robur), beech (Fagus sylvatica), Scot's pine (Pinus sylvestris) and sweet chestnut (Castanea sativa). The canopy is almost closed and the understorey dominated by sycamore seedlings. Holly (Ilex aquifolium), elm (Ulmus procera) and hazel (Corylus avellana) are occasional in the understorey. To the south, exotic species, such as cotoneaster (Cotoneaster spp.) and red oak (Quercus rubra), have been planted around a pheasant release pen. Scot's pines dominate the central section of the wood, with occasional oak, sycamore and sweet chestnut. To the north-east, Hall Hills is dominated by oak standards, with frequent standards of sweet chestnut, sycamore and pine. Stored hazel coppice dominates the understorey here, with occasional holly and birch (Betula pendula). The herb layer throughout Hall Hills is sparse, but is dominated by bluebell (Hyacinthoides non-scripta) early in the year, with frequent bramble (Rubus fruticosus agg.), bracken (Pteridium aquilinum) and nettle (Urtica dioica). Male fern (Dryopteris filix-mas), Lady Fern (Athyrium filix-femina) and Broad Buckler fern (Dryopteris dilatata) dominate the herb layer in the central section of Hall Hills. Several abandoned mineral workings are present in the south-east of the wood and have been planted with small leafed lime (Tilia europaea). The Ringland Covert area is primarily coppice with standards; oak standards dominate, with occasional sweet chestnut, sycamore and Scot's pine. Stored hazel coppice is interspersed with occasional holly and birch, but is threatened by sycamore. Other mature trees planted throughout the site include horse chestnut (Aesculus hippocastanum), Leyland (Cupressocyparis leylandii), larch (Larix decidua), rowan (Sorbus aucuparia), aspen (Populus tremula) and Sitka spruce (Picea sitchensis). Rhododendron (Rhododendron ponticum) occurs rarely in the understorey. The herb layer is dominated by bluebells early in the year, with bracken, bramble, nettle and ferns frequent throughout. An open area, adjoining the ride that bisects the site, is dominated by soft rush (Juncus effusus) and Yorkshire fog (Holcus lanatus), with occasional rosebay willowherb (Chamaenerion angustifolium) and wild raspberry (Rubus idaeus). Species frequent along the rides include ground ivy (Glechoma hederacea), wood avens (Geum urbanum), cow parsley (Anthriscus sylvestris) and lesser burdock (Arctium minus). Red campion (Silene dioica), creeping buttercup (Ranunculus repens) and meadow buttercup (Ranunculus acris) are common, with hoary plantain (Plantago media) present on disturbed areas. Grasses present in open areas across the site include smooth meadow grass (Poa pratensis), common bent (Agrostis capillaris), annual meadow grass (Poa annua), creeping bent (Agrostis stolonifera), common cat's ear (Hypochoeris radicata) and barren brome (Bromus sterilis). Last surveyed in 2003.
Marriott's Way: 2176	The PEIR boundary overlaps this linear CWS in two locations, to the north-east of	Marriott's Way follows a disused railway line which closed finally in 1985, and is now used by walkers, cyclists and horse-riders. A firm track has been laid along its whole length. There are numerous access points with steps to the track and small roadside parking bays. This citation covers the 35km from Hellesdon to Aylsham, via Reepham, though the path does continue into Norwich city centre. The central track is generally unvegetated. However, the track edges present one

CWS Name and Number	Position within PEIR boundary	Description
	Attlebridge and to the north-east of Cawston	type of habitat and each side of the track up to the railway fence offers another. These aspects all vary along the path, with cuttings and embankments, different soils and the influence of water on the vegetation. The arrival of the railway was an imposition on the land, with some watercourses being piped under the track but other, smaller, ones being left to create wet areas alongside the embanked track. In some places, the track sliced through woodlands, as in Attlebridge Woods and New Plantation, Reepham. In others it has cut off the corner of a field, which has since become scrub. Cuttings and embankments often have a more diverse flora: possibly as relics of a woodland flora with plants such as sanicle Sanicula europaea, yellow archangel Lamiastrum galeobdolon, bluebell Hyacinthoides non-scripta and moschatel Adoxa moschatellina, or wetland plants and trees which may grow in damp or wet ground, often at the base of an embankment, such as grey willow Salix cinerea, common reed Phragmites australis, great horsetail Equisetum telmateia and hemp agrimony Eupatorium cannabinum. Often loose stones, cinders and coal lie on embankment slopes, and in places fallen trees and shrubs help in the diversification of woodland habitats. 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. Oak Quercus robur and hawthorn Crataegus monogyna occur all the way along the path, with occasional other locally frequent species such as sweet chestnut Castanea sativa in the woods at Attlebridge, or alder Alnus glutinosa at Whitwell Common, and other species occurring with varying frequency. New Plantation at Reepham is included within the County Wildlife Site. It is a semi-natural broadleaved woodland of ash Fraxinus excelsior, sycamore Acer pseudoplatanus and sweet chestnut with a ground flora including common twayblade Listera ovata, yellow archangel, wood anemone Anemone nemorosa, bluebell and dog's mercury Mercurialis perennis. Grassland and forbs growing within it form the greatest component of the vegetation. Much of Marriott's Way is on acidic ground, with light, sandy soil but plants also found in neutral and basic soils seem to occur alongside one another. Species such as greater knapweed Centaurea scabiosa, field scabious Knautia arvensis, mouse-ear hawkweed Pilosella officinarum and wild carrot Daucus carota are characteristic of basic grassland; these occur alongside neutral grassland species such as germander speedwell Veronica chamaedrys, common sorrel Rumex acetosa, knapweed Centaurea nigra and false oat grass Arrhenatherum elatius and acidic grassland plants including bracken Pteridium aquilinum, wood sage Teucrium scorodonia and creeping cinquefoil Potentilla reptans. Some less common plants that occur along Marriott's Way include yellow archangel, basil thyme Clinopodium acinos, wild marjoram Origanum vulgare, hellebores along the track edge, moschatel, maidenhair spleenwort Asplenium trichomanes ssp quadrivalens and locally abundant sanicle. Badger setts occur and bats are known to roost beneath bridges and use the route for commuting and foraging. Last surveyed in 2008.
Brook House Marshes: 2315	The eastern part of this CWS is within the PEIR	This site comprises three fields of relatively species-poor grassland lying in the floodplain of the River Tud CWS 250. Excellent ditches traverse the site and support species-rich vegetation assemblages with species such as greater tussock sedge Carex paniculata, bog

CWS Name and Number	Position within PEIR boundary	Description
	boundary, near Easton	stitchwort Stellaria alsine and common valerian Valeriana officinalis. The river banks also support a diverse marginal flora which merge into the grassland. CWS 2128 Adjacent to the River Tud is situated downstream and the A47 sits just south of the site. The northern field is heavily grazed in places and dominated by coarse grasses such as yorkshire fog Holcus lanatus and cocks foot Dactylis glomerata with creeping thistle Cirsium arvense and broad-leaved dock Rumex obtusifolius standing above the grazed sward. Other herbs occur occasionally such as cat's ear Hypochaeris radicata, common mouse-ear Cerastium fontanum, meadow vetchling Lathyrus pratensis and nettle Urtica dioica. Timothy Phleum pratense is also frequent. A circular depression of reed sweet grass Glyceria maxima swamp with soft rush Juncus effusus is found where the ground is wetter. North of the central ditch the grassland sits on higher ground and is drier, supporting a poorer number of species. This area wasn't extensively surveyed due to cows and calves being present in this area. The field is separated from the adjoining field to the west by a ditch which supports abundant soft rush on the margins with reed sweet grass in the channel. Dock is occasional as is common spike rush Eleocharis palustre. A species-rich ditch meanders across the centre of the field west-east. It is choked with branched bur-reed Sparganium erectum. Hard rush Juncus inflexus is frequent on the margins with some alder Alnus glutinosa saplings; mostly browsed. There are a few tussocks of greater tussock sedge. Water starwort Callitriche sp. is found in the channel, alongside fool's water cress Apium nodiflorum, floating sweet grass Glyceria fluitans and reed sweet grass. Other species include bog stitchwort, square stalked St John's wort Hypericum tetraperum, gypsywort Lycopus europaeus and meadowsweet Filipendula ulmaria. Further east along the ditch there is abundant common spike rush, occasional ragged robin Lychnis flos-cuculi, greater bird's foot trefoil Lotus pedunculatus and tufted forget-me-not Myosotis laxa. Jointed rush Juncus articulatus is locally frequent. In one section the ditch is covered with a thick bramble, rose Rosa sp.and hawthorn Crataegus monogyna thicket before opening out again. Beyond this ragged robin is occasional, with marsh bedstraw Galium palustre, common fleabane Pulicaria dysenterica and abundant fool's water cress and water mint Mentha aquatica. South of the river the grassland appears drier and is less intensively grazed with grasses dominating and few herbs. Yorkshire fog dominates with occasional Timothy and crested dog's tail Cynosurus cristatus. One area near the river appears to follow an old drainage line. It supports frequent rushes at the western end, mainly hard and soft rush with abundant water mint and occasional water forget-me-not Myosotis scorpioides. A ditch divides the two southern fields. It is fenced off from grazing and supports a good floral community. The channel is dominated by branched bur-reed Sparganium erectum. Meadowsweet is abundant on the margins with water mint and frequent common valerian and occasional yellow flag Iris pseudacorus. The site is grazed by approximately fifteen cows and calves over the summer months. Last surveyed in 2019.

Table 2b: CWS within 2km of PEIR boundary (to be read in conjunction with Figure 1-10)

CWS Name and Number	Distance and Direction from PEIR boundary	Description
Hethel Wood: 179	Approximately 1.65km south of the PEIR boundary near Ketteringham	This is a large area of semi-natural woodland with many ancient woodland indicator species, an excellent structure and appropritate management of thinning and coppicing. The majority of the wood has a canopy of oak Quercus robur, ash Fraxinus excelsior and field maple Acer campestre, some of which has grown from coppice trees and the rest as standards. Hornbeam Carpinus betulus and willow Salix sp. occur frequently whilst birch Betula pubescens, small-leaved elm Ulmus minor, alder Alnus glutinosa and horse-chestnut Aesculus hippocastanum are all occasional. The shrub layer is dominated by coppiced hazel Corylus avellana with frequent hawthorn Crataegus monogyna hornbeam, ash and field maple. Holly Ilex aquifolium, spindle Euonymus europaeus and dogwood Cornus sanguinea occur occasionally. The ground flora is very diverse and in open areas bluebell Hyacinthoides non-scripta is dominant with abundant greater stitchwort Stellaria holostea. Pignut Conopodium majus and early purple orchid Orchis mascula are occasional. Herb paris Paris quadrifolia is rare. Where the woodland floor is damper it supports large amounts of moss together with wood sanicle Sanicula europaeus, early dog violet Viola reichenbachiania, barren strawberry Potentilla sterilis, yellow archangel Lamiastrum galeobdolon, primrose Primula vulgaris, skullcap Scutellaria galericulata, yellow pimpernel Lysimachia nemorum and wood spurge Euphorbia amygdaloide. There is an excellent fern community including male fern Dryopteris filix-mas, broad buckler-fern Dryopteris dilatata, Lady fern Athyrium filix-femina, and soft shield fern Polystichum setiferum. There are marshy rides within the woodland with marsh bedstraw Galium palsutre, meadowsweet Filipendulia ulmaria, meadow vetchling Lathyrus pratensis, marsh cinquefoil Potentilla palsutris and lesser celandine Ranuculus flammula. A pond situated within the woodland is carpeted with water violet Hottonia palustris. The remainder of the wood has an understorey and ground flora similar to that above but the canopy contains large amounts of willow and birch with yew Taxus baccata and hornbeam. Last surveyed in 1998.
Hall Plantation: 185	Approximately 1.75km south of the PEIR boundary near Ketteringham	This is a moderately sized wood with a diverse canopy. The wood is somewhat disturbed, and a number of non-native species are present. The northern section has been thinned. The canopy is largely made up of sycamore (Acer pseudoplatanus), ash (Fraxinus excelsior) and occasional oak (Quercus robur). Large specimens of beech (Fagus sylvatica) and cherry (Prunus avium) are widespread throughout the wood whilst horse-chestnut (Aesculus hippocastanum), coppiced lime stools (Tilia x europaeus), sweet chestnut (Castanea sativa) and a poplar (Populus sp.) are present but infrequent. Most of the canopy species are present as mature and over-mature trees. A new area of planatation (north-west corner) has been added since the last survey and is approximately 25 years old. The canopy here is also predominantly ash and oak, but with ash and sycamore seedlings also present. Localised ash dieback on the younger ash trees is evident. The shrub layer is variable but contains cherry, sloe (Prunus spinosa) and hawthorn (Crataegus monogyna) often forming thick growth with saplings of canopy trees. The ground flora has abundant nettle (Urtica

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		dioica) and ground-ivy (Glechoma hederacea) and frequent dog's mercury (Mercurialis perennis). Herb-robert (Geranium robertianum) is widespread as is garlic mustard (Alliaria petiolata) whilst other woodland herbs such as wood sedge (Carex sylvatica) and dog-violet (Viola sp.) are rare. Along the sparse vegetation of the rides, rare cock's-foot (Dactylis glomerata) and occasional creeping buttercup (Ranunculus repens) are found. A damp area supports a slightly richer ground flora with cuckoo flower (Cardamine pratensis), lesser celandine (Ficaria Verna), numnerous patches of bluebell (Hyacinthoides non-scripta), locally abundant winter aconite (Eranthis hyemalis), snowdrop (Galanthus nivalis), ocaasional three-nerved sandwort (Moehringia trinervia), occasional primrose (Primula vulgaris), ransoms (Allium ursinum) and two large yew trees (Taxus baccata). Last surveyed in 2016.
Street Plantation & Bracon Hall: 186	Approximately 1.75km south-west of the PEIR boundary near the onshore substation area	This wood is largely dominated by ash (Fraxinus excelsior) but also contains areas of wetter woodland and plantation areas as well as a lake to the west. There is no public access or shooting in the wood. The woodland is somewhat variable in structure although it largely contains semi-mature or mature trees. Most of the area has been thinned in the past resulting in a very open appearance with little deadwood. The canopy is predominately ash with locally frequent sycamore (Acer pseudoplatanus), oak (Quercus robur), cherry (Prunus avium), beech (Fagus sylvatica) and occasional field maple (Acer campestre). Beech (Fagus sylvatica) is common as large specimens in the south-west corner. The shrub layer contains redcurrant (Ribes rubrum) and gooseberry (Ribes uva-crispa) with hazel (Corylus avellana) and very occasional sloe (Prunus spinosa) suckers. The ground flora is dominated by common nettle (Urtica dioica) and dog's mercury (Mercurialis perennis), with locally abundant ground ivy (Glechoma hederacea). Hedge woundwort (Stachys sylvatica), red campion (Silene dioica), three-nerved sandwort (Moehringia trinervia), bugle (Ajuga reptans), primrose (Primula vulgaris), wood sedge (Carex sylvatica) and spurge laurel (Daphne laureola) are all occasional. Bramble (Rubus fruticosus agg.) often forms low cover. To the north of the site is an area of hybrid poplar (Populus sp.) over a wet flora of greater pond-sedge (Carex riparia) and water mint (Mentha aquatica) and dense scrub growth. To the south and the east are areas of conifer plantings, largely pine (Pinus sp.) amongst semi-natural trees. The lake has no aquatic or marginal vegetation although amphibious bistort (Polygonum amphibium) is fairly common. Sallow (Salix cinerea) and goat willow (Salix caprea) are abundant around the edges with occasional alder (Alnus glutinosa). Last surveyed in 2016.
St. Thomas' Belt: 187	Approximately 750 metres south of the PEIR boundary near East Carleton	This site 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. The western part of the site has a canopy formed by oak (Quercus robur), ash (Fraxinus excelsior) and field maple (Acer campestre) over an evenly spaced understorey of hazel (Corylus avellana) coppice with hawthorn (Crataegus monogyna), coppice field maple, guelder-rose (Viburnum opulus) and rose (Rosa sp.). This becomes dense in places. Much of the ground

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		flora is dominated by ivy (Hedera helix) but near the woodland edges are areas of more species-rich vegetation with species such as wood sanicle (Sanicula europaeus), wood false-brome (Brachypodium sylvaticum), yellow archangel (Lamiastrum galeobdolon), dog's mercury (Mercurialis perennis), honeysuckle (Lonicera periclymenum) and enchanter's-nightshade (Circea lutetiana). Around the dykes are found remote sedge (Carex remota), bugle (Ajuga reptans), mosses and fungi. To the east ash and field maple dominates the canopy although beech (Fagus sylvatica) and sycamore (Acer pseudoplatanus) are frequent. Dead elm (Ulmus sp.) is common here. The shrub layer is fairly dense, especially near the edges, with coppice field maple, hawthorn, dogwood (Cornus sanguinea), sloe (Prunus spinosa) and hazel. Spindle (Euonymus europaeus) and snowberry (Symphoricarpus rivularis) are frequent. The ground flora is similar to that in the west. (Based on the 1985 habitat survey (NWT))
Hethel Hall Moat: 188	Approximately 1.43km south of the PEIR boundary near East Carleton	This site consists of a small, shaded and partially dry U-shaped moat surrounded by grassland and woodland. The moat has no aquatic or marginal vegetation although there is a small stand of great willowherb (Epilobium hirsutum) and yellow-flag (Iris pseudacorus) to the west. Between the two arms of the moat is an area of forb-rich grassland which is slowly disappearing under scrub, largely hawthorn (Crataegus monogyna) and bramble (Rubus fruticosus agg.). The sward is dominated by red fescue (Festuca rubra), cock's-foot (Dactylis glomerata), creeping bent (Agrostis stolonifera) and Yorkshire fog (Holcus lanatus). Forbs include slender St. John's-wort (Hypericum pulchrum), ground-ivy (Glechoma hederacea), germander speedwell (Veronica chamaedrys) and upright hedge-parsley (Torilis japonica). To the north of the moat is a stand of large old small-leaved lime (Tilia cordata) with frequent field maple (Acer campestre) and occasional ash (Fraxinus excelsior) over a shrub layer of hawthorn and elm (Ulmus sp.). The ground flora is of dog's mercury (Mercurialis perennis), false brome (Brachypodium sylvaticum) and the scarce wood spurge (Euphorbia amygdaloides). Last surveyed in 1995.
East Wood: 189	Approximately 1.5km south of the PEIR boundary near East Carleton	East Wood is a coppice woodland over damp soils which extends west and south along the field boundaries. The woodland is crossed by several rides. Throughout much of the wood there is an open canopy of ash (Fraxinus excelsior), some grown from coppice, over a dense coppice layer of hazel (Corylus avellana) with frequent young hawthorn (Crataegus monogyna). The ground flora is largely dog's mercury (Mercurialis perennis), ivy (Hedera helix) and bramble (Rubus fruticosus agg.) but also contains primrose (Primula vulgaris) and tufted hair-grass (Deschampsia cespitosa). To the south-west the shrub layer is more open and here bluebell (Hyacinthoides non-scriptus) and early purple-orchid (Orchis mascula) occur with yellow flag (Iris pseudacorus) and common marsh-bedstraw (Galium palustre). In areas opened by recent coppicing marsh thistle (Cirsium palustre), water mint (Mentha aquatica) and angelica (Angelica sylvestris) occur. The projecting woodland areas have ash, oak (Quercus robur), elm (Ulmus procera) and cherry (Prunus avium) with little shrub layer or ground flora. Last surveyed in 1995.
Home & Horse Meadows: 190	Approximately 1.28km south	This site consists of two meadows either side of a narrow lane, with mature, species-rich hedgerows, ponds and moderately species-rich

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	of the PEIR boundary near East Carleton	grassland. The northern field, Home Meadow has a mostly grassy sward; with dominant grasses including cock's foot Dactylis glomerata, Yorkshire fog Holcus lanatus and meadow foxtail Alopecurus pratensis; sweet vernal grass Anthoxanthum odoratum and perennial rye grass Lolium perenne are occasional. Crested dog's tail Cynosurus cristatus is rare and forbs include occasional ox-eye daisy Leucanthemum vulgare, germander speedwell Veronica chamaedrys and common vetch Vicia sativa, with rare meadow buttercup Ranunculus acris. The north, south and west boundaries of this field are surrounded by tall, dense, mature hedges. Woody species in the hedges include frequent hawthorn Crataegus monogyna, hazel Corylus avellana, dog rose Rosa canina spp., ash Fraxinus excelsior, English oak Quercus robur, blackthorn Prunus spinosa and, rarely, spindle Euonymus europaea and elder Sambucus nigra. Ivy Hedera helix is frequent as climber, honeysuckle Lonicera periclymenum occasional and forbs associated with the hedges include occasional red campion Silene dioica, plus frequent herb Robert Geranium robertianum. A number of field maples Acer campstre in the southern hedge appear to be old pollards and a single patch of dog's mercury Mercurialis perennis was observed on the field side of the ditch. Forbs associated with hedges include hedge woundwort Stachys sylvatica and herb bennet Geum urbanum. Primrose Primula vulgaris is rare and both black bryony Dioscorea communis and hop Humulus spp occur as climbers. Other ground flora close to the hedge here include garlic mustard Alliaria petiolata and rarely water figwort Scrophularia auriculata. The pond in the north-west corner of the field is open and sunny; aquatic flora includes frequent broad leaved pondweed Potamogeton natans and pond water crowfoot Ranunculus peltatus was occasional. Marginal flora includes frequent hard rush Juncus inflexus, common spike rush Eleocharis palustris, jointed rush Juncus articulatus, tufted forget me not Myosotis laxa, false fox sedge Carex obtrubae and water mint Mentha aquatica. Common water plantain Alisma plantago-aquatica and gypsywort Lycopus europaeus also occur. The grassy margins of the pond include frequent-abundant selfheal Prunella vulgaris, ox eye daisy and frequent crested dog's tail, with occasional cowslips Primula veris. The southern meadow, known as the Horse Meadow, is gently undulating and slopes slightly downhill to the east. A few mature ash trees stand in the centre of the field, mostly on the margins of the ponds. The meadow has a grassy sward similar to the Home Meadow, with perennial rye grass and occasional crested dog's tail. The grass was tall and rather rank at the time of survey, with germander speedwell Veronica chamaedrys and meadow vetchling Lathyrus pratensis. In places the sward is much finer, with common cat's ear Hypochaeris radicata locally frequent and cowslip, plus lesser stichwort Stellaria graminea and field wood rush Luzula campestre. The hedge to the north is similar to those forming much of the boundary of Home Meadow. The eastern pond has grassy, species-rich margins that run straight down into the pond, with marginals including frequent common spike rush, water plantain, great yellow cress Rorippa amphibia and false fox sedge, plus water mint, gypsywort, hard, soft and jointed rush. Branched bur reed Sparganium erectum and yellow flag Iris pseudacorus are occasional

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		here, along with water figwort, water avens Geum rivale, marsh speedwell Veronica scutellata, bush vetch and cuckoo flower Cardamine pratensis. Common club rush Schoenoplectus lacustris, remote sedge Carex remota and common fleabane Pulicaria dysenterica occur more rarely, along with greater bird's foot trefoil Lotus pedunculatus. Open water was evident across the pond, with broad leaved pond weed frequent. A small amount of scrub occurs on the banks of the pond, including young willows Salix spp. and spindle, together with bramble Rubus fruticosus agg., blackthorn and sycamore Acer pseudoplatanus. The central pond is broadly similar to the one in the east, with branched bur reed becoming dominant in places; water mint dominates the edges and floating sweet grass Glyceria fluitans is abundant in the water, along with frequent broad leaved pond weed. The pond margins were gently sloping and species-rich, with reedmace Typha latifolia becoming dominant to the north; hop sedge Carex pseudocyperus was rare. Floating aquatics included the duckweed Lemna trisulca and the aquatic liverwort Ricciocarpus natans. A shallow ditch links the two ponds and is mostly quite grassy a small amount of water and a slight flow. Gypsywort, water mint, greater willowherb Epilobium hirsutum and nettle Urtica dioica were all frequent-occasional along the ditch. Where the ditch enters the eastern pond, common reed Phragmites australis occurs. Last surveyed in 2016.
Catbridge Meadows: 191	Approximately 600 metres south of the PEIR boundary near East Carleton	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. The grassland is dominated by hairy sedge (Carex hirta) and marsh horsetail (Equisetum palustre) with grasses such as creeping bent (Agrostis stolonifera), red fescue (Festuca rubra) and Yorkshire fog (Holcus lanatus). Forbs are not very frequent but include creeping buttercup (Ranunculus repens), common fleabane (Pulicaria dysentrica), hoary willowherb (Epilobium parviflorum) and marsh thistle (Cirsium palustre). Where scrub has developed hawthorn (Crataegus monogyna), sallow (Salix cinerea), elder (Sambucus nigra), sloe (Prunus spinosa), elm (Ulmus procera) and hazel (Corylus avellana) form dense patches in places. Beneath this are found bramble (Rubus fruticosus agg.), nettle (Urtica dioica), great willowherb (Epilobium hirsutum), cleavers (Galium aparine), hedge bindweed (Calystegia sepium), ivy (Hedera helix) and herb-robert (Geranium robertianum). The pond contains abundant rigid hornwort (Ceratophyllum demersum) but little else. Last surveyed in 1995.
Carleton Lodge Woodland: 192	Approximately 800 metres south of the PEIR boundary near East Carleton	This is an area of neglected woodland which is open to the road and is well used by local people. The majority of the wood is dominated by sycamore (Acer pseudoplatanus) as both mature and over-mature specimens. Oak (Quercus robur), turkey oak (Quercus ceris), holm oak (Quercus ilex) and downy oak (Quercus pubescens) occur frequently whilst lime (Tilia x vulgaris) and cherry (Prunus avium) occur occasionally. The understorey consists of young sycamore with elder (Sambucus nigra), hawthorn (Crataegus monogyna), wych elm (Ulmus glabra) and holly (Ilex aquilinum). The ground flora is dominated by dog's mercury (Mercurialis perennis) with ivy (Hedera helix) and

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		ground-ivy (Glechoma hederacea). To the south and west are large breaks in the canopy. The understorey here is much as elsewhere but the ground flora is dominated by bramble (Rubus fruticosus agg.) and nettle (Urtica dioica). Last surveyed in 1995.
The Grove: 193	Approximately 900 metres south of the PEIR boundary near East Carleton	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. The lake is covered by a dense mat of white water-lily (Nymphaea alba) and yellow water-lily (Nuphar lutea) and there is a dense margin of lesser pond-sedge (Carex riparia) and patches of bulrush (Typha latifolia). To the west this grades into tall fen including great willowherb (Epilobium hirsutum), meadowsweet (Filipendula ulmaria), hemp-agrimony (Eupatorium cannabinum), purple loosestrife (Lythrum salicaria) and angelica (Angelica sylvestris). To the north this becomes pure reed (Phragmites australis). The woodland areas have a canopy of ash (Fraxinus excelsior) and crack willow (Salix fragilis) over nettle (Urtica dioica). Towards the north, planted species are common and here the flora is more diverse including wood-sedge (Carex sylvatica) and enchanter's-nightshade (Circaea lutetiana). Last surveyed in 1995.
Bean & Outer Park Woods: 194	Approximately 280 metres south of the PEIR boundary near Ketteringham	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 90 years old. Young saplings are common where light penetrated the canopy such as near to the rides and the wood edges. Approximately 80% of the trees are oak (Quercus robur), ash (Fraxinus excelsior) (with localised signs of die-back) and conifers such as pine (Pinus sp.) and sitka spruce (Picea sitchensis). The remainder includes poplar (Populus spp.), elm (Ulmus sp.), sycamore (Acer pseudoplatanus), field maple (Acer campestre), sweet chestnut (Castanea sativa), cherry (Prunus sp.), birch (Betula sp.), beech (Fagus sylvatica), lime (Tilia sp.) and horse-chestnut (Aesculus hippocastanum). The shrub layer is often absent but where it does occur it includes hazel (Corylus avellana), willow (Salix sp.) and hawthorn (Crataegus monogyna). Bramble (Rubus fruticosus agg.) or nettle (Urtica dioica) often dominate the ground flora but in places dog's mercury (Mercurialis perennis) is abundant and red campion (Silene dioica), bugle (Ajuga reptans) and bluebell (Hyacinthoides non-scripta) are also found. The rides support a basic marshy grassland with abundant neutral grasses together with remote sedge (Carex remota), ragged-robin (Lychnis flos-cuculi), cuckoo flower (Cardamine pratensis) early purple orchid (Orchis mascula), common spotted orchid (Dactylorhiza fuchsia), violet (Viola sp.) and wood avens (Geum urbanum). An area in the centre of Bean Wood supports a similar flora with marsh loving herbs such as fleabane (Pulicaria vulgaris), water mint (Mentha aquatica), glaucous sedge (Carex flacca), cowslip (Primula veris) and St. John's-wort (Hypericum spp.). Last surveyed in 2016.
Ketteringham Hall Lake: 195	Approximately 25 metres west of the PEIR	This is 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. The lake contains abundant

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	boundary near Ketteringham	macrophytes including submerged rigid hornwort (Ceratophyllum demersum) and large floating mats of white water-lily (Nymphaea alba). Fringe vegetation is poorly developed but to the north are stands of bulrush (Typha latifolia), reed sweet-grass (Glyceria maxima) and water mint (Mentha aquatica). The middle of the site is also fen vegetation with abundant greater pond-sedge (Carex riparia), meadowsweet (Filipendula ulmaria), greater bird's-foot trefoil (Lotus uliginosum), fen bedstraw (Galium uliginosum), angelica (Angelica sylvestris) and marsh thistle (Cirsium palustre). The carr woodland has a canopy dominated by old coppiced alder (Alnus glutinosa) with ash (Fraxinus excelsior) and hazel (Corylus avellana) locally frequent. The ground flora has abundant bryophytes, bugle (Ajuga reptans), dog's mercury (Mercurialis perennis), herb-robert (Geranium robertianum) and lord's-and-ladies (Arum maculatum). Last surveyed in 1995.
Foxburrow Meadow: 197	Approximately 800 metres north-east of the PEIR boundary near Lower East Carleton	This is 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. In the north, small areas of tall-herb fen dominated by great willowherb (Epilobium hirsutum) and lesser pond-sedge (Carex acutiformis) occur along the drains which in places hold standing surface water. Hemlock (Conium maculatum) and common reed (Phragmites australis) dominate the northeast corner of the site, with wild angelica (Angelica sylvestris), hemp-agrimony (Eupatorium cannabinum), meadowsweet (Filipendula ulmaria) and water figwort (Scrophularia auriculata). Throughout most of the site, marshy grassland is the predominant habitat. In the north, cock's-foot (Dactylis glomerata), false oat-grass (Arrhenatherum elatius), tufted hair-grass (Deschampsia cespitosa), nettle (Urtica dioica) and creeping thistle (Cirsium arvense) are dominant, with hogweed (Heracleum sphondylium), cuckooflower (Cardamine pratensis), cleavers (Galium aparine), meadow vetchling (Lathyrus pratensis), oxeye daisy (Leucanthemum vulgare), corn mint (Mentha arvensis), common fleabane (Pulicaria dysenterica), common sorrel (Rumex acetosa), Yorkshire-fog (Holcus lanatus), rough meadow-grass (Poa trivialis) and hairy sedge (Carex hirta) interspersed throughout. Damp hollows support hard rush (Juncus inflexus) and tufted hair-grass. In the south the land slopes down from west to east, towards the stream. Marshy grassland and rush pasture predominate, although the vegetation at the top of the slope is species-poor, dominated by creeping buttercup (Ranunculus repens) and Yorkshire fog. Further down the slope, the sward is finer and more diverse. Forbs include ragged robin (Lychnis flos-cuculi), bird's-foot trefoil and greater bird'-foot trefoil (Lotus corniculatus/pedunculatus), marsh thistle (Cirsium palustre), square-stalked St John's-wort (Hypericum tetrapterum) marsh and fen bedstraw (Galium palustre/uliginosum), red and white clover (Trifolium pratense/repens), and rushes including sharp-flowered (Juncus acutiflorus), jointed (Juncus articulatus), blunt-flowered (Juncus subnodulosus) and both hard and soft rush (Juncus inflexus/effuses). Grasses include sweet vernal grass (Anthoxanthum odoratum), crested dog's tail (Cynosurus cristatus), tufted hair grass, Yorkshire fog, red fescue (Festuca rubra), timothy (Phleum pratense) and marsh foxtail (Alopecurus geniculatus). There are isolated trees

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		and shrubs, with denser patches of scrub composed of grey willow (Salix cinerea), alder (Alnus glutinosa), ash (Fraxinus excelsior) and elder (Sambucus nigra). The stream is clear and shallow, and supports water-starwort (Callitriche), brooklime (Veronica beccabunga), water mint (Mentha aquatica), water forget-me-not (Myosotis scorpioides), bog stitchwort (Stellaria alsine), common valerian (Valeriana officinalis), water-cress (Nasturtium officinale), fool's water-cress (Apium nodiflorum), water figwort and common reed. Last surveyed in 1998.
Swardeston Common: 198	Approximately 440 metres north-east of the PEIR boundary near Swardeston	Swardeston Common is a 27.6 acre (11.2 ha) site supporting several different habitats including a range of grassland types, scrubland, reed bed and ponds. It is well-used for recreation by the public and there is a network of informal paths across the site. This area was grazed by cattle until the early 1960s, after which it was left to become overgrown and wild. In the 1980s it was cleared by a group of local people, since when it has been partly managed - most recently by the Norwich Fringe Project. The predominant habitat on the common is scrub. There are dense, mature patches of across the site which are open in the under storey, as well as younger scrub consisting of dense, impenetrable stands of blackthorn (Prunus spinosa) and bramble (Rubus sp.), in which nightingales have been recorded breeding. Generally, the scrub areas are comprised of common hawthorn (Crataegus monogyna), blackthorn, elder (Sambucus nigra) and apple (Malus sp.), with bramble, ferns, violets (Viola sp.), enchanter's nightshade (Circaea lutetiana), ground ivy (Glechoma heheracea) and mosses on the ground. There is standing deadwood and occasional raspberry (Rubus idaeus) and woody nightshade (Solanum dulcamara). The denser thickets have upright hedge parsley (Torilis japonica), mugwort (Artemisia vulgaris), sow thistle (Sonchus sp.), yarrow (Achillea millefolium), great willowherb (Epilobium hirsutum), with gorse (Ulex europaeus) and bramble on their fringes. White bryony (Bryonia dioica) is rare. To the west there is an area of poor semi-improved grassland which is currently cut for hay in July and managed by the South Norfolk District Council. The ground is tussocky in areas, with some bare patches and generally species poor. There is a mature English oak (Quercus robur), an ash (Fraxinus excelsior) and a drainage ditch running south to north. Other species include abundant hogweed (Heracleum sphondyliom), bindweed (Calystegia sp.), creeping buttercup (Ranunculus repens) and Yorkshire fog (Holcus lanatus), with occasional rosebay willowherb (Chamerion angustifolium). Central to the site is a patch of semi-improved acid grassland with a short, soft sward with an even mix of grasses and plants along with some taller Yorkshire fog and scattered stands of rosebay willowherb. Patches of gorse are present, along with abundant sheep's sorrel (Rumex acetosella) and common bent (Agrostis capillaris), rare patches of chickweed (Stellaria media), germander speedwell (Veronica chamaedrys) and locally frequent hairy sedge (Carex hirta). In the more tussocky, sandier northern end of this area there is red bartsia (Odontites verna), rare meadow vetchling (Lathyrus aphaca), mature scattered English oak and hedge bedstraw (Galium verum). An area of marshy grassland at the northern end of the site shows high diversity with an abundance of flowering plants including abundant butterbur (Petasites hybridus)

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		and yellow rattle (Rhinanthus minor). There are frequent specimens of pyramidal orchids (Anacamptis pyramidalis) and angelica (Angelica sylvestris), occasional twayblade (Neottia ovata) and nettle, and rare adder's tongue fern (Ophioglossum vulgatum). There is a mixed variety of sedge and grass species. Directly behind the area of marshy grassland, a strip of swamp is dominated by common reed (Phragmites australis and a scrubby layer on the western boundary includes Guelder Rose (Viburnum opulus), various bedstraws (Galium sp.), great willowherb and hedge bindweed (Calystegia sepium). Rare corn mint (Mentha avansis) and meadowsweet (Filipendula ulmaria) are also found here. Of the three ponds on site, two are severely affected by run-off from the road but one other shows a healthier abundance of wildlife. Species found across the ponds include abundant lesser spearwort (Ranunculus flammula), hairy sedge (Carex hirta), soft rush (Juncus effuses), water mint (Mentha citrate), water forget-me-not (Myosotis scorpioides), bogbean (Menyanthes trifoliate), yellow iris (Iris pseudacorus) and greater reedmace (Typha latifolia). Last surveyed in 2016.
Meadow Farm Meadow: 199	Approximately 1.66km north of the PEIR boundary near Lower East Carleton	This is an interesting and diverse area of marshy grassland which is 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. The grassland is quite variable but where short-grazed the sward is dominated by creeping bent (Agrostis stolonifera) with Yorkshire fog (Holcus lanatus). Drier patches support common bent (Agrostis capillaris) and red fescue (Festuca rubra). Forbs are frequent and include creeping buttercup (Ranunculus repens), selfheal (Prunella vulgaris) and hare's-foot clover (Trifolium arvense). Wetter ground supports ragged-robin (Lychnis flos-cuculi), fleabane (Pulicaria dysentrica), water mint (Mentha aquatica), marsh-orchids (Dactylorhiza sp.) and yellow rattle (Rhinanthus minor). In one dry area there is a colony of hoary mullein (Verbascum pulverulentum). Fen areas occur on the wettest ground and include great willowherb (Epilobium hirsutum), meadowsweet (Filipendula ulmaria), jointed rush (Juncus articulatus) and brown sedge (Carex disticha). The section south of the A47 includes marshy grassland along an impeded ditch and along the stream which forms the southern boundary. Species here include creeping and marsh thistle (Cirsium arvense and Cirsium palustre), common sorrel (Rumex acetosa), marsh horsetail (Equisetum palustre) and greater birds foot trefoil (Lotus corniculatus). Finer, more open patches support common sorrel, meadow buttercup (Ranunculus acris), creeping cinquefoil (Potentilla reptans) and cuckooflower (Cardamine pratensis). In the south east, a drier, well drained area supports ground ivy (Glechoma hederacea), common bird's foot trefoil, square stalked St John's wort (Hypericum tetrapterum) and field wood rush (Luzula campestris). Water figwort (Scrophularia auriculata) is occasional in the shallow drain which flows through the site; floating sweet grass (Glyceria fluitans)and hairy sedge (Carex hirta) also occur. The mesotrophic stream has little aquatic vegetation, other than occasional water starwort (Callitriche sp), water mint, bur reed (Sparganium sp) and patches of fool's watercress (Apium nodiflorum); water figwort is occasional. Scrub is abundant young sallow (Salix cinerea) and crack willow (Salix fragilis);

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		the marginal woodland areas have the same species, plus hazel (Corylus avellana), ash (Fraxinus excelsior), pedunculate oak (Quercus robur) and goat willow (Salix caprea sp.). Last surveyed in 1998.
Intwood Carr: 200	Approximately 1.48km north of the PEIR boundary, neat the onshore substation area	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 (Populus x canadensis) are interspersed throughout the semi-natural woodland. There is evidence of past management with coppice-stool re-growths and a row of large veteran oak pollards adjacent to the eastern boundary. The woodland canopy is dominated by ash (Fraxinus excelsior) and hybrid black-poplar, with a sub-canopy of alder (Alnus glutinosa) throughout the northern section. Oak (Quercus robur), silver birch (Betula pendula) and hornbeam (Carpinus betulus) are also present. The shrub layer is well-developed and dense in places. It is dominated by hazel (Corylus avellana) in drier areas and bird cherry (Prunus padus) in the wetter carr. Hawthorn (Crataegus monogyna), wych elm (Ulmus glabra), hornbeam and occasional silver birch, holly (Ilex aquifolium) and spindle (Euonymus europaeus) also occur. The ground flora is well-developed throughout. Monospecific patches of dog's mercury (Mercurialis perennis) dominate large areas with lesser periwinkle (Vinca minor), bluebell (Hyacinthoides non-scripta), wood anemone (Anemone nemorosa), nettle (Urtica dioica) and bramble (Rubus fruticosus agg.) also dominant in parts. There are frequent patches of black currant (Ribes nigrum). Enchanter's-nightshade (Circaea lutetiana) is abundant, with frequent lords-and-ladies (Arum maculatum), common twayblade (Listera ovata), primrose (Primula vulgaris), ivy (Hedera helix) and false brome (Brachypodium sylvaticum). Other characteristic species include moschatel (Adoxa moschatellina), bugle (Ajuga reptans), pignut (Conopodium majus), sanicle (Sanicula europaea), common figwort (Scrophularia nodosa) and hairy brome (Bromus ramosus). Bird's-nest orchid (Neottia nidus-avis) is found under the dense, shaded shrub layer of hazel and bird cherry. Waterlogged areas along the drains support wild angelica (Angelica sylvestris), hemp-agrimony (Eupatorium cannabinum), meadowsweet (Filipendula ulmaria), water figwort (Scrophularia auriculata) and pond-sedge (Carex). A Scots pine (Pinus sylvestris) plantation occupies a higher, sandier area along the western boundary where the ground layer is dominated by bracken (Pteridium aquilinum) with frequent bluebell and occasional wood sage (Teucrium scorodonia), heath bedstraw (Galium saxatile), sheep's sorrel (Rumex acetosella) and honeysuckle (Lonicera periclymenum). A small area of tall-herb fen lies to the east of the main woodland, separated from it by a small stream. Woodland is encroaching from the eastern side and parts show evidence of drying out with dominant great willowherb (Epilobium hirsutum) and bramble. There are patches of common reed (Phragmites australis), reed sweet-grass (Glyceria maxima) and greater pond-sedge (Carex riparia), with

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		occasional wild angelica, marsh thistle (Cirsium palustre), meadowsweet, greater bird'sfoot-trefoil (Lotus uliginosus), Ragged Robin (Lychnis flos-cuculi) and common valerian (Valeriana officinalis). Last surveyed in 1998.
North Drive: 203	Approximately 1.28km south of the PEIR boundary near Ketteringham	This is an area of semi-natural woodland which is bisected by a concrete track. The site is used for shooting. The majority of the site has a canopy of oak (Quercus robur) standards over a coppice layer of hornbeam (Carpinus betulus) and hazel (Corylus avellana) together with hawthorn (Crataegus monogyna), cherry (Prunus sp.) and dogwood (Cornus sanguinea). The ground flora is relatively rich, but dominated by either bramble (Rubus fruticosus agg.), nettles (Urtica dioica) or dog's mercury (Mercurialis perennis), with wood false-brome (Brachypodium sylvaticum), enchanter's nightshade (Circaea lutetiana) and ground-ivy (Glechoma hederacea). Other species of note include cuckoo flower (Cardamine pratensis), dog violet (Viola riviniana), early dog violet (Viola reichenbachiana), guelder rose (Viburnum opulus), lesser celandine (Ranunculus ficaria), bugle (Ajuga reptans) and goldilocks buttercup (Ranunculus auricomus). Mosses and ferns are also abundant. In one area the canopy contains ash (Fraxinus excelsior) (with signs of dieback) as well as oak but hornbeam is absent from the coppice layer. Here the ground flora is less species-rich. Last surveyed in 2016.
Smeeth Wood: 204	Approximately 60 metres south-west of the PEIR boundary near Ketteringham	This is 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 (Quercus robur), ash (Fraxinus excelsior) and Scot's pine (Pinus sylvestris). The frequency of the three species varies within the wood but follows no obvious pattern. Along a tall bank on the north side beech (Fagus sylvatica) is dominant. Within the wood the shrub layer is sparse. Elder (Sambucus nigra) is frequent but scattered whilst hazel (Coryllus avellana) can be locally common. Along rides through the wood and the wood edges shrubs such as hazel, hawthorn (Crataegus monogyna), blackthorn (Prunus spinosa), crab apple (Malus sylvatica) and field maple (Acer campestre) are all common. The ground flora of the wood is dominated by bramble (Rubus fruticosus) or locally by bracken (Pteridium aquilinum) but under this and along rides bluebell (Hyacinthoides non-scriptus), ramsons (Allium ursinum), dog's mercury (Mercurialis perennis), herb-robert (Geranium robertianum) and wood avens (Geum urbanum) are all abundant. Cowslips (Primula veris) and Ragged Robin (Lynchis flos-caculi) are frequent in the east. Wood sedge (Carex sylvatica) and wood dock (Rumex sanguineus) are frequent. The regionally scarce hairy St. John's-wort (Hypericum hirsutum) is locally frequent in the west end. Last surveyed in 1995.
Melton Road Meadow: 205	Approximately 830 metres south-west of the PEIR boundary near Wymondham	This is largely a grassland site with invading scrub. The south-west corner is fenced off and grazed by horses but elsewhere the site is unmanaged. The grassland is generally damp and in places quite diverse with species such as black knapweed (Centaurea nigra), agrimony (Agrimonia eupatoria), glaucous sedge (Carex flacca), common twayblade (Listera ovata) and square-stalked St. John's-wort (Hypericum tetrapterum). False oatgrass (Arrhenatherum elatius) is

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		the most common grass although Yorkshire fog (Holcus lanatus) dominates in the east and cock's-foot (Dactylis glomerata) in the west. Creeping bent (Agrostis stolonifera) dominates in the grazed area. Scattered scrub consists of sallow (Salix cinerea) and hawthorn (Crataegus monogyna). There is an area of marshy grassland towards the centre of the site where great willowherb (Epilobium hirsutum) is abundant with creeping thistle (Cirsium arvense) and broad-leaved dock (Rumex obtusifolius). In places meadowsweet (Filipendula ulmaria) and hemp agrimony (Eupatorium cannabinum) occur. The western edge of the site consists of widely spaced young saplings of oak (Quercus robur), spruce (Picea sp.) and dogwood (Cornus sanguinea) over species-rich grassland similar to elsewhere. Last surveyed in 2007.
Moot Hill: 214	Approximately 1.9km south of the PEIR boundary near Wymondham	This site consists of a raised mound of semi-natural woodland surrounded by a moat. Elm (Ulmus sp.) forms approximately half of the canopy, the rest being ash (Fraxinus excelsior) and oak (Quercus robur) with sycamore (Acer pseudoplatanus). Horse-chestnut (Aesculus hippocastanum) and field maple (Acer campestre) are occasionally present. There are many dead elms still standing in the wood, many of which are covered with ivy (Hedera helix). The shrub layer is not continuous and is most developed in the northeast with hazel (Corylus avellana), elder (Sambucus nigra), holly (Ilex aquifolium) and spindle (Euonymus europaeus). The ground flora is dominated by dog's mercury (Mercurialis perennis), ivy or mosses. Woodland species such as ground-ivy (Glechoma hederacea) and sanicle (Sanicula europaea) are abundant. The moat contains very little water and is dominated by sedge (Carex sp.). (Based on the 1985 habitat survey (NWT))
Deep Road Meadow: 217	Approximately 1.77km south-west of the PEIR boundary near Wymondham	This site is bisected by a canalised stream. To the south is tall fen vegetation with associated dykes whilst to the north is a species-poor dry grassland and some areas of marshy grassland. The fen vegetation is thick and rank consisting of great willowherb (Epilobium hirsutum) with greater pond-sedge (Carex riparia). Further south reed (Phragmites australis) dominates. Forbs include meadowsweet (Filipendula ulmaria) and common fleabane (Pulicaria dysentrica). An artificial pond found here has recently been enlarged and has a limited fringing vegetation which includes bulrush (Typha latifolia) and floating broad-leaved pondweed (Potamogeton natans). Dry grassland areas are dominated by common bent (Agrostis capillaris) or Yorkshire fog (Holcus lanatus). Elsewhere marshy grassland contains a sward dominated by creeping bent (Agrostis stolonifera) with frequent tussocks of hard rush (Juncus inflexus). Marsh horsetail (Equisetum palustre) and redshank (Polygonum persicaria) are frequent throughout. The stream is overshadowed by scrub and trees but supports thick stands of species such as great willowherb (Epilobium hirsutum), brooklime (Veronica beccabunga) and fool's water-cress (Apium nodiflorum) and contains the scarce opposite leaved pondweed (Groenlandia densa). Scrub contains sallow (Salix cinerea), crack willow (Salix fragilis), hawthorn (Crataegus monogyna) and elder (Sambucus nigra). Last surveyed in 1995.
Spring Plantation: 219	Approximately 1.68km south-	This is an L-shaped area of old plantation on sloping land alongside the River Tiffey. Both arms of the woodland are narrow, just 10m

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	west of the PEIR boundary near Barford	wide in places in the north. The sandy, stony soils grade into more peaty conditions towards the bottom of the slopes. CWS 165 lies adjacent to the west and south, straddling the river. Ash Fraxinus excelsior and hybrid poplar Populus x canadensis are the main canopy species, particularly in the north; while the southern woodland also contains downy birch Betula pubescens, alder Alnus glutinosa, sweet chestnut Castanea sativa, horse chestnut Aesculus hippocastanum and hornbeam Carpinus betulus. The oldest trees in this part of the wood are 200-300 years old. The northern arm is made up hybrid poplar and ash, with a damp, peaty ditch running diagonally through the block. The understorey is patchy in the eastern half of the southern block, limited in the main part of the wood to younger trees. Further west, the hazel Corylus avellana becomes more frequent while the south-west corner, by the river, has frequent tall hazel and hawthorn. Hazel is also frequent in the northern wood, with some local redcurrant Ribes rubrum in the north. Cherry Prunus avium occurs in both parts of the wood. The ground flora is dominated throughout by dog's mercury Mercurialis perennis and common nettle, with red campion Silene dioica, ground ivy Glechoma hederacea, false brome Brachypodium sylvaticum, Yorkshire fog Holcus lanatus and false oatgrass Arrhenatherum elatius also present in the south block. A track runs along the northern edge of this arm, supporting upright hedge parsley Torilis japonica, lesser burdock Arctium minus and ground ivy, together with nettle and dog's mercury. The middle and south are damper, and an old shallow ditch down the middle of the block supports remote sedge Carex remota and false brome. Enchanter's nightshade Circaea lutetiana and wavy hair-grass Deschampsia cespitosa occur to the south. The northern wood is dominated by nettle and dog's mercury, with false brome, rough chervil Chaerophyllum temulum and ground elder Aegopodium podagraria. There is a dried-up pond near the western end of the south block. Dog's mercury grows all round, with locally frequent violet Viola sp. and occasional sanicle Sanicula europaea on the northern edge. A shallow, ochrous stream flows west through the northern block of woodland. The banks support remote sedge, bramble Rubus fruticosus agg., hedge woundwort Stachys sylvatica, nettle and elder Sambucus nigra. The River Tiffey, overhung with trees, marks both the parish boundary and the western boundary of the wood. Clear water over a stony substrate supports yellow water-lily Nuphar lutea branched bur-reed Sparganium erectum and occasional arrowhead Sagittaria sagittifolia. Nettle-leaved bellflower Campanula trachelium and common valerian Valeriana officinalis grow on the bank of the north wood. Last surveyed in 2013.
Tiffey Woods: 221	Approximately 980 metres west of the PEIR boundary near Barford	This area of woodland lies either side of the River Tiffey. To the north-west there is a small area of fen which grades into wet neutral grassland. The woodland canopy to the north of the river is largely dominated by ash (Fraxinus excelsior), alder (Alnus glutinosa) and willow (Salix spp.) over a shrub layer of guelder-rose (Viburnum opulus). To the south of the river the woodland is dense willow with no shrub layer. In both areas the ground flora is of tall herb and fen vegetation with species such as reed canary-grass (Phalaris arundinacea). The fen lies to the north of the river and extends along the river banks. Reed canary-grass is dominant and mint (Mentha

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		aquatica), hemp agrimony (Eupatorium cannabinum), purple-loosestrife (Lythrum salicaria), angelica (Angelica sylvestris) and nettle (Urtica dioica) are abundant. The marshy grassland has an abundance of fen species in a sward otherwise dominated by false oat-grass (Arrhenatherum elatius). (Based on the 1985 habitat survey (NWT))
Turnpike Farm Pond: 224	Approximately 260 metres west of the PEIR boundary near Barford	This site comprises a sizeable fenced-off pond surrounded by species-poor grassland. The pond has undergone restoration work with the removal of sediment and planting of marginal vegetation. The surface of the pond is partly covered by white water-lily (Nymphaea alba), broad-leaved pondweed (Potamogeton natans), common duckweed (Lemna minor), ivy-leaved duckweed (Lemna trisulca) and rigid hornwort (Ceratophyllum demersum). The pond is fed by run-off from the adjacent land and is susceptible to eutrophication; small patches of algae are present. The western edge of the pond is partially shaded by young trees, mostly crack willow (Salix fragilis) and alder (Alnus glutinosa). In the shade a marginal vegetation of reed sweet-grass (Glyceria maxima), great willowherb (Epilobium hirsutum), water mint (Mentha aquatica) and amphibious bistort (Polygonum amphibium) has developed. Amongst this are patches of creeping bent (Agrostis capillaris), hard rush (Juncus inflexus), common spike-rush (Eleocharis palustris) and marsh horsetail (Equisetum palustre). To the east there is less shade and species such as bogbean (Menyanthes trifoliata), water plantain (Alisma plantago-aquatica), amphibious bistort, bittersweet (Solanum dulcamara) and pink water-speedwell (Veronica catenata) occur. Lesser pond-sedge (Carex acutiformis) and yellow flag (Iris pseudacorus) are also frequent. The locally scarce great marsh-bedstraw (Galium elongatum) is also found. The pond is surrounded by neutral grassland which is damp and generally improved. The sward contains creeping bent, rye-grass (Lolium perenne), Yorkshire fog (Holcus lanatus) and white clover (Trifolium repens). In marshy places species such as meadowsweet (Filipendula ulmaria) occur. Last surveyed in 1995.
Melton Beck: 226	Approximately 1.71km east of the PEIR boundary near Barford	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. The surface of the main pond is covered by pondweed (Potamogeton sp.) whilst the margins are dominated by yellow flag (Iris pseudacorus) with reed sweet grass (Glyceria maxima), rushes (Juncus spp.) and spike rush (Eleocharis sp.) present. Also common are water plantain (Alisma plantago-aquatica), water dropwort (Oenanthe sp.) and lesser spearwort (Ranunculus flammula). Marshy areas of the meadow are shown by the presence of yellow flag and fleabane (Pulicaria vulgaris). The stream is a tributary of the R.Yare and is fairly fast flowing and clear. The most common aquatic and marginal species present are reedmace (Typha latifolia), water mint (Mentha aquatica), forget-me-not (Myosotis spp.) and hemp agrimony (Eupatorium cannabinum). Last surveyed in 1995.
Yare Valley (Colton): 227	Approximately 840 metres west of the	This site lies to the north of the River Yare and consists largely of wet plantation woodland with an area of fen and marshy grassland towards the east. A sizeable area adjacent the river has been planted with game crops. Most of the woodland has a canopy of mature

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	PEIR boundary near Colton	poplar (Populus sp.) although to the west there is abundant Scot's pine (Pinus sylvestris). Moving eastwards the woodland grades into an area of scrub with mature oak (Quercus robur) and crack willow (Salix fragilis) over dense sloe (Prunus spinosa). The ground flora is similar throughout with patches of dog's mercury (Mercurialis perennis) and herb-robert (Geranium robertianum) where dry and reed (Phragmites australis) and great horsetail (Equisetum telmateia). The fen has tall growth of reed, meadowsweet (Filipendula ulmaria) and nettle (Urtica dioica) with scattered angelica (Angelica sylvestris) and great horsetail. This grades into grassland dominated by rye-grass (Lolium perenne) and Yorkshire fog (Holcus lanatus) but few other herbs except square-stalked St. John's-wort (Hypericum tetrapterum), carnation sedge (Carex panicea) and jointed rush (Juncus articulatus). Last surveyed in 1995.
Yare Valley (Marlingford): 230	Approximately 500 metres west of the PEIR boundary near Marlingford	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. The sward has a mixture of grasses such as reed sweet-grass (Glyceria maxima), Yorkshire fog (Holcus lanatus), creeping bent (Agrostis stolonifera) and red fescue (Festuca rubra) together with hairy sedge (Carex hirta) and jointed rush (Juncus articulatus). Typical forb species include fen bedstraw (Galium uliginosum), greater bird's-foot trefoil (Lotus uliginosus), meadowsweet (Filipendula ulmaria), marsh horsetail (Equisetum palustre), amphibious bistort (Polygonum amphibium), marsh arrowgrass (Triglochin palustris) and ragged-robin (Lychnis flos-cuculi). Several drains cross through the grassland and these support blunt-flowered rush (Juncus subnodulosus), hard rush (Juncus inflexus) and water mint (Mentha aquatica) as well as the scarce opposite-leaved pondweed (Groenlandia densa). Where these grassland areas are grazed a more varied flora has developed, particularly close to the drains. Here reed sweet-grass and branched bur-reed (Sparganium erectum) are abundant with frequent water forget-me-not (Myosotis scorpioides), marsh bedstraw (Galium palustre), brooklime (Veronica beccabunga), water plantain (Alisma plantago-aquatica). More notable are water violet (Hottonia palustris), opposite-leaved pondweed (Groenlandia densa) and frogbit (Hydrocharis morsus-ranae). Further from the river are areas of grassland which have been improved and are dominated by grasses such as rye-grass (Lolium perenne) and Yorkshire fog. Fen vegetation is found to the north of the site and is dominated by reed (Phragmites australis), great willowherb (Epilobium hirsutum), lesser pond-sedge (Carex acutiformis) and reed sweet-grass. Nettle (Urtica dioica), cleavers (Galium aparine) and creeping thistle (Cirsium arvense) are all frequent. Woodland areas generally have a canopy of ash (Fraxinus excelsior) with oak (Quercus robur) and alder (Alnus glutinosa). The shrub layer has abundant hawthorn (Crataegus monogyna) and elder (Sambucus nigra) over a ground flora of nettle, dog's mercury (Mercurialis perennis), ground-ivy (Glechoma hederacea) and ivy (Hedera helix). Also present is the scarce small teasel (Dipsacus pilosus). Last surveyed in 1995.

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River Yare at Marlingford: 231	Approximately 1.16km east of the PEIR boundary near Marlingford	This site extends from just west of Bawburgh Road to the Bawburgh parish boundary. It is listed for its species-rich marginal and riverine flora, presence of 10 species of fish, including eel and relatively natural physical features. Two County Wildlife Sites are found adjacent to the river; CWS 2174 Easton College Water meadows stands on the north bank at the eastern end and CWS 239 Yare valley (Bawburgh) is to the east of that. The river has a fairly natural appearance, meandering through grazing marshes. Trees and scrub stand in the eastern third and at the western end. The flow is generally steady, but speeds up occasionally where stones break the surface and divert the water around them. The depth varies across the channel and also along its length. Several berms/beaches occur, some are small and sandy while others are wider and more muddy, the result of cattle accessing the river. Bankside trees overhang the river to the east creating a shadier section of the site. Aquatic vegetation includes yellow water-lily (Nuphar lutea) which occurs throughout the stretch except in the shallow areas, becoming frequent and covering the river in places. Unbranched bur-reed (Sparganium emersum) is locally frequent and starwort (Callitriche agg.) occasional. White water-lily (Nymphaea alba) grows just west of the trees at the eastern end. Lesser water-parsnip (Berula erecta) and branched bur-reed (Sparganium erectum) occur occasionally on the edges of the river in the western third of the site; grey bulrush (Schoenoplectus tabernaemontanii) has a large stand in the middle of the channel both west and east of the bridge. Further east, reed sweet-grass (Glyceria maxima) and reed canarygrass (Phalaris arundinacea) establish on the edges wherever there is silty deposition, making a 3m wide area of vegetation in one or two places. Blue water-speedwell (Veronica anagallis-aquatica) seeds abundantly in the muddy beach on the northern side of the river at the top of the first meander. Other plants grow by the river where open areas allow: blue water-speedwell, celery-leaved buttercup (Ranunculus sceleratus), water mint (Mentha aquatica), bittersweet (Solanum dulcamara) and brooklime (Veronica beccabunga) grow locally in the west. Further east, the larger emergents tend to dominate, with common nettle (Urtica dioica) also frequent. Trees edge the river in the eastern third of the site: crack willow (Salix fragilis) and alder (Alnus glutinosa) grow as shrubs but then further east both grow as tall trees, along with goat willow (Salix caprea) and osier (Salix viminalis) which also grow by the water, making a dense area of woodland to the north. The southern bank has a narrow belt of smaller trees and shrubs. Mature white willow (Salix alba) grow at the extreme eastern end and also west of the bridge here, alder, ash (Fraxinus excelsior) and hawthorn (Crataegus monogyna) also stand by the river. Small teasel (Dipsacus pilosus) grows in the woodland at the western end. Last surveyed in 2013.
Old Hall Meadow: 232	Approximately 530 metres east of the PEIR boundary near Marlingford	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 (Dactylorhiza). The sward is a mixture of common bent (Agrostis capillaris), red fescue (Festuca rubra), rye-grass (Lolium perenne) and Yorkshire fog (Holcus lanatus). Where grazing is light the sward becomes tussocky with sheep's fescue (Festuca ovina) and tufted hair-grass (Deschampsia cespitosa)

CWS Name and Number	Distance and Direction from PEIR boundary	Description
		along with false oat-grass (Arrhenatherum elatius). Forbs include white clover (Trifolium repens), common sorrel (Rumex acetosa), yarrow (Achillea millefolium) and cat's-ear (Hypochoeris radiata). Heath bedstraw (Galium saxatile) and field scabious (Knautia arvensis) are common and burnet-saxifrage (Pimpinella saxifraga) occurs occasionally. The ponds all have quite distinct vegetation. The pond near to the centre of the site is largely silted-up and overgrown by scrub although bulrush (Typha latifolia) forms dense stands and there is marginal vegetation of ragged-robin (Lychnis flos-cuculi) and toad rush (Juncus bufonius). The pond to the north-west has open water with branched bur-reed (Sparganium erectum), pond-weed (Potamogeton natans) and amphibious bistort (Polygonum amphibium). Scrub consists of hawthorn (Crataegus monogyna) with frequent oak (Quercus robur). Last surveyed in 1995.
Lord's Hill & Easton Reeds and Blackhill Wood: 257	Approximately 1.7km east of the PEIR boundary near Easton	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 (Quercus robur) with patches of birch (Betula pendula), rowan (Sorbus aucuparia), sycamore (Acer pseudoplatanus) and, towards the southern boundary, lombardy poplar (Populus nigra 'italica') and beech (Fagus sylvatica). The shrub layer is almost absent, consisting of young canopy species with a small amount of holly (Ilex aquifolium). Bracken (Pteridium aquilinum), bramble (Rubus fruticosus agg.) and climbing corydalis (Corydalis claviculata) constitute much of the ground flora although bluebell (Hyacinthoides non-scriptus) dominates in shaded areas. Lily-of-the-valley (Convalleria majalis) is abundant in places. The northern block consists of old and widely spaced oak and hornbeam (Carpinus betulus) with some field maple (Acer campestre) coppice. The understorey is similar to that in the south-west as is the ground flora, with bluebell dominating in shade and bracken in more open areas. Wood millet (Milium effusum), wood-sorrel (Oxalis acetosella) and climbing corydalis are all frequent whilst male-fern (Dryopteris filix-mas) is scattered throughout. Wood-rush (Luzula spp.) and wood melick (Melica uniflora) are infrequent. The eastern block (Easton Reeds) is similar to that in the north but with abundant mature hazel (Corylus avellana) coppice and several huge old coppice stools of sweet chestnut (Castanea sativa), hornbeam and beech. 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. High canopy trees consist mainly of oak, sycamore and sweet chestnut, with occasional stands of ash, silver birch, hornbeam, elm (Ulmus minor), beech and wild cherry (Prunus padus). There are extensive areas of mature and recent hazel coppice. Ancient coppice stools of oak, sweet chestnut and field maple occur inside the south-east boundary. The shrub layer is generally sparse, and consists mainly of canopy species, although there are occasional dense stands of cherry laurel (Prunus laurocerasus). Spindle (Euonymus europaeus), bramble, elder (Sambucus nigra), honeysuckle (Lonicera periclymenum) and holly occur in places, and climbing ivy (Hedera helix) is locally frequent. The

CWS Name and Number	Distance and Direction from PEIR boundary	Description
		ground flora is dominated throughout much of the woodland by bracken and bluebell, but other species include wood anemone (Anemone nemorosa), dog's mercury (Mercurialis perennis), climbing corydalis, common dog violet (Viola riviniana), wood sorrel, enchanter's nightshade (Circea lutetiana), yellow pimpernel (Lysimachia nemorum), yellow archangel (Galeobdolon luteum) and ramsons (Allium ursinum). Spruce (Picea sp.), larch (Larix sp.), Douglas fir (Pseudotsuga menziesii), Scot's pine (Pinus sylvestris) and sweet chestnut have all been planted in various places within the site. Last surveyed in 2004.
Dunston Common: 268	Approximately 330 metres east of the PEIR boundary near the onshore substation area	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. The canopy of woodland areas is largely birch (Betula pendula), oak (Quercus robur) and occasional sycamore (Acer pseudoplatanus). Old trees are scarce and much of the canopy is made up of dense stands of immature trees. Gorse (Ulex europaeus) and sallow (Salix cinerea) form an understorey over a damp ground flora of soft rush (Juncus effusus), creeping soft grass (Holcus mollis), lords-and-ladies (Arum maculatum), red campion (Silene dioica) and hop (Humulus lupulus). Grassy tracks and drain banks support bluebell (Hyacinthoides non-scripta), violets (Viola spp.), forget-me-not (Myosotis spp.), dog's mercury (Mercurialis perennis) and foxglove (Digitalis purpurea). Grassland areas are well drained and dominated by red fescue (Festuca rubra), Yorkshire fog (Holcus lanatus) and common cat's ear (Hypochoeris radicata), sheep's sorrel (Rumex acetosella), sheep's fescue (Festuca ovina) and early hair grass (Aira praecox) occur in less improved areas together with oval sedge (Carex ovalis) and heath grass (Danthonia decumbens). A small pond lies to the west and contains a marginal vegetation of soft rush, gipsywort (Lycopus europaeus), water crows-foot (Ranunculus flammula) and bittersweet (Solanum dulcamara). This is surrounded by tall vegetation which includes rosebay willowherb (Chamerion angustifolium), great willowherb (Epilobium hirsutum), nettle (Urtica dioica) and honeysuckle (Lonicera periclymenum). Last surveyed in 1995.
Long Plantation: 271	Approximately 1.15km north-east of the PEIR boundary near the onshore substation area	This is principally a beech (Fagus sylvatica) woodland although it contains a wide variety of other trees. A ride crosses the site. Beech constitutes about 30% of the canopy, the rest being a mixture of ash (Fraxinus excelsior), oak (Quercus robur), lime (Tilia sp.), birch (Betula pendula) and horse-chestnut (Aesculus hippocastanum). The canopy is open in places. The understorey is of young coppiced hazel (Corylus avellana) with elder (Sambucus nigra), ash and snowberry (Symphoricarpos rivularis). The ground flora is largely dog's mercury (Mercurialis perennis), nettle (Urtica dioica) and bramble (Rubus fruticosus agg.). The ride supports a rank vegetation of ground-ivy (Glechoma hederacea), buttercup (Ranunculus sp.), forget-me-not (Myosotis sp.) and wood brome (Bromus giganteus). (Based on the 1985 habitat survey (NWT))
Foxes' Grove: 272	Approximately 1.52km north-east of the PEIR boundary near	This is an area of plantation woodland with a coppiced understorey. The site is crossed by a drain to the south. The canopy is formed by oak (Quercus robur), ash (Fraxinus excelsior) and birch (Betula pendula). None of the trees are very old, mainly around 40 years. The underlying coppice is well grown and consists largely of sycamore

CWS Name and Number	Distance and Direction from PEIR boundary	Description
	the onshore substation area	(Acer pseudoplatanus) although ash and hawthorn (Crataegus monogyna) are also present. The ground is rather wet and consequently the flora is dominated by moss but contains abundant nettle (Urtica dioica), bramble (Rubus fruticosus agg.) and ground-ivy (Glechoma hederacea). Less frequently are found wood false brome (Brachypodium sylvaticum), giant brome (Bromus gigantea), remote sedge (Carex remota), dog's mercury (Mercurialis perennis), enchanter's-nightshade (Circea lutetiana), buttercup (Ranunculus sp.) and forget-me-not (Myosotis sp.). (Based on the 1985 habitat survey (NWT))
Depot Meadow: 273	Approximately 1.25km north of the PEIR boundary near the onshore substation area	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 larges patches of great willowherb (Epilobium hirsutum). There are scattered monospecific patches of greater pond-sedge (Carex riparia), common reed (Phragmites australis), reed canary-grass (Phalaris arundinacea), reed sweet-grass (Glyceria maxima) and common nettle (Urtica dioica), with patches of blunt-flowered rush (Juncus subnodulosus) within the eastern segment. Patches of lesser pond-sedge (Carex acutiformis), fen bedstraw (Galium uliginosum), water figwort (Scrophularia auriculata), purple-loosestrife (Lythrum salicaria), marsh woundwort (Stachys palustris), yellow iris (Iris pseudacorus) and water mint (Mentha aquatica). Green figwort (Scrophularia umbrosa) is abundant within the sward and interspersed throughout are hemlock (Conium maculatum), hemp-agrimony (Eupatorium cannabinum), purple-loosestrife, gypsywort (Lycopus europaeus), skullcap (Scutellaria galericulata), common meadow-rue (Thalictrum flavum), amphibious bistort (Polygonum amphibia), common nettle and creeping thistle (Cirsium arvense). A lower, more open sward occurs at the edges of the site, supporting creeping thistle, bindweed (Calystegia), common nettle and hemlock. The site is crossed by a number of water-filled ditches supporting common reed, reed sweet-grass, greater pond-sedge, hard rush (Juncus inflexus), bulrush (Typha latifolia), mare's-tail (Hippuris vulgaris), water-starwort (Callitriche), ivy-leaved duckweed (Lemna trisulca), great willowherb, green figwort, water forget-me-not (Myosotis scorpioides) and purple-loosestrife. There is a belt of grey (Salix cinerea) and goat willow (Salix caprea) scrub. There is a low-lying seasonally-wet hollow in the wooded northwestern segment of the site, overshaded by tall trees that occupy a small area adjacent to the site's northwestern boundary. Ivy-clad white willow (Salix alba), ash (Fraxinus excelsior) and alder (Alnus glutinosa) are present, with an understorey of hawthorn (Crataegus monogyna), osier (Salix viminalis) and sycamore (Acer pseudoplatanus). Ivy (Hedera helix) is abundant at the edges of this area but in the shade beneath the trees the ground flora is open and sparse and dominated by common nettle with scattered green figwort, bramble (Rubus fruticosus agg.), hedge mustard (Sisymbrium officinale) and common hemp-nettle (Galeopsis tetrahit). There are planted white willows along the southern boundary adjacent to the Tesco supermarket.

CWS Name and Number	Distance and Direction from PEIR boundary	Description
Cantley Hill & Broken Back: 274	Approximately 2km north-east of the PEIR boundary near the onshore substation area	This site comprises a mixture of plantation and semi-natural woodland on sloping ground which is rather steep in places. The main block is situated on light acid soil whilst the eastern strip is on a richer soil. The western half of the site is largely broad-leaved semi-natural woodland with a canopy of oak (Quercus robur) and sycamore (Acer pseudoplatanus). The shrub layer is open and consists of occasional elder (Sambucus nigra) and sycamore saplings. The ground layer is variable but dominated by bluebells (Hyacinthoides non-scripta) with scattered bracken (Pteridium aquilinum) where the canopy is closed. Where more open bracken dominates with bramble (Rubus fruticosus agg.) together with frequent bluebell, rosebay willowherb (Chamerion angustifolium), nettle (Urtica dioica) and foxglove (Digitalis purpurea). There is a small plantation area here with a canopy of sweet chestnut (Castanea sativa) over sycamore saplings, nettle and ground-ivy (Glechoma hederacea). The eastern half of the site is a mixed plantation with mature beech (Fagus sylvatica), Scot's pine (Pinus sylvestris), sweet chestnut and Japanese larch (Larix kaempferi) forming an open canopy over thinly scattered young elder and a ground flora dominated by nettle and dog's mercury (Mercurialis perennis). Other species include ivy (Hedera helix), ground-ivy, false brome (Brachypodium sylvaticum), rough chervil (Chaerophyllum temulentum) and bramble. Grassy rides through the woodland support creeping bent (Agrostis stolonifera), rough meadow-grass (Poa trivialis) and annual meadow-grass (Poa annua) with frequent false-brome, lesser burdock (Arctium minus), rough chervil and ground-ivy. Last surveyed in 1995.
Dismantled Railway: 1070	Approximately 1.9km west of the PEIR boundary near Saxthorpe	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, sandy fairly species-rich neutral grassland. Scrub includes frequent hawthorn (Crataegus monogyna) and bramble (Rubus fruticosus agg.) with occasional blackthorn (Prunus spinosa). Young trees include oak (Quercus robur), ash (Fraxinus excelsior), rowan (Sorbus aucuparia) and goat willow (Salix caprea). The grassland is dominated by sweet vernal-grass (Anthoxanthum odoratum), red fescue (Festuca rubra), meadow fescue (Festuca pratensis), cock's-foot (Dactylis glomerata), rough meadow-grass (Poa trivialis) and Yorkshire fog (Holcus lanatus) with occasional to frequent herbs such as ground-ivy (Glechoma hederacea), rosebay willowherb (Chamerion angustifolium), germander speedwell (Veronica chamaedrys), nettle (Urtica dioica), ribwort plantain (Plantago lanceolata) and yarrow (Achillea millefolium). Towards the east the track has steep wooded sides of trees which are approximately 30 years old. The underlying grassland is similar except it has additional wild strawberry (Fragaria vesca), creeping buttercup (Ranunculus repens), red campion (Silene dioica), greater stitchwort (Stellaria holostea), common stork's-bill (Erodium cicutarium cicutarium) and dove's-foot crane's-bill (Geranium molle), 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

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		mature woodland behind. The ground flora is dominated by dog's mercury (Mercurialis perennis) and nettle with frequent bramble. Other species include cleavers (Galium aparine) and wood avens (Geum urbanum). This area grades into mature oak dominated woodland with beech (Fagus sylvatica), birch (Betula spp.) and frequent hazel (Corylus avellana). The ground flora consists of abundant dog's mercury with patches of bracken, wood sage (Teucrium scorodonia), wood avens (Geum urbanum), herb-Robert (Geranium robertianum), enchanter's nightshade (Circaea lutetiana) and wild basil (Clinopodium vulgare). Further east is grassland with a variety of grasses and herbs including soft-grasses, perforate St. John's wort (Hypericum perforatum), hare's-foot clover (Trifolium arvense) wild basil and wild carrot (Daucus carota). Past Heath Road bridge oak woodland develops again which terminates in a scrub patch with hawthorn, gorse (Ulex europaeus) and bramble. Last surveyed in 1996.
Muckleburgh Hill: 1106	The northern and eastern sides of this CWS directly border the PEIR boundary, near Weybourne	This large, 21.6 ha remnant heathland, falls within the North Norfolk AONB and predominantly comprises an acid grassland - semi-natural broadleaved woodland mosaic. There are three low hilltops, the highest summits at around 68m. The site lies less than a kilometer from the north Norfolk coast, close to the Peddar's Way and within a short distance of three SSSIs, including Kelling Heath to the south. Due to its vantage point, the hill has been the site of numerous and multi-period archaeological finds from Mesolithic flints and barrows to WWII trenches, pits and a pillbox. There are large patches of bracken (Pteridium aquilinum) across the site along with other tall ruderals, often invading into grassland zones. Within the acid grassland species include wavy hair grass (Deschampsia flexuosa), sheep's sorrel (Rumex acetosella), common mousear (Cerastium fontanum), lady's bedstraw (Galium verum), Yorkshire fog (Holcus lanatus) and bell heather (Erica cinerea). A small area of dwarf shrub heath towards the southeast corner supports common heather (Calluna vulgaris) and pill sedge (Carex pilulifera). The central compartments are grazed by cattle and a pond in the vicinity supports soft rush (Juncus effuses), broad-buckler fern (Dryopteris dilatata) and brooklime (Veronica beccabunga). A little to the south is the exposed summit of Muckleburgh Hill on which are found low-lying vegetation including English stonecrop (Sedum anglica), common mousear, wall speedwell (Veronica arvensis) and procumbent pearlwort (Sagina procumbens). There are a number of wooded areas within the site, most notably in the west which support English oak (Quercus robur), sycamore (Acer pseudoplatanus), holly (Ilex auifolium), ash (Fraxinus excelsior), rowan (Sorbus aucuparia), birch (Betula pendula), blackthorn (Prunus spinosa) and honeysuckle (Lonicer periclymenum) and tracts to the east which comprise predominantly sycamore and oak (often mature), along with, hawthorn (Crataegus monogyna), blackthorn and occasional ash. Boundaries to the site mainly consist of blackthorn and hawthorn hedge or scrub, as well as a new mixed species hedge along the eastern boundary. There is a variable alkaline influence, especially on the roadside and the banks of the road cutting, with spurge laurel (Daphne laureola) defining the chalkiest areas along with a few early purple orchids (Orchis mascula) earlier in the year, as well as

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		bergamot (Monarda didyma) and sanicle (Sanicula europea). Last surveyed in 2016.
Pokey Meadow: 1124	Approximately 310 metres east of the PEIR boundary near Saxthorpe	Pokey meadow is an area of tall fen, scrub and alder carr adjacent to the River Bure. The site is notified as a CWS due to it hosting an example of tall fen habitat and marshy grassland with a range of species such as purple loosestrife (Lythrum salicaria), meadowsweet (Filipendula ulmaria), meadow vetchling (Lathyrus pratensis) and sharp-flowered rush (Juncus acutiflorus). CWS 1128 Mossymere wood lies to the north-west of the site. The majority of the open fen areas host a tall fen community, four-six feet in height. It is dominated by reed sweet grass (Glyceria maxima) and himalayan balsam (Impatiens glandulifera). Cleaver (Galium aparine), meadowsweet, tufted vetch (Vicia cracca) and nettle (Urtica diocia) are occasional. There is a raised area to the north of the site with similar vegetation alongside frequent sharp-flowered rush and bramble (Rubus fruticosus). Other herbs present in the fen include occasional creeping thistle (Cirsium arvense), angelica (Angelica sylvestris), soft rush (Juncus effusus) water mint (Mentha aquatica), bittersweet (Solanum dulcamara) and rare gipsywort (Lycopus europaeus). Some scrub is encroaching on to the fen from the northern wooded footpath. Hawthorn (Crataegus monogyna) and goat willow (Salix caprea) being the most prevalent species. A drain dissects the fen east to west. This is dominated by fools water cress (Apium nodiflorum) and abundant reedmace (Typha latifolia) with little open water. Moving west the drain widens and holds water hosting water starwort (Callitriche sp.) An area of drier ground with acidic soils is found towards the centre of the meadow. Here both young and mature gorse (Ulex europaeus) are found with scattered young oak (Quercus robur) and hawthorn. Rough meadow grass (Poa trivialis) is abundant, creeping soft grass frequent (Holcus mollis) and wood sage (Teucrium scorodonia) occasional. A section of alder (Alnus glutinosa) carr swamp with dense blackthorn (Prunus spinosa) scrub occurs in the north of the site, adjacent to the footpath. Other scrub species include hawthorn, bird cherry (Prunus avium), hazel (Corylus avellana) and bramble. In the south east of the site, east and west of the track there are areas of old alder coppice. Flag (Iris pseudacorus), reed (Phragmites australis) and greater pond sedge (Carex riparia) are abundant in the wetter areas. The site is currently un-managed, but there are plans to increase the area of open fen through scrub control and grazing. Last surveyed in 2015.
Land adjacent to New Cut: 1125	Approximately 1.26km east of the PEIR boundary near Itteringham	This site is an area of tall fen dominated by reed sweet-grass (Glyceria maxima), common reed (Phragmites australis) and rushes (Juncus spp.) that spans a northern tributary of the river Bure. The north-western part of the site is more diverse with reed sweet-grass, soft rush (Juncus effusus), blunt-flowered rush (Juncus subnodulosus). Also found are greater tussock sedge (Carex paniculata), purple-loosetrife (Lythrum salicaria), marsh thistle (Cirsium palustre), fen bedstraw (Galium uliginosum), meadowsweet (Filipendula ulmaria), ragged-Robin (Lychnis flos-cuculi) water mint (Mentha aquatica), nettle (Urtica dioica), hemp agrimony (Eupatorium cannabinum) and

CWS Name and Number	Distance and Direction from PEIR boundary	Description
		horsetail (Equisetum spp.). The south-western end is also dominated by reed sweet-grass and common reed but is less diverse with only marsh thistle (Cirsium palustre), great willowherb (Epilobium hirsutum) and scattered young alders (Alnus glutinosa). The eastern side of the stream contains species-rich marshy grassland and an area of woodland contiguous with CWS 275, New Cut, to the north. The damp, low-lying pasture east of the river is rank with damper hollows and patches of more free-draining soils. Greater bird's foot trefoil (Lotus pedunculatus) is abundant and forms large clumps; other abundant species include soft rush, meadowsweet, meadow buttercup (Ranunculus acris) and marsh thistle. Wild angelica (Angelica sylvestris) and hogweed (Heracleum sphondylium) are occasional and Yorkshire fog (Holcus lanatus) dominates the drier soils. Scrub is rare here, although there are a few young oak (Quercus robur) and birch (Betula pendula) present, along with emergent bramble (Rubus agg.), willow (Salix spp.) and alder. Dog rose occurs (Rosa canina), but is rare. On drier soils close to the woodland foxglove (Digitalis pupurea) is occasional, as is cock's foot (Dactylis glomerata) and occasionally, sheep's sorrel (Rumex acetosella). Other species on the edge of the woodland include red campion (Silene dioica), cuckoo pint (Arum maculatum) and hedge woundwort (Stachys sylvatica). Dominant species in the woodland include oak, holly (Ilex aquifolium), hawthorn (Crataegus monogyna), hazel (Corylus avellana) as stored coppice and ash (Fraxinus excelsior); the ground flora includes common cow wheat (Melampyrum pratense) and herb Robert (Geranium robertianum). The wettest areas east of the stream support frequent fen bedstraw and blunt-flowered rush; close to the stream, the vegetation is taller and more rank, dominated by soft rush and reed sweet grass. Water mint and marsh willowherb (Epilobium palustre) are common here, common sedge (Carex nigra); water figwort (Scrophularia auriculata) and bog stitchwort (Stellaria alsine) are occasional. Ragged robin is common, marsh valerian (Valeriana dioica) rare and hemp agrimony frequent in large clumps. A large veteran oak stands on the eastern edge of the site. The southeastern part of the site is less diverse than the north and slightly drier and mature alders dominate the river bank here. Otters (Lutra lutra) have been recorded on this part of the stream. Last surveyed in 2008.
Grove Meadow: 1126	Approximately 1.09km east of the PEIR boundary near Itteringham	This site is an area of neutral, marshy grassland dominated by sedges (Carex spp.). It is bordered by semi-improved grazing marsh to the north, and arable land to the east and west, and by tall fen vegetation to the south. A tributary of the River Bure bissects the site. To the west of the stream sedges dominate with some hard rush (Juncus inflexus) and a little tufted hair-grass (Deschampsia cespitosa). A wide variety of herb are present including cuckooflower (Cardamine pratensis), marsh marigold (Caltha palustre), tufted vetch (Viccia cracca), marsh thistle (Cirsium palustre), lesser celendine (Ranunculus ficaria) and square-stemmed St. John's wort (Hypericum tetrapterum). To the east the site is semi-improved, sedges still dominate but the herb content is lower with fewer species. (Based on the 1985 habitat survey (NWT))

CWS Name and Number	Distance and Direction from PEIR boundary	Description
Mossymere Wood: 1128	Approximately 10 metres south-east of the PEIR boundary near Saxthorpe	This site is a semi-natural, broad-leaved woodland with coppice in parts, and areas of basic marshy grassland adjacent to the streams. The northern area is sycamore (Acer pseudoplatanus) and sweet chestnut (Castanea sativa) dominated with oak (Quercus robur) and an understory of coppiced sycamore. Bracken (Pteridium aquilinum) dominates the ground flora with occasional enchanter's-nightshade (Circaea lutetiana) bugle (Ajuga reptans) bramble (Rubus fruticosus agg.) and red campion (Silene dioica). Further south-west bracken dominates. Scattered sweet chestnut, sycamore, rowan and silver birch (Betula pendula) occur. The most eastern area of the wood has oak standards with some ash (Fraxinus excelsior), sweet chestnut, Norway spruce (Picea abies) and larch (Larix decidua). The canopy is not continuous and a good shrub layer has rhododendron (Rhododendron ponticum) in the northern part. Others include rowan (Sorbus aucuparia) and elder (Sambucus nigra). The ground flora is dominated by bracken, bramble and nettle (Urtica dioica) and red campion can be found. A broad ride separates the eastern and northern areas from the majority of the site. This area is wetter but bracken dominated with Yorkshire fog (Holcus lanatus) and soft rush (Juncus effusus). Few herb are present such as white clover (Trifolium repens) selfheal (Prunella vulgaris) buttercups (Ranunculus spp.) and redshank (Polygonum persicaria). South of the ride is a small area of recently planted trees including ash, silver birch, sweet chestnut, larch and poplar. The central part of the site is predominately mature oak woodland with previously mentioned species and a few mature beech (Fagus sylvatica) in the south-west corner. The understory has bird cherry (Prunus padus) and hawthorn (Crataegus monogyna) with a ground flora of buckler-ferns (Dryopteris spp.), ground-ivy (Glechoma hederacea) and red campion. A strip of marshy grassland separates the southern areas and has common spotted-orchid (Dactylorhiza fuchsii), purple-loostrife (Lythrum salicaria). Yellow iris (Iris pseudacorus) and soft rush (Juncus effusus) dominate stream banks, bracken and buckler ferns colonise drier areas. This area is adjacent to ash and sycamore dominated woodland, the former especially in the south-east. A number of stumps of elm are left. The north is younger and includes pine (Pinus spp.). The shrub layer is elder, guelder rose (Viburnum opulus), with some hazel (Corylus avellana) coppice. Some elm regeneration is occurring. Dense bramble forms the ground cover with occasional ivy (Hedera helix) rosebay willowherb (Chamerion angustifolium), red campion and enchanter's-nightshade.
Park Hill Plantation: 1129	Approximately 1.15km east of the PEIR boundary near Itteringham	This site is a mature broad-leaved plantation woodland with coppice, situated south of Mannington Hall. Oak (Quercus robur) dominates with ash (Fraxinus excelsior) sweet chestnut (Castanea sativa) and a few larch (Larix decidua) over a sparse understory of hazel (Corylus avellana), elder (Sambucus nigra), sycamore (Acer pseudoplatanus) and bird cherry (Prunus padus). Bracken dominates the ground flora with brambles accounting for most of the remaining area, herbs being absent except at the sides of the footpaths. Here bugle (Ajuga reptans) and red campion (Silene dioica) occur along with abundant bluebell (Hyacinthoides non-scripta). (Based on the 1985 habitat survey (NWT))

CWS Name and Number	Distance and Direction from PEIR boundary	Description
New Covert: 1130	Approximately 1.57km west of the PEIR boundary near Little Barningham	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. The canopy has a varied age structure with a high frequency of sweet chestnut (Castanea sativa) and to a larger extent sycamore (Acer pseudoplatanus), with the occasional large oak (Quercus robur), a few of which have been coppiced in the past and silver birch (Betula pendula) which becomes more abundant to the north. There is no substantial understorey except for scattered coppiced hazel (Corylus avellana) and sweet chestnut. The ground flora is fairly typical with an abundance of nettle (Urtica dioica), bramble (Rubus fruticosus agg.) and cleavers (Galium aparine) in the south. At the northern end where due to recent felling the canopy opens up, there is an increase in the abundance of species such as ground ivy (Glechoma hederacea), red campion (Silene dioica), butter bur (Petasites hybridus) and rosebay willowherb (Chamerion angustifolium). Other species such as soft rush (Juncus effusus), marsh thistle (Cirsium palustre), brooklime (Veronica beccabunga) and heath dog-violet (Viola canina) occur in this wetter area. Last surveyed in 1996.
Old Wood: 1131	Approximately 1.2km west of the PEIR boundary near Plumstead	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. The most westerly area of woodland has a canopy layer dominated by silver birch (Betula pendula) with locally abundant sycamore (Acer pseudoplatanus). The ground flora here is comparatively species poor with an abundance of both bracken (Pteridium aquilinum) and bramble (Rubus fruticosus agg.) as well as frequent rosebay willowherb (Chamerion angustifolium) and honeysuckle (Lonicera periclymenum). A local abundance of common nettle (Urtica dioica) is also evident. The area to the south is more diverse, due to the canopy being less continuous, as well as accommodating additional species including rowan (Sorbus aucuparia) and sitka spruce (Picea sitchensis). Both locally frequent. Ground flora includes an abundance of Yorkshire fog (Holcus lanatus) as well as locally frequent lesser stitchwort (Stellaria graminea), herb-Robert (Geranium robertianum), wild strawberry (Potentilla vesca) and star-of-Bethlehem (Ornithogalum umbellatum). Last surveyed in 1996.
Fir & Nineways Plantation: 1133	Approximately 1.23km west of the PEIR boundary near Little Barningham	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. The western wing of the wood grades from broad-leaved high forest plantation, where the canopy layer is composed mainly of oak (Quercus robur), sweet chestnut (Castanea sativa), silver birch (Betula pendula) and some ash (Fraxinus excelsior), into areas which have been underplanted with young oak, sweet chestnut and wild cherry (Prunus padus), here the

CWS Name and Number	Distance and Direction from PEIR boundary	Description
		canopy is more open. The ground flora here is fairly species-poor due to the dominance of bramble (Rubus fruticosus agg.) and bracken (Pteridium aquilinum). However, there are locally abundant areas of bluebells (Hyacinthoides non-scripta) and soft rush (Juncus effusus). To the north is an area of hazel (Corylus avellana) coppice where the canopy is open and composed only occasionally of standard oak, sweet chestnut and silver birch. The ground flora here is similar to elsewhere. The eastern area in the south has an abundance of silver birch, along with frequent oak, Scot's pine (Pinus sylvestris), ash and local abundance of gorse (Ulex europaeus). Where the canopy is open there are a number of stands of dense bracken as well as locally abundant patches of bramble. Further north sweet chestnut becomes more abundant and the increased shading diminishes the species richness of the ground flora. Last surveyed in 1996.
Old Decoy, Selbrigg Pond, The Lows: 1135	Approximately 1.72km west of the PEIR boundary near Bodham	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 reedbed 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. Aquatic plants include hornwort (Ceratophyllum spp.) and water-milfoil (Myriophyllum spp.). Fringing the pond is a good marginal reedbed dominated by common reed (Phragmites australis) with sedges (Carex spp.), bulrush (Typha latifolia) and yellow iris (Iris pseudacorus) with encroaching alder (Alnus glutinosa). To the north is silver birch (Betula pendula), oak (Quercus robur) some regenerating, with occasional beech (Fagus sylvatica) and fir. In the wet area next to the road alder and crack willow (Salix fragilis) are present. Sycamore (Acer pseudoplatanus) and sweet chestnut (Castanea sativa) are present towards the east. Rowan (Sorbus aucuparia), birch saplings, elder (Sambucus nigra), odd rhododendron (Rhododendron spp.) bushes, occasionally holly (Ilex aquifolium), sycamore saplings, and alder and willow scrub next to the lake, from the understory. The ground flora is bracken (Pteridium aquilinum), bramble (Rubus fruticosus agg.), honeysuckle (Lonicera periclymenum) and foxglove (Digitalis purpurea). To the east is a semi-marshy area with more diverse ground flora of red campion (Silene dioica), Dryopteris fern (Dryopteris spp.), herb-Robert (Geranium robertianum), ground-ivy (Glechoma hederacea), wood avens (Geum urbanum), water mint (Mentha aquatica), lesser spearwort (Ranunculus flammula) and bittersweet (Solanum dulcamara). A strip in the south-east is the most interesting area, being very diverse, wet carr type woodland, alder being the dominant canopy tree with some ash. Rowan forms the understory. Ground flora includes bugle (Ajuga reptans), common spotted-orchid (Dactylorhiza fuchsii), red campion (Silene dioica), herb-Robert, wood avens, ground-ivy, marsh-marigold (Caltha palustre), yellow iris (Iris pseudacorus), bitter-cress (Cardamine spp.), water-cress (Nasturtium officinale), water mint, reeds and pendulous sedge (Carex pendula) and rushes (Juncus spp.). Two drier areas grade into the wet area. Here the canopy is beech, oak and birch. The understorey, rowan, holly, hazel, elder, and birch saplings. With a ground flora of bracken, bramble, dog's mercury (Mercurialis perennis) and wood avens. (Based on the 1985 habitat survey (NWT))

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Barningham Park Estate: 1136	Approximately 15 metres east of the PEIR boundary near Plumstead	This estate includes parkland, woodland, a large lake bound by reedbed. The majority of the site is reseeded grassland and of little interest except for the mature trees particularly oak (Quercus robur). Others include horse-chestnut (Aesculus hippocastanum), sweet chestnut (Castanea sativa), ash (Fraxinus excelsior) and beech (Fagus sylvatica). "Spring Plantation" to the north is oak and beech with elder, (Sambucus nigra) hazel (Corylus avellana) and alder (Alnus glutinosa) in the wet areas with a ground flora of bluebells (Hyacinthoides non-scripta), red campion (Silene dioica), and Dryopteris fern (Dryopteris spp.) with ground-ivy (Glechoma hederacea). Moving anti-clockwise around the border is another fragment similar of woodland. "Long Belt" is oak, sycamore and sweet chestnut with a good hazel coppice layer and red campion (Silene dioica) and white campion (Silene alba) on the ground. "Nuttery Plantation" has oak and ash surrounded by a coniferous belt. "Black Clump" and "Laurel Clump" are oak and hazel woodland. The lake, with a large colony of white water lilies (Nymphaea alba), is reed fringed to the south with woodland on the east bank including willow (Salix spp.), oak, beech, alder and rhododendron (Rhododendron spp.) bushes. There is a large area of marsh willowherb (Epilobium palustre) at the northern tip with some rushes (Juncus spp.). To the east of the lake the canopy is oak with sycamore except in the north-east and south, sweet chestnut, firs, and yew (Taxus baccata) in the north and copper beech (Fagus purpurea), birch (Betula spp.) and redwoods are found exclusively further south. Lime (Tilia spp.) and beech are found in the south and east. The understory is mostly hazel (Corylus avellana) with hawthorn (Crataegus monogyna) and rowan (Sorbus aucuparia) to the east and these with elder (Sambucus nigra) in the south. The ground flora is dominated by rhododendron especially in the north-west corner with bramble and bracken throughout. The north-east corner has also bluebell (Hyacinthoides non-scripta), wood avens (Geum urbanum) and sheep's sorrel (Rumex acetosella). Elsewhere bugle (Ajuga reptans), dog's mercury (Mercurialis perennis), red campion (Silene dioica), ground-ivy (Glechoma hederacea) and Dryopteris fern are found. Only in the south-east daffodils (Narcissus spp.), honeysuckle (Lonicera periclymenum), primroses (Primula vulgaris) and wood sage (Teucrium scorodonia) are found. While violets (Viola spp.) and wood sorrel (Oxalis acetosella) occur only further east. Oak saplings occur to the extreme east of the woodland. (Based on the 1985 habitat survey (NWT))
Pretty Corner & The Plains: 1146	Approximately 2km east of the PEIR boundary near Bodham	This is a large, complex mosaic of semi-natural broad-leaved woodland habitats with small areas of neutral, unimproved grassland and sparsely vegetated patches of dry heath. The site has considerable recreational and landscape value in addition to its conservation value. It is managed by North Norfolk District Council. The majority of the site comprises forest and coppice co-dominated by oak (Quercus robur), sycamore (Acer pseudoplatanus) and silver birch (Betula pendula) and, in places, rowan (Sorbus aucuparia) and sweet chestnut (Castanea sativa). The canopy and understorey also include locally dominant Scots pine (Pinus sylvestris), occasional holly (Ilex aquifolium), local ash (Fraxinus excelsior), hazel (Corylus avellana), hawthorn (Crataegus monogyna) and common lime (Tilia x

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		europaeus), the last four being confined to lower, probably more basic and seasonally damper ground in the north-east. Re-planted areas are found in the mid-north and the south western extension of the site, where young saplings occur in a bracken (Pteridium aquilinum) and bramble (Rubus fruticosus agg.) field layer. Planted species include ash, sweet chestnut, oak and beech (Fagus sylvatica). Much dead wood and fallen trees are present in places, and regeneration of occasional saplings of rowan, silver birch, holly, oak and more abundant sycamore in the understorey is evident. Locally dense paths of rhododendron (Rhododendron spp.) also occur. Clearings in the centre of the wood are largely co-dominated by a dense bracken-bramble field layer although bluebell (Hyacinthoides non-scripta) is occasional with wood avens (Geum urbanum), enchanter's-nightshade (Circaea lutetiana), honeysuckle (Lonicera periclymenum), red campion (Silene dioica), wood sorrel (Oxalis acetosella), pill sedge (Carex pilulifera), herb-Robert (Geranium robertianum), wood false-brome (Brachypodium sylvatica) and male fern (Dryopteris filix-mas). Also present are cock's-foot (Dactylis glomerata), Yorkshire fog (Holcus lanatus), common bent (Agrostis capillaris), cleavers (Galium aparine), common cat's-ear (Hypochoeris radicata) and wood meadow-grass (Poa nemoralis). The deep shade cast by beech and sweet chestnut is typically associated with very low species richness. Well-trampled paths are present throughout the site, generally associated with bare, compacted soil but also with more grassy areas where neutral grassland species such as creeping buttercup (Ranunculus repens) and greater plantain (Plantago major) are abundant. On drier, less shaded paths hedge woundwort (Stachys sylvatica), nipplewort (Lapsana communis), climbing corydalis (Ceratocapnos claviculata) and wavy hair-grass (Deschampsia flexuosa) occur. Also present in the south west are very small areas of open ground where heather (Calluna vulgaris), wavy hair-grass, sheep's sorrel (Rumex acetosella), and fine-leaved sheep's fescue (Festuca ovina ssp. tenuifolia) are frequent with oak and silver birch seedlings. Last surveyed in 1996.
Sheringham Wood & Park: 1152	The western side of this CWS directly borders the PEIR boundary, near Weybourne	Sheringham Wood is a varied area of predominantly C18th plantation with occasional patches of remnant ancient woodland. Much is mature and semi-natural in character, with considerable regeneration and a varied understorey, although a central avenue dominated by rhododendron (Rhododendron spp.) is excluded from the CWS. The woodland occupies small, steep valleys of uneven glacial sand and gravel deposits. An area of rolling parkland immediately to the north of this is also included within the site. Old Game Bag Plantation, situated on a steep-sided hill to the west, is an area of broad-leaved coppice with standards and mixed high forest. Occasional very mature oak (Quercus robur) pollards and maidens occur within a mature sycamore (Acer pseudoplatanus) and sweet chestnut (Castanea sativa) plantation, grading into an area of very mature Scot's pine (Pinus sylvestris). The understorey is absent except along a shallow woodbank at the foot of the hill, where derelict hazel (Corylus avellana) is present. The ground flora includes bryophytes, wood sorrel (Oxalis acetosella) and bluebell (Hyacinthoides non-scripta) with patches of broad buckler-fern (Dryopteris dilatata). Bracken (Pteridium aquilinum) rapidly becomes dominant on the

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		slopes, over climbing corydalis (Ceratocapnos claviculata). Of particular interest in this plantation is the presence of lichen, ancient woodland indicator species. Elsewhere, mixed plantation is predominant. Trees present include mature beech (Fagus sylvatica), sweet chestnut, oak, pine, lime (Tilia sp.) and ash (Fraxinus excelsior). The understorey varies but includes rowan (Sorbus aucuparia), holly (Ilex aquifolium), silver birch (Betula pendula) and rhododendron. Where rhdodendron is absent the ground flora is able to develop and comprises bracken and bramble (Rubus fruticosus agg.), whilst along more open tracks and rides species such as wood sorrel, bluebell, wood avens (Geum urbanum), nipplewort (Lapsana communis), herb-Robert (Geranium robertianum), wild carrot (Daucus carota) and foxglove (Digitalis purpurea) are found. Sheringham Park lies to the north of Sheringham Wood and comprises acid to calcareous grassland with occasional ash and sessile oak (Quercus petraea) pollards. The more acidic areas in the south west of the park are characterised by abundant common bent (Agrostis capillaris), creeping bent (Agrostis stolonifera), red fescue (Festuca rubra), and smooth meadow-grass (Poa pratense) with frequent lady's bedstraw and sheep's sorrel (Rumex acetosella). The land becomes more calcareous as it levels out to the north surrounding a small pond, and here grasses such as yellow oat-grass (Trisetum flavescens), smaller cat's-tail (Phleum bertolonii), crested dog's tail (Cynosurus cristata) and quaking grass (Briza media) are present with dwarf thistle (Cirsium acaule), cowslip (Primula veris), common spotted-orchid (Dactylorhiza fuchsii), pyramidal orchid (Anacamptis pyramidalis) and glaucous sedge (Carex flacca). Cracking Hill is a raised island of broadleaved woodland steeply sloped on all sides with a central raised plateau. The canopy is dominated by English oak, with abundant sycamore on the periphery; standing and fallen deadwood is abundant. Hazel occurs in and isolated stand. Large areas of the understorey are dominated by rhododendron, but patches of woodland flora persist and support bluebells, red campion (Silene diocia) and foxglove. Climbing corydalis and broad buckler fern also occur. Bracken also occurs amongst the rhododendron and often accompanied by dense, scrambling bramble. Last surveyed in 2009
Oak Wood: 1154	Approximately 440 metres north-east of the PEIR boundary near Weybourne	This site is a sessile oak (Quercus petraea) wood planted in the C18th on the site of an ancient woodland within the Sheringham Estate. It has much of the structure and diversity of a semi-natural wood, although ancient woodland indicator species present are considered to be planted. A few pollards appear to pre-date the majority of the current woodland. The canopy is dominated by sessile oak, although other species become locally dominant. There is little understorey in many places except where rhododendron (Rhododendron sp.) is present, and regeneration tends to be restricted to exotic species, such as turkey oak (Quercus cerris). A relatively rich, yet sparse, acidic ground flora is present, becoming a little more calcareous towards the western boundary. Where sessile oak dominates, the ground flora of bluebell (Hyacinthoides non-scripta), dog's mercury (Mercurialis perennis), red campion (Silene dioica), foxglove (Digitalis purpurea), wood avens (Geum urbanum) and hedge woundwort (Stachys sylvatica) compete with vigorous bracken (Pteridium aquilinum) and bramble (Rubus fruticosus agg.). Rhododendron shades these out in

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		the north-east where it becomes dominant. Sycamore (Acer pseudoplatanus) is abundant in the valley, giving way to mature beech (Fagus sylvatica) over continuous dog's mercury, and a small area of coppiced hazel (Corylus avellana). Ash (Fraxinus excelsior) dominates towards the west, where wood false-brome (Brachypodium sylvaticum) is found. Mature oak pollards are present in the south-west corner, where bracken temporarily gives way to patches of broad buckler-fern (Dryopteris dilatata), before becoming a continuous canopy over abundant climbing corydalis (Ceratocapnos claviculata) in a mature Scot's pine (Pinus sylvestris) plantation on the northern slopes. Much turkey oak is found in the north west corner, where there is also a wild service tree (Sorbus torminalis) and a spurge laurel (Daphne laureola). An incomplete field maple (Acer campestris) hedge runs along the track forming the eastern boundary, while hawthorn (Crataegus monogyna) is dominant in the western boundary hedge. Small blocks of young pine plantation are present on slopes in the north and south, with a young broad-leaved plantation comprising oak, ash and field maple above a pit on the eastern boundary. Last surveyed in 1994.
Ringland Hills: 1336	Approximately 1.12km east of the PEIR boundary near Ringland	The CWS is a representative part of a narrow ridge of low hills to the south of a large meander in the River Wensum Valley. Steep northern slopes indented with narrow gullies drop away from a fairly level area at the top of the ridge. Historically open, and at least partly grazed, the hills are now almost entirely semi-natural, predominantly oak-birch woodland. There is evidence of significant use and surface disturbance (including military), from pre-history (flint mining) right through to the present day (dog walking cycling etc). Situated beside a busy minor road crossing the hills, a small car-park leads to a public footpath following the south and east boundaries of the site, provided easy recreational access. The majority of the site is covered by fairly mature woodland, dominated by pedunculate oak (Quercus robur) and silver birch (Betula pendula), with locally frequent rowan (Sorbus aucuparia), occasional beech (Fagus sylvatica), sycamore (Acer pseudoplatanus) and rare sweet chestnut (Castanea sativa). In the northern part of the site ash (Fraxinus excelsior) is occasional, mainly as mature boundary trees. The understorey is mainly of young rowan and holly (Ilex aquifolium), but also hazel (Corylus avellana), blackthorn (Prunus spinose) and rare hawthorn (Crataegus monogyna) at the bottom of the slope. The ground-layer is predominantly bramble (Rubus fruticosus agg.) and bracken (Pteridium aquilinum) with honeysuckle (Lonicera periclymenum) widespread. An extensive area in the northern part of the site is dominated by the invasive variegated yellow archangel (Lamiastrum galeobdolon subsp. Argentatum). There are patches of raspberry (Rubus idaeus) along the slope. Woodland herbs are generally occasional or rare, and include climbing corydalis (Corydalis claviculata), herb-robert (Geranium robertianum), wood-avens (Geum urbanum), wood sage (Teucrium scorodonia), wood-sorrel (Oxalis acetosella), hedge woundwort (Stachys sylatica), enchanter's nightshade (Circaea lutetiana), greater stitchwort (Stellaria holostea), foxglove (Digitalis purpurea) and red campion (Silene dioica). False brome (Brachypodium sylvaticum) is widespread and remote sedge (Carex remota rare). The highest, central part of the site is maintained

CWS Name and Number	Distance and Direction from PEIR boundary	Description
		as a small area of acid grassland. The sward is relatively species-poor and mainly composed of Yorkshire-fog (Holcus lanatus), common bent (Agrostis capillaris), cock's-foot (Dactylis glomerata) and perennial ryegrass (Lolium perenne). More characteristically, sheep's-fescue (Festuca ovina) and wavy hair-grass (Deschampsia flexuosa) are present on the sandy edge of the slope. Herbs include frequent sheep's sorrel (Rumex acetosella), common mouse-ear (Cerastium holosteoides), white clover (Trifolium repens) and cat's-ear (Hypochoeris sp.). Common gorse (Ulex europaeus) is present in part of the sward, being kept in check by mowing. An area of steep slope immediately below the open grassland has been cleared of woodland in the recent past, and is now developing as dense scrub with silver birch, rowan, common gorse, broom, bramble and bracken. Last surveyed in 2017.
Ringland Pits: 1339	Approximately 1.64km east of the PEIR boundary near Ringland	This site is a flooded disused gravel workings adjacent to the River Wensum and which is now mostly oak Quercus robur and birch Betula pendula 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, mixed with alder Alnus glutinosa, grey willow Salix cinerea and oak and with an understorey of bracken Pteridium aquilinum and broad buckler fern Dryopteris dilatata and occasional blackthorn Prunus spinosa. The southern half of the site has a wide area of alder carr, with grey willow, ash Fraxinus excelsior and some holly Ilex aquifolium. The ground flora varies from herb robert Geranium robertianum and enchanter's nightshade Circaea lutetiana in the drier woods, to bugle Ajuga reptans, false brome Brachypodium sylvaticum, dog's mercury Mercurialis perennis, male fern Dryopteris filix-mas and broad buckler fern in the carr; there is a small area of original flora on the northern edge with wood sorrel Oxalis acetosella, greater stitchwort Stellaria holostea and wood sage Teucrium scorodonia amongst dog's mercury. A small area of acid grassland occurs on the raised gravel paths and a small area behind one of the lakes with a steep sandy bank; species here include common cudweed Filago vulgaris, sheep's sorrel Rumex acetosella, broom Cytisus scoparius ssp scoparius, gorse Ulex europaeus, bird's-foot Ornithopus perpusillus and common centaury Centaurium erythraea. Damper neutral grassland is generally species-poor. Large areas of open water support water-lily Nuphar spp., broad-leaved pondweed Potamogeton natans and arrow-head Sagittaria sagittifolia, with abundant marginal vegetation of species including common reed Phragmites australis, reed sweet-grass Glyceria maxima, bulrush Typha latifolia and rare purple loosestrife Lythrum salicaria. Smaller lakes are often shadier and covered in lesser duckweed Lemna minor. Three very small ponds in the south-east are open and have a more diverse flora including bristle club-rush Isolepis setacea, common spike-rush Eleocharis palustris, bulbous rush Juncus bulbosus, sharp-flowered rush Juncus acutifloris and lesser spearwort Ranunculus flammula. A wide wet ditch in the south holds some Himalayan balsam Impatiens glandulifera by the bridge. In 2017, a small extension to the north was added, comprising a mature poplar plantation planted on an ancient woodland site. This area is located on the floodplain margin and is comprised of high canopy trees,

CWS Name and Number	Distance and Direction from PEIR boundary	Description
		including poplar, but also downy birch Betula pubescens, aspen Populus tremula, rowan Sorbus aucuparia, sycamore Acer pseudoplatanus, ash Fraxinus excelsior and oak Quercus robur, over a rich ground flora. Notable ground flora species include a near-continuous carpet of bluebell Hyacinthoides non scripta on the drier ground, with some areas supporting populations of climbing corydalis Ceratocapnos claviculata and wood sorrel Oxalis acetosella. Lower lying parts of the wood feature moschatel Adoxa moschatellina, Veronica montana; and pignut Conopodium majus grows in open woodland alongside a mown ride. Associated shrub layer species include hazel Corylus avellana and redcurrant Ribes rubrum. CWS 2112 Blyth's Wood and CWS 2115 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. Last surveyed in 2017.
Church Hill Common: 1340	Approximately 750 metres east of the PEIR boundary near Ringland	Church Hill Common, a registered common (CL 228), is on the north west of Ringland village, with St Peter's church just to the east. The site is divided in two by a country lane. There are some steep sided dips and pits, which are old sand, gravel and marl pits, particularly to the south of the dividing road. The northern part of Church Hill Common is a birch (Betula pendula) and oak (Quercus robur) dominated woodland, with occasional sycamore (Acer pseudoplatanus). The northern boundary has a few veteran oaks. There is dense bracken (Pteridium aquilinum) cover through much of the woodland, along with areas of bramble (Rubus fruticosus agg.), blackthorn (Prunus spinosa) and hawthorn (Crataegus monogyna) scrub to the south, along with elm (Ulmus sp.) and hazel (Coryllus avellana). Native bluebells (Hyacinthoides non-scripta) make up some of the otherwise sparse ground flora under the trees. The larger, southern part of the site has a central area of acidic grassland, with a surrounding belt of woodland and scrub. The grassland has a few individual oaks and one sweet chestnut (Castanea sativa), also sheep's sorrel (Rumex acetosella), heath bedstraw (Galium saxatile) and lesser stitchwort (Stellaria graminea). The dominant grasses here are common bent (Agrostis capillaris), creeping soft grass (Holcus mollis) and Yorkshire fog (Holcus lanatus). There are more native bluebells to the south of the grassland. Bracken and gorse (Ulex europaeus) are encroaching in places. The woodland to the west is again mainly birch and oak, with occasional sycamore, sweet chestnut and rowan (Sorbus aucuparia). A bracken-dominated, at times overgrown grassy path leading around the edge of the site just beyond the trees. The more mown patches have sheep's sorrel, Yorkshire fog, climbing corydalis, broad leafed dock (Rumex obtusifolius), foxglove (Digitalis purpurea), common bent grass, and raspberry (Rubus idaeus). To the far south west corner there seems to be a patchy, and in places defunct, old hawthorn hedge. There is blackthorn scrub and birches to the north of the woodland and several mature-veteran oaks with large spreading canopies. To the east of the central grassland there is gorse and bramble scrub, merging into oak woodland with bracken below. Dense areas of blackthorn scrub make up the rest of the site, with some mature oaks, birch, and rowan amongst the scrubby areas. The open patches

CWS Name and Number	Distance and Direction from PEIR boundary	Description
		and cut paths here support a flora including lesser stitchwort, common sorrel (Rumex acetosa), sheep's sorrel, heath bedstraw and native bluebells. Grasses here include sweet vernal grass (Anthoxanthum odoratum), common bent and Yorkshire fog. At the very edge of the site, on the north east corner, there is a small patch of interesting roadside flora. Species surviving on the roadside verge include Lady's bedstraw (Galium verum), burnet saxifrage (Pimpenella saxifraga), dark mullein (Verbsacum nigrum), knapweed (Centaurea nigra) and yellow oat grass (Trisetum flavescens). Last surveyed in 2017.
Broom & Spring Hills: 1341	Approximately 550 metres south-east of the PEIR boundary near Attlebridge	An area of semi-natural deciduous woodland which is fairly acidic in character and dominated by oak (Quercus robur) and sycamore (Acer pseudoplatanus). 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. The majority of the northern area of the site is oak/ash (Fraxinus excelsior) dominated woodland with a dense sycamore understorey. The shrub layer is composed of hazel (Corylus avellana), elder (Sambucus nigra) and wych elm (Ulmus glabra) which are all occasional. Some of the hazel appears to be old coppice. The ground flora consists of large patches of either bracken (Pteridium aquilinum), nettle (Urtica dioica), or bramble (Rubus fruticosus agg.). Dog's mercury (Mercurialis perennis) and red campion (Silene dioica) are frequent. There are some small patches of areas which are more species rich and these contain additionally primrose (Primula vulgaris), herb-Robert (Geranium robertianum), enchanter's-nightshade (Circaea lutetiana), three-nerved sandwort (Moehringia trinervia), foxglove (Digitalis purpurea) and broad buckler-fern (Dryopteris dilatata). Giant bellflower (Campanula latifolia) is also present in small numbers, probably as a naturalised introduction. Oak is absent from the northernmost part of the wood where mature sycamore is dominant. At the southern end of the site is an area of very scattered mature oak and beech (Fagus sylvatica) with some sycamore and silver birch (Betula pendula). Planted species include sweet chestnut (Castanea sativa), oak, wild cherry (Prunus avium), birch and ash. The ground flora consists of dense bracken and bramble with frequent wood sage (Teucrium scorodonia) and climbing corydalis. Alongside this area to its west is a relatively young conifer plantation with young oak which was planted in 1980, dominated by closely planted larch (Larix europaeus). Last surveyed in 1996.
Attlebridge Hills: 1343	Approximately 240 metres south-east of the PEIR boundary near Attlebridge	This site is a varied structure, broad-leaved semi-natural woodland. The canopy is dominated by mature oak (Quercus robur), sycamore (Acer pseudoplatanus), sweet chestnut (Castanea sativa) with extensive areas of mixed coppice of hazel (Corylus avellana), sycamore and sweet chestnut. The ground flora is typical of such woodlands but also contains red campion (Silene dioica), viper's bugloss (Echium vulgare), nipplewort (Lapsana communis) and common centaury (Centaurium erythraea). (Based on the Wensum Valley Project 1993 Survey). Last surveyed in 1993.
Triumph & Foxburrow	Approximately 670 metres	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.

CWS Name and Number	Distance and Direction from PEIR boundary	Description
Plantations: 1344	east of the PEIR boundary near Attlebridge	A pheasant track runs along the edge of the wood in parts. The woodland canopy is dominated by sweet chestnut (Castanea sativa), oak (Quercus robur) and birch (Betula spp.) with the occasional larch (Larix spp.) and pine (Pinus spp.). The coppice layer is mostly hazel (Corylus avellana) while some of the sweet chestnut coppices may be a century old. The ground flora is a mixture of red campion (Silene dioica), herb-Robert (Geranium robertianum) wood sage (Teucrium scorodonia) and on the open grassy rides marsh cudweed (Gnaphalium uliginosum) is found. (Based on the Wensum Valley Project 1993 Survey). Last surveyed in 1993.
Weston Meadow & Common Meadow Carr: 1345	Approximately 1.75km northw-west of the PEIR boundary near Attlebridge	This site is in three main land parcels. A relatively species-poor, grass dominated community with pockets of wetter marshy grassland and acidic assemblages is found in the northern field. A ditch separates this from the more species-rich southern field and the carr which is added as an extension to the site. The northern field consists of wet, mostly neutral grassland with tall grasses, some herbs and abundant nettle Urtica dioica and cleaver Galium aparine. False oat grass Arrhenatherum elatius and meadow foxtail Alopecurus pratensis are abundant with frequent Yorkshire fog Holcus lanatus. Common sorrel Rumex acetosa is occasional and creeping thistle Cirsium arvense and dock species occasional to frequent. Herbs include carpets of lesser stitchwort Stellaria graminae, occasional tufted vetch Vicia cracca, meadowsweet Filipendula ulmaria, meadow vetchling Lathyrus pratensis, greater bird's-foot trefoil Lotus pedunculatus and marsh bedstraw Galium palustre. Ragged robin Lychnis flos-cuculi and common spotted orchid Dactylorhiza fuschii are rare. A small area is herb-rich and not dominated by grasses. Lesser stitchwort is abundant, black knapweed Centaurea nigra frequent along with locally frequent sharp-flowered rush Juncus articulatus and creeping soft grass Holcus mollis suggesting more acidic soils. Southern marsh orchid Dactylorhiza praetermissa is rare. The northern and eastern areas of the field are wetter with patches of reed sweet grass Glyceria maxima swamp and areas where meadow foxtail dominates. Water mint Mentha aquatica is occasional with water forget-me-not Myosotis scorpioides. A circular pond marked on ordnance survey maps is now mostly vegetated with reed sweet grass and reedmace Typha latifolia. A small area of alder Alnus glutinosa trees over nettle is situated on the east side and there is a small linear osier Salix viminalis thicket to the west. In the northern corner osier, alder and ash Fraxinus excelsior form a small copse with plenty of standing dead wood and climbing ivy Hedera helix. The southern field supports areas of acidic soils whilst others support a more calcareous vegetation community where spring lines run across the meadow. Trees have been planted sparsely, particularly to the south of the meadow. In wetter areas in the south sharp-flowered rush, occasional lesser stitchwort, creeping soft grass and fen bedstraw Galium uliginosum are associated with Yorkshire fog, common sorrel, meadow buttercup Ranunculus acris and red fescue Festuca rubra. Carpets of fen bedstraw and lesser stitchwort are present in some areas. Towards the central areas of the meadow the marshy grassland begins to have more calcareous influence and is indicative of a fen meadow habitat. Here blunt-flowered rush Juncus subnodulosus is widespread with frequent soft rush Juncus effusus,

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		marsh thistle Cirsium palustre and lesser stitchwort. Brown sedge Carex disticha and red fescue are occasional. Common sorrel and lesser stitchwort are thriving in-between the rushes with rare southern marsh and common spotted orchids. Further north there is a large wet area supporting a species-rich sward with blunt-flowered rush, abundant water mint, orchids, fen bedstraw, greater bird's foot trefoil and ragged robin. Marsh pennywort Hydrocotyle vulgaris is locally dominant with occasional hemp agrimony Eupatoria cannabinum, meadowsweet and brown sedge. Some alder is naturally regenerating alongside planted willows. The west side of the meadow becomes more neutral with false oat grass dominating and frequent creeping thistle. One patch of abundant ladies bedstraw Galium verum is present. A recently created pond lies to the north of the field. Aquatics (probably planted) include lily's Nympha sp., water soldier Stratiotes aloides and abundant curled pondweed Potamogeton crispus. The margins support gypsywort Lycopus europaeus, reedmace, great willowherb Epilobium hirsutum, water plantain Alisma plantago-aquatica and square stalked St John's wort Hypericum tetraperum. A small area of deciduous woodland lies to the east of the southern field with a ditch separating the two. The ditch is lined with old hazel Corylus avellana stands. The main body of the woodland is oak Quercus robur standards over hazel coppice. The canopy is open with mature hawthorn Crataegus monogyna and silver birch Betula pendula alongside the oak; hazel and hawthorn from the scrub layer. The ground flora comprises mostly of nettle and bramble at the time of survey but other herbs are also present including dog's mercury Mercuralis perennis, abundant bluebells Hyacinthoides non-scripta in spring, three-nerved sandwort Moeryngia triverva and male fern Dryopteris filix-mas. Ash is present in the canopy towards the centre of the wood and an old alder pollard sits on the bank of a ditch with abundant male fern and remote sedge Carex remota. Recent hazel coppicing is evident with good re-growth. Here ground flora includes dogs mercury, lesser burdock Arctium minor, nettle, cleaver, spear thistle Cirsium vulgare, ragwort Senecio jacobaea, rosebay willowherb Chamaerion angustifolium, weld Reseda lutea, mullein Verbascum thapsus, common mouse ear Cerastium fontanum and red campion Silene dioica. Last surveyed in 2019.
Lake adjacent to Concrete Plant: 1346	Approximately 1.46km west of the PEIR boundary near Attlebridge	A large water-filled gravel pit with woodland around its margins. The lake contains stands of reed (Phragmites australis) and reed mace (Typha latifolia) in shallow areas. The banks are largely wooded with alder (Alnus glutinosa) and willow species (Salix spp.). The area of woodland surrounding the lake contains oak (Quercus robur), birch (Betula pendula), willow and alder forming a broken canopy. Hawthorn (Crataegus monogyna) forms the shrub layer whilst the ground layer is composed of bramble (Rubus fruticosus agg.) and bracken (Pteridium aquilinum). (Based on the 1985 habitat survey (NWT))
Bush Meadow Plantation: 1347	Approximately 580 metres west of the PEIR boundary	This site is a mature semi-natural woodland and a small shaded pond. The site is south of Alderford Common and near to the Marriot's Way. The woodland is predominantly oak (Quercus robur) and some field maple (Acer campestre) some of which are coppiced along with hazel (Corylus avellana) and occasional spindle (Euonymus europaeus). The

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	near Attlebridge	ground flora includes red campion (Silene dioica), bugle (Ajuga reptans) and primrose (Primula vulgaris). The small pond has marginal vegetation of yellow iris (Iris pseudacorus). (Based on the Wensum Valley Project 1993 Survey). Last surveyed in 1993.
Land adjoining Swannington Bottom Plantation: 1348	Approximately 980 metres south-east of the PEIR boundary near Swannington	This site is a silver birch (Betula pendula) and young oak (Quercus robur) dominated woodland, with occasional honeysuckle (Lonicera periclymenum) over a ground flora of bracken (Pteridium aquilinum) and nettle (Urtica dioica). There is also a small strip of remnant acid woodland which connects with Upgate Common SSSI. Last surveyed in 1996.
Lenwade Pits (East): 1349	Approximately 1.9km west of the PEIR boundary near Attlebridge	This site is a complex of gravel pits with mature varied woodland, there are several pools. It is bordered on the south by a disused railwayline and the River Wensum to the north. The woodland is alder (Alnus glutinosa) dominated with oak (Quercus robur), ash (Fraxinus excelsior), willow (Salix spp.) and sallow (Salix cinerea) forming a dense canopy. There is a considerable amount of standing dead wood which is good for invertebrates. Bramble (Rubus fruticosus agg.), and red campion (Silene dioica) form the ground flora. The pools have both white water lily (Nymphaea alba) and yellow water lily (Nuphar lutea) and are bordered by bulrush (Typha latifoilia), soft rush (Juncus effusus) and gipsywort (Lycopus europaeus). (Based on the Wensum Valley Project 1993 Survey). Last surveyed in 1993.
Green lane: 1354	Approximately 1.58km east of the PEIR boundary near Swannington	This site is a mixture of marshy grassland and wet woodland. The grassland varies in its diversity but includes several species-rich areas. The grassland areas are low lying and gently sloping with many free-flowing drains. The most diverse area is to the west where the sand has been mown and grazed to create a short turf. Marshy hollows have been created where tractors have crossed the site. The sward contains abundant red fescue (Festuca rubra) together with soft rush (Juncus effusus), jointed rush (Juncus articulatus) and sharp-flowered rush (Juncus acutiflorus). Sedges are also abundant with hairy sedge (Carex hirta), glaucous sedge (Carex flacca), common sedge (Carex nigra) and carnation sedge (Carex panicea) all occurring. In the wettest areas common cotton-grass (Eriophorum angustifolium) and marsh pennywort (Hydrocotyle vulgaris) are found together with creeping willow (Salix repens), common spotted-orchid (Dactylorhiza fuchsii), broad-leaved marsh orchid (Dactylorhiza majalis) and bryophytes. The upper slopes are less diverse and have abundant mature trees of ash (Fraxinus excelsior) and birch (Betula pendula). Further east the grassland is less grazed and the sward is tussocky and less diverse. Yorkshire fog (Holcus lanatus), cock's-foot (Dactylis glomerata) and soft rush are all abundant whilst great willowherb (Epilobium hirsutum) and nettle (Urtica dioica) occur in nutrient rich patches. The easternmost area of grassland contains pools along the ditchlines and evidence of spring activity whilst to the west some of the area has been planted with alder (Alnus glutinosa) and poplar (Populus spp.). The woodland has a ground flora similar to the marshy grassland with the addition of dog's mercury (Mercurialis perennis), red campion (Silene dioica), moschatel (Adoxa moschatellina) and primrose (Primula vulgaris). The understorey is scattered and includes sallow (Salix cinerea), bird-cherry (Prunus padus) and hawthorn

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		(Crataegus monogyna) although sloe (Prunus spinosa) and bramble (Rubus fruticosus agg.) form dense thickets in places. The canopy is of mature trees, mainly planted poplar and coppiced alder. Wind blown trees and deadwood are frequent. Last surveyed in 1996.
Meadows by Cushion's Common Plantation: 1355	Approximately 1.8km east of the PEIR boundary near Swannington	This site is a species rich marshy grassland in the valley between Long Covert Wood and Shooters Hill. There are some old anthills in the centre. The site has been affected by grazing pressure. The eastern part of the site is grass and rush dominated. Grasses include crested dog's-tail (Cynosurus cristatus) and tufted hair-grass (Deschampsia cespitosa). The occasional sedge (Carex spp.) is present. Herbs are limited with buttercups (Ranunculus spp.), plantain (Plantago spp.) and brooklime (Veronica beccabunga), meadowsweet (Filipendula ulmaria) and fleabane (Pulicaria dysenterica) being present. The rest of the site comprises neutral semi-improved grassland with impeded drainage. There are a smaller range of grasses and rushes than the area to the east with very few herbs, however St. John's wort (Hypericum spp.) are found here. The stream is mildly eutrophic indicated by the greater pond-sedge (Carex riparia). (Based on the 1985 habitat survey (NWT))
Fishpool Covert: 1357	Approximately 1.31km east of the PEIR boundary near Swannington	This is a moderately sized woodland with a diverse ground flora. The wood is situated in a shallow valley, either side of a small stream, near to which the ground becomes marshy. To the west the canopy is open and consists of tall mature poplar (Populus. sp.). Elsewhere there are large crack willows (Salix fragilis) and alder (Alnus glutinosa), some of which are coppiced to the east. Oak (Quercus robur) and silver birch (Betula pendula) are both common with several very large oaks present. Sycamore (Acer pseudoplatanus) and horse-chestnut (Aesculus hippocastanum) occur locally along the top of the north slope. Deadwood and wind-blown trees are abundant throughout. The shrub layer is variable with red-currant (Ribes rubrum) and black currant (Ribes nigrum) on wetter ground with suckers of bird cherry (Prunus padus). Along the south of the wood sloe (Prunus spinosa) forms dense thickets. The ground flora is similar on both sides of the stream. On the higher slopes the ground is covered with a dense carpet of bluebell (Hyacinthoides non-scripta) giving way to dog's mercury (Mercurialis perennis) lower down the slopes. Within these areas are also found moschatel (Adoxa moschatellina), lords-and-ladies (Arum maculatum), dog violet (Viola riviniana) and pignut (Conopodium majus). On wetter ground at the valley bottom marsh species such as marsh-marigold (Caltha palustris) and wild angelica (Angelica sylvestris) occur whilst nettle (Urtica dioica) becomes common on the richer soil. Last surveyed in 1996.
Haveringland Hall: 1359	Approximately 1.52km east of the PEIR boundary near Brandiston	A diverse and complex mixture of woodlands, grasslands, tall herbs and standing water. The lake is rather species poor and the woodlands have several introduced species or are of ornamental value. To the south is a lake with very turbid water without floating vegetation and rather fragmented marginal vegetation of mainly common reed (Phragmites australis) with lesser pond-sedge (Carex acutiformis), which are dense in areas, with bittersweet (Solanum dulcamara) and jointed rush (Juncus articulatus). Iris (Iris spp.) and gipsywort (Lycopus europaeus) are found rarely. Along the west side

CWS Name and Number	Distance and Direction from PEIR boundary	Description
		of the lake is a rank, wet strip of tall ruderals and grasses. Abundant to frequent species include bittersweet, creeping thistle (Cirsium arvense), nettle (Urtica dioica) and cleavers (Galium aparine) with occasional reed sweet-grass (Glyceria maxima), spear thistle (Cirsium vulgare), false oat-grass (Arrhenatherum elatius), great willowherb (Epilobium hirsutum) and rosebay willowherb (Chamerion angustifolium), gipsywort and wild angelica (Angelica sylvestris). A similar area occurs to the extreme north, but has scattered spindle (Euonymus europaeus), sallow (Salix cinerea), and elder (Sambucus nigra) with additional cleavers and lesser pond-sedge. Adjacent to this is a rank, marshy grassland dominated by meadowsweet and lesser pond-sedge with frequent branched bur-reed and cleavers, with scattered sallow scrub, young alder (Alnus glutinosa) and birches (Betula spp.). A partly mown, herb rich grassland strip lies west of the lake with abundant meadow foxtail (Alopecurus pratensis), annual meadow-grass (Poa annua) and silverweed (Potentilla anserina) with hairy sedge (Carex hirta), and rough meadow-grass (Poa trivialis). Lesser pond-sedge dominates wetter patches. Shrubs are mainly hawthorn (Crataegus monogyna), blackthorn (Prunus spinosa) and elder. The middle area is dense alder coppice, with some very old stools, scattered mature white poplar (Populus alba), with some ash (Fraxinus excelsior) coppice. Silver birch (Betula pendula) forms an occasional understorey. Bird cherry forms the shrub layer. Ground flora is dominated by nettle with frequent dog's mercury (Mercurialis perennis), red campion (Silene dioica), ground-ivy (Glechoma hederacea) and cleavers, and more rarely iris is also present. In the north is a Scot's pine (Pinus sylvestris) plantation. Last surveyed in 1996.
Marsh Plantation Lake: 1362	Approximately 1.46km east of the PEIR boundary near Cawston	One of two lakes located within a coniferous plantation. It is surrounded by a thin strip of deciduous woodland. The lake has marginal vegetation on the northern and western banks dominated by common reed (Phragmites australis) with less frequent bulrush (Typha latifolia). Away from the open water the reed becomes drier and young oaks (Quercus robur) are establishing on the upper margins. Where the reedbeds are not very extensive, on the southern edge, willow (Salix spp.) scrub is prominent next to the water's edge. This grades into alder (Alnus glutinosa) and silver birch (Betula pendula) woodland, the dominant marginal woodland type. The most extensive areas of woodland are to the north and south of the lake. The northern area is dominated by alder carr near the stream , along with willow, birch becoming more prominent on a drier slope near the conifers. Ground flora consists mainly of reed. In contrast the southern area is more diverse both in terms of age structure and ground flora. (Based on the 1985 habitat survey (NWT))

CWS Name and Number	Distance and Direction from PEIR boundary	Description
Cawston Park: 1363	Approximately 820 metres east of the PEIR boundary near Cawston	A mixture of very dry, moderately species rich grassland. Scattered shrubs and small trees are present with areas of acidic dry woodland and wetter neutral woodland, both dominated by birch (Betula sp). A strip of woodland to the east appears to be a very dense overgrown area of mature birch-dominated woodland. To the north is a closely mown, semi improved, well drained area of moderately species-rich neutral grassland. Red fescue, common bent (Agrostis capillaris), ribwort (Plantago lanceolata) and silver-hair grass (Aira praecox) are abundant with stork's-bill (Erodium cicutarium), ragwort (Senecio jacobaea), common cat's-ear (Hypochoeris radicata), cock's-foot (Dactylis glomerata), and dove's-foot crane's-bill (Geranium molle). To the east is an acidic, dry woodland on a steep slope dominated by silver birch (Betula pendula) with a few mature oak (Quercus robur) and Scot's pine (Pinus sylvestris). Hawthorn (Crataegus monogyna) is occasional. Ground flora is dominated by bracken (Pteridium aquilinum) and bramble (Rubus fruticosus agg.) with ground-ivy (Glechoma hederacea), honeysuckle (Lonicera periclymenum), wood sage (Teucrium scorodonia), and cleavers (Galium aparine). The centre and west is wet woodland dominated by silver birch with Scot's pine. Coppiced alder (Alnus glutinosa) forms an occasional understorey with rowan (Sorbus aucuparia). Rhododendron (Rhododendron ponticum) is dense in parts. The ground flora is bramble and bracken with great willowherb (Epilobium hirsutum), soft rush (Juncus effusus), honeysuckle, marsh pennywort (Hydrocotyle vulgaris), lesser spearwort (Ranunculus flammula), marsh thistle (Cirsium palustre) and wood sage. There is a good age structure and dead wood content. There is a lake with white water lily (Nymphaea alba), common reed, sedge (Carex acutiformis), soft rush and greater bulrush (Typha latifolia). The lake is partly fringed by alder, rhododendron, and grey willow (Salix cinerea) with a region of common reed, ragged robin (Lychnis flos-cuculi), fen bedstraw (Galium uliginosum), jointed rush (Juncus articulatus) and creeping buttercup (Ranunculus repens). The south has areas of dry, partially improved, neutral grassland, dominated in different areas by Yorkshire fog (Holcus lanatus) false oat-grass or red fescue. Bramble, strawberry (Fragaria vesca), creeping thistle (Cirsium arvense), common centaury (Centaurium erythraea), and agrimony (Agrimonia eupatoria) are abundant, with sweet vernal-grass (Anthoxanthum odoratum), common cat's-ear with occasional cock's-foot. Oak, birch, hawthorn, grey willow, Scot's pine, gorse (Ulex europaeus) and broom (Sarothamnus scoparius) are densely scattered. Last surveyed in 1996.
The Mermaid: 1364	Approximately 1.95km east of the PEIR boundary near Cawston	This site contains a range of habitats, bordering either side of The Mermaid stream. This site connects to two other County Wildlife Sites along its western edge making one long continuous wildlife corridor. At the time of survey areas to the extreme north had been burnt off and reseeded or left to recolonize. Soft rush (Juncus effusus) is regenerating in some areas, with perennial rye-grass (Lolium perenne), nettle (Urtica dioica), creeping thistle (Cirsium arvense) and hallard-leaved orache (Atriplex hastata). On the northern side is neglected alder (Alnus glutinosa) coppice with quite mature poplars (Populus sp). Ash (Fraxinus excelsior) is occasional with a few ash coppice stools. Hazel (Corylus avellana), holly (Ilex aquifolium), and

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		hawthorn (Crataegus monogyna) form a scattered shrub layer and birch (Betula spp.) the understorey. Bramble (Rubus fruticosus agg.) dominates the ground flora with local reed canary-grass (Phalaris arundinacea), lesser pond-sedge (Carex acutiformis) with frequent hedge woundwort (Stachys sylvatica), and cleavers (Galium aparine) with occasional remote sedge (Carex remota) and marsh-marigold (Caltha palustris). Further eastward the previous area grades into very dense, young alder and scrub, with particularly dense blackthorn (Prunus spinosa) thickets and hawthorn. Bramble is frequent with abundant rough meadow-grass (Poa trivialis) with nettle, red campion (Silene dioica) and hogweed (Heracleum sphondylium). Scattered open patches occur with abundant greater pond sedge (Carex riparia), cleavers and meadowsweet (Filipendula ulmaria). On higher, drier slopes, false oat-grass (Arrhenatherum elatius), raspberry (Rubus idaeus), and rosebay willowherb (Chamerion angustifolium) are abundant. Rank ungrazed areas of moderately species rich marshy grassland dominated by dense soft rush (Juncus effusus) occur adjacent to the river on the northern side. Yorkshire fog (Holcus lanatus) is abundant while frequent species include creeping buttercup (Ranunculus repens), common sorrel (Rumex acetosa) and lesser stitchwort (Stellaria graminea). Other species include black knapweed (Centaurea nigra), marsh pennywort (Hydrocotyle vulgaris), greater bird's-foot trefoil (Lotus uliginosus), water mint (Mentha aquatica) and redshank (Polygonum persicaria). Some areas have scattered to densely scattered alder. The east has false oat-grass with scattered sallow (Salix cinerea), birch and alder, with meadowsweet, silverweed (Potentilla anserina), sweet vernal-grass (Anthoxanthum odoratum), purple loosestrife (Lythrum salicaria), and bramble amongst others. The Mermaid stream itself has watercress (Nasturtium officinale), branched bur-reed (Sparganium erectum), water mint and great willowherb (Epilobium hirsutum). Last surveyed in 1996.
Salle Common & Adjacent Land: 1367	Approximately 1.73km west of the PEIR boundary near Cawston	This is a varied site of mixed habitat types, mostly tall fen vegetation but also including an area of scrub and woodland with mature trees. It is 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. The majority of the site is tall fen with predominantly common reed (Phragmites australis), marsh horsetail (Equisetum palustre), great willowherb (Epilobium hirsutum), and sedges (Carex spp.). In the north-west corner there is a continuous cover of neutral scrub, predominantly alder (Alnus glutinosa) and willow (Salix spp.). Stands of mature trees mostly black poplar (Populus nigra) and alder form a strip running south from the northern border. Part of the site is registered common land.
Cawston Wood: 1368	Approximately 50 metres north-west of the PEIR boundary near Cawston	This site consists of an area of oak (Quercus robur) 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. The majority of the site is oak dominated with occasional silver birch (Betula pendula), downy birch (Betula pubescens) and rowan (Sorbus aucuparia) understorey with a frequent and mature shrub layer of hawthorn (Crataegus monogyna), elder (Sambucus nigra) and locally frequent holly (Ilex aquifolium). There is a good

CWS Name and Number	Distance and Direction from PEIR boundary	Description
		regeneration through the wood, a good age structure and dead wood content. The ground floor is scattered in some areas but consists of dense bramble (Rubus fruticosus) or bracken (Pteridium aquilinum) and bluebell (Hyacinthoides non-scripta) where it occurs. Nettle (Urtica dioica) is frequent at the edges. The plantation through the centre of the wood is dominated by dense, fairly young larch (Larix decidua) and Scot's pine (Pinus sylvestris) with scattered, intermixed rowan and birch (Betula spp.) over patches of bracken and bluebell with bramble and honeysuckle (Lonicera periclymenum). Last surveyed in 1996.
Newhall Wood: 1370	Approximately 1.33km south-west of the PEIR boundary near Cawston	In the north of this site is a mature oak (Quercus robur) dominated woodland exhibiting a very good age structure and regeneration. Ash (Fraxinus excelsior) is occasional while in some areas particularly mature bird cherry (Prunus padus) forms an understorey. The shrub layer is generally mature and diverse with occasional elder (Sambucus nigra), hazel (Corylus avellana), hawthorn (Crataegus monogyna) and wych elm (Ulmus glabra). Rhododendron (Rhododendron ponticum) is present in parts of the wood. There are a few coppiced hazel, bird cherry and field maple (Acer campestre) to the south and at the edges. The ground flora is non-existent where bird cherry is particularly dense. Dog's mercury (Mercurialis perennis) is the most common cover to the north of the wood with patches of ramsons (Allium ursinum) and bluebell (Hyacinthoides non-scripta) and patchy bracken (Pteridium aquilinum). Bluebell covers much of the southern part of the wood. Other species present include frequent red campion (Silene dioica), ground-ivy (Glechoma hederacea) and cleavers (Galium aparine) with occasional male fern (Dryopteris filix-mas), wood anemone (Anemone nemorosa) and enchanter's-nightshade (Circaea lutetiana). 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 with frequent bluebell and climbing corydalis (Corydalis claviculata) and occasional male fern and creeping soft-grass (Holcus mollis). There are some patches of shrubs with frequent bird cherry and occasional hawthorn and elder with several patches of interplanted oak and ash. There is a central area of fairly young larch with some intermixed bird cherry over a similar ground flora to the rest of the site. In the centre of this is a small area of soft rush (Juncus effusus) and compact rush (Juncus conglomeratus), foxglove (Digitalis purpurea) and red campion. Last surveyed in 1996.
Blackbridge Wood: 1371	Approximately 5 metres west of the PEIR boundary near Oulton Street	The north eastern part of this site is a relatively dense woodland of mature oak (Quercus robur) with ash (Fraxinus excelsior) and beech (Fagus sylvatica), with a dense understorey of sycamore (Acer pseudoplatanus) and in places ash and silver birch (Betula pendula). There are a few intermixed areas of Scot's pine (Pinus sylvestris) plantation. Rhododendron (Rhododendron ponticum) is locally present. The ground flora is dominated by dense bramble (Rubus fruticosus) and bracken (Pteridium aquilinum) with honeysuckle (Lonicera periclymenum), male fern (Dryopteris filix-mas), red campion (Silene dioica) and occasional nettle (Urtica dioica), particularly at the edges. There is a good age structure and vegetation

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		to the wood. A mixture of oak and ash with some mature Scot's pine occupies the north eastern area. The shrub layer consists of hawthorn (Crataegus monogyna), hazel (Corylus avellana) and snowberry (Symphoricarpos rivularis). Sycamore is also frequent. The ground flora consists of abundant bramble (Rubus fruticosus) and red campion with locally frequent dog's mercury (Mercurialis perennis) with wood avens (Geum urbanum) and herb Robert (Geranium robertianum). To the middle of the site is mature ash dominated woodland with a frequent silver birch understorey. Mature oaks are locally occasional with similar ground flora. The south west of the site is dense woodland in a shallow depression which is more neutral in character, dominated by a fairly mature ash canopy with an understorey of frequent alder (Alnus glutinosa). There are a few coppiced hazel, sycamore, ash and alder. There is a particularly dense shrub layer of bird cherry (Prunus padus) with occasional hazel, mature rhododendron and elder (Sambucus nigra). The ground flora is similar to the western area. Dense grey willow and alder dominated carr in a shallow depression which was difficult to fully survey due to access problems. Alder becomes more dominant towards the south-east with increasing ash and birch. The woodland is particularly wet and boggy with some areas of standing water. The ground flora is dominated by common reed (Phragmites australis) with frequent iris (Iris pseudacorus) and red campion. Centrally placed in the site is a large, clear lake with a silty substrate. There is no discernible aquatic flora and marginal vegetation is limited to a small clump of common reed and rarely iris. It has an unusual feature in that scattered alder stretches out into the water at various places around the edges. Last surveyed in 1996.
Heydon Park: 1372	Approximately 220 metres west of the PEIR boundary near Saxthorpe	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. There are two lakes. The majority of the site is scattered mature horse chestnut (Aesculus hippocastanum) with oak, copper beech (Fagus purpurea) and common lime (Tilia x vulgaris). Mature hawthorn (Crataegus monogyna) is occasional. The underlying neutral grassland is dominated by Yorkshire fog (Holcus lanatus), perennial rye-grass (Lolium perenne perenne), cock's-foot (Dactylis glomerata) and less frequently crested dog's-tail (Cynosurus cristatus), and smaller cat's-tail (Phleum pratense bertolonii). Two other areas are dominated by rough meadow grass (Poa trivialis) with meadow foxtail (Alopecurus pratense). The woodland areas are mainly ash dominated. Ground flora includes, amongst others, red campion (Silene dioica), cleavers (Galium aparine), ground-ivy (Glechoma hederacea), enchanter's-nightshade (Circaea lutetiana), and wood avens (Geum urbanum). To the west is sycamore (Acer pseudoplatanus) and beech dominated over dense bramble (Rubus fruticosus) and rhododendron (Rhododendron ponticum). There are some areas of sweet chestnut (Castanea sativa) and hazel coppice. The northern lake has no vegetation except for some common reed (Phragmites australis). The southern lake only has occasional water forget-me-not (Myosotis scorpioides), common reed, and bittersweet (Solanum dulcamara). The lakes are overhung by alder (Alnus glutinosa) in places. Last surveyed in 1996.

CWS Name and Number	Distance and Direction from PEIR boundary	Description
Brake Hills Plantation & Carman's Belt: 1373	Approximately 520 metres south-west of the PEIR boundary near Cawston	This site is a relatively complex mix of oak (Quercus robur) and ash (Fraxinus excelsior) dominated woodland with Scot's pine (Pinus sylvestris) 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 (Rubus fruticosus) with dog's mercury (Mercurialis perennis), wood avens (Geum urbanum), ivy (Hedera helix) and primrose (Primula vulgaris). Further south is additional mature Scot's pine and common lime (Tilia x vulgaris), with planted beech (Fagus sylvatica), over a poorly developed undergrowth of bramble, garlic mustard (Alliaria petiolata), cock's-foot (Dactylis glomerata) and dwarf elder (Sambucus ebulus). Brake Hills plantation is a mature oak dominated woodland with occasional horse-chestnut (Aesculus hippocastanum) and a dense sycamore (Acer pseudoplatanus) understorey. The shrub layer includes frequent bird cherry (Prunus padus) which is dense in areas with occasional hazel (Corylus avellana) and, less frequently, holly (Ilex aquifolium). The ground flora consists of bluebell (Hyacinthoides non-scripta) with patches of dog's mercury and bramble and ramsons (Allium ursinum). Other frequently occurring species include male-fern (Dryopteris filix-mas), ground-ivy (Glechoma hederacea), bracken (Pteridium aquilinum) and honeysuckle (Lonicera periclymenum). There is a small area of alder coppice over frequent nettle (Urtica dioica), cleavers (Galium aparine) and common figwort (Scrophularia nodosa). Sallow (Salix cinerea) is an occasional shrub. 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 dense blackthorn (Prunus spinosa), hawthorn, some of which is mature, and hazel. Sycamore forms an occasional understorey. The ground flora is dominated by bramble with abundant cleavers, frequent dog's mercury, ivy and nettle, wood avens and red campion. Scot's Pine becomes occasional further north. To the middle of Carman's Belt is an area of conifers with western hemlock-spruce (Tsuga heterophylla) and wild birch. The ground flora is similar to the rest except it is more indicative of disturbance with frequent nettle and false oat-grass (Arrhenatherum elatius). Brakehills plantation is a mature oak and horse-chestnut dominated woodland with a dense sycamore understorey with bluebell, dog's mercury and ramsons as the ground flora. Last surveyed in 1996.
Harold's Grove: 1374	Approximately 1.88km west of the PEIR boundary near Saxthorpe	This site is a coppice with standards woodland surrounded by arable land. The canopy is dominated by oak (Quercus robur), beech (Fagus sylvatica), horse-chesnut (Aesculus hippocastanum), sycamore (Acer pseudoplatanus) and ash (Fraxinus excelsior). The understorey is hazel (Corylus avellana), holly (Ilex aquifolium), elder (Sambucus nigra) and sycamore saplings. The ground flora is scattered bramble (Rubus fruticosus), honeysuckle (Lonicera periclymenum), mosses, red campion (Silene dioica), ferns (Dryopteris spp.), nettle (Urtica dioica), primrose (Primula vulgaris) and lords-and-ladies (Arum maculatum). (Based on the 1985 habitat survey (NWT))

CWS Name and Number	Distance and Direction from PEIR boundary	Description
Lawn & Leechpit Plantations: 1377	Approximately 220 metres east of the PEIR boundary near Oulton	This site is a broad-leaved semi-natural coppice with standards woodland. The woodland is dissected by Hall Road. The woodland has different characters on either side. The majority of the west of the site is oak (Quercus robur), sycamore (Acer pseudoplatanus), sweet chestnut (Castanea sativa) and alder (Alnus glutinosa) in the wetter areas near the dyke. Yew (Taxus baccata) and exotic firs are occasional. The understorey is sweet chestnut, elder (Sambucus nigra) and hazel (Corylus avellana). The ground flora consists of autumn crocus (Crocus nudiflorus), daffodils (Narcissus spp.), ground-ivy (Glechoma hederacea), red campion (Silene dioica), dog's mercury (Mercurialis perennis), wood avens (Geum urbanum), lords-and-ladies (Arum maculatum) herb-Robert (Geranium robertianum), with areas of nettle (Urtica dioica), and brambles (Rubus fruticosus agg.). The southern end is semi-mature oak plantation with a good ground flora. To the extreme south is a small unimproved marshy grassland with a good diversity of herbs and grasses including marsh-marigold (Caltha palustre) with lots of rushes (Juncus sp.), several species of water-crowfoots (Ranunculus spp.), fool's water-cress (Apium nodiflorum), water-cress (Nasturtium officinale), water mint (Mentha aquatica) and marsh willowherb (Epilobium palustre). On the eastern side of the road is dominated by mature oak, with occasional beech, birch and sweet chestnut. The north has been extensively underplanted with young oak and beech. Here the understorey is scattered rhododendron (Rhododendron spp.) bushes and sweet chestnut saplings. The ground flora includes ferns (Dryopteris spp.), ground-ivy and nettle but is dominated by bracken (Pteridium aquilinum). There is a small strip of woodland characterised by its sycamore canopy. *Based on the 1985 habitat survey (NWT).
Warren House Lake: 1378	Approximately 970 metres east of the PEIR boundary near Cawston	A lake with emergent vegetation surrounded by a thin belt of neutral, deciduous woodland. Both the lake and adjacent marginal woodland are at the centre of a large coniferous plantation. The lake has little aquatic vegetation, but is almost completely surrounded by a fringe of predominantly common reed (Phragmites australis). A small wooded island on the lake is now almost connected to the 'mainland' as the channel is silted up. Overflow into the lower lake is over a small series of 'landscaped' waterfalls. Woodland fringes the lake and varies in character but in general the canopy is dominantly alder (Alnus glutinosa) and birch (Betula spp.) with saplings as the dominant understorey. Rhododendron (Rhododendron spp.) bushes are also present. Ground flora includes woodsage (Teucrium scorodonia), wood avens (Geum urbanum), ground-ivy (Glechoma hederacea), red campion (Silene dioica), herb-Robert (Geranium robertianum), dog's mercury (Mercurialis perennis), honeysuckle (Lonicera periclymenum), bramble (Rubus fruticosus agg.) and dryopteris fern (Dryopteris spp.). On the east side of the lake, the wood fringe is very thin, consisting of predominantly birch trees, with some alder. The southern fringe is conspicuous by the presence of mature yew (Taxus baccata) trees. The thicker western fringe is more interesting, being larger, and oak (Quercus robur) is found in the canopy. The island is densely covered with birch, alder and rhododendrons. Willow (Salix spp.) shrub is also present on the banks, also patches on the main lake banks as well. To the north-west is an extension of the woodland, but this has been planted up with poplars (Populus spp.).

CWS Name and Number	Distance and Direction from PEIR boundary	Description
		Bramble is the dominant ground flora. The northern end extreme of the woodland is pure birch (coppice and young saplings up to 20-30 years old). This marshy area has bramble and honeysuckle as the ground flora. The dyke contains fool's water-cress (Apium nodiflorum) and bittercress (Cardamine spp.). (Based on the 1985 habitat survey (NWT))
Long Hollands, Clump & Belt: 1379	Approximately 1km east of the PEIR boundary near Oulton Street	The site comprises woodland to the south of Blickling park, bounded by arable land on the west, east and south sides. The northern area known as Long Hollands is characterised by a canopy of very mature trees, including some magnificent beech (Fagus sylvatica) and oaks (Quercus spp.). Occasional trees in the canopy are sweet chestnut (Castanea sativa) and birch (Betula spp.). Semi-mature sycamore (Acer pseudoplatanus) trees are also present in the canopy. The understorey consists of birch and sycamore saplings along with hawthorn (Crataegus monogyna) and holly (Ilex aquifolium). The ground flora is predominantly absent under the beech trees, especially near the road, but becomes dominated by bracken (Pteridium aquilinum) in patches. In general the ground flora includes bramble (Rubus fruticosus), honeysuckle (Lonicera periclymenum), woodsage (Teucrium scorodonia), bracken, red campion (Silene dioica), ground-ivy (Glechoma hederacea), wood avens (Geum urbanum), dog's mercury (Mercurialis perennis), ferns (Dryopteris spp.) and mosses. On moving south, the area becomes dominated by sycamore, in both the canopy and understorey. To the west are two areas of coniferous plantation, one called Jack Bell's Grove. Near these are small areas of mature oak trees with an understorey of holly and hazel. Bluebells (Hyacinthoides non-scripta) and primrose (Primula vulgaris) are found amongst the ground flora. Moving south towards Oulton Belt this area is similar in composition to that described above, but included in the canopy are occasional sycamore and Scot's pine (Pinus sylvestris). Oulton Belt has a canopy co-dominated by mature oak and sweet chestnut, sycamore is also present. Sycamore coppice and elder form the understory. Ground flora is dominated almost totally by bramble with some red campion. Further south the canopy has the additional odd birch. Understorey consists of holly, sycamore and sweet chestnut coppice and birch saplings in patches. Ground flora includes bluebell, red campion, honeysuckle, woodsage, ground-ivy, bramble and ferns. (Based on the 1985 habitat survey (NWT))
Eaton Common: 1456	Approximately 1.9km north of the PEIR boundary near the onshore substation area	Lying adjacent to the River Yare, this site comprises predominantly neutral grassland, with marshy grassland depressions and patches of broadleaved woodland at the eastern and western ends. The site forms part of a connecting string of CWSs and Local Nature reserves along the River Yare and its floodplain. In the drier areas, the grassland is quite tussocky with abundant cock's-foot (Dactylis glomerata), false oat-grass (Arrhenatherum elatius), Yorkshire fog (Holcus lanatus) and perennial ryegrass (Lolium perenne). Meadow foxtail (Alopecurus pratensis), red fescue (Festuca rubra) and timothy (Phleum pratense) are locally occasional. Notable forb species here include lady's bedstraw (Galium verum), thyme-leaved speedwell

CWS Name and Number	Distance and Direction from PEIR boundary	Description
		(Veronica serpyllifolia), common knapweed (Centaurea nigra), yellow rattle (Rhinanthus minor), common meadow rue (Thalictrum flavum) and meadow saxifrage (Saxifraga granulata). Damper ground in the east supports clumps of soft rush (Juncus effusus), hard rush (Juncus inflexus) silverweed (Argentina anserina), lesser stitchwort (Stellaria graminea), occasional common mouse-ear (Cerastium fontanum), greater willowherb (Epilobium hirsutum), red bartsia (Odontites vernus) and horsetail (Equisetum spp.). These wetter conditions continue down beyond a pond where meadowsweet (Filipendula ulmaria) becomes abundant. Blanketing the steep sides of the pond is abundant black sedge (Carex nigra), greater pond sedge, lesser pond sedge (Carex acutiformis), greater reed mace (Typha latifolia) and common fleabane (Pulicaria dysenterica). Emergents include Ivy-leaved duckweed (Lemna trisulca). A species-rich ditch runs along the northeastern boundary. Sedges, rushes and reeds grow abundantly alongside, and water figwort (Scrophularia auriculata) is of note. Floating sweet-grass (Glyceria fluitans), water-starwort (Callitriche sp.), water violet (Hottonia palustris), frogbit (Hydrocharis morsus-ranae), common duckweed (Lemna minor) and water plantain (Alisma plantago-aquatica) are all found in the shallows. Branched bur-reed (Sparganium erectum) and a small patch of early marsh orchids (Dactylorhiza incarnate) have been recorded on the margins. The boundary between the grassland and woodland is transitional patchy scrub of blackthorn (Prunus spinosa), hawthorn (Crataegus monogyna) and tall ruderals. The areas of broadleaved woodland predominantly contain alder (Alnus glutinosa), ash (Fraxinus excelsior), willow (Salix sp.), oak (Quercus robur), and elder (Sambucus nigra). The northern section of woodland has a herb layer characterised by frequent stinging nettles, brambles and dog's mercury (Mercurialis perennis), as well as red campion (Silene dioica) and moschatel (Adoxa moschatellina). In damp areas of woodland, small tussocks of remote sedge (Carex remota) occur amongst common reed (Phragmites australis), valerian (Valeriana officinalis), hemp agrimony (Eupatorium cannabinum), gypsywort (Lycopus europaeus), purple loosestrife (Lythrum salicaria); and rare skullcap (Scutellaria galericulata). The River Yare forms the southern boundary to the site and for the most part holds gently sloping banks of greater pond sedge (Carex riparia) and common reed. Occasional yellow water lily (Nuphar lutea) and locally frequent arrowhead (Sagittaria sagittifolia) flower in the river. Orange balsam, (Impatiens capensis) fool's watercress (Apium nodiflorum) and watercress (Nasturtium officinale) grow on the bank. In the wet margins of the river, just north of a weir, reed canary-grass (Phalaris arundinacea) is found and in the initially shallow and calmer water, arrowhead floats. North of this, locally abundant tall reed sweet-grass (Glyceria maxima) and a clump of common club-rush (Schoenoplectus lacustris) emerge from the water. Last surveyed in 2017.
Marston Marshes: 1459	Approximately 2km north of the PEIR boundary near the onshore substation area	This site comprises floodplain grazing marshes on the northern side of the R.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

CWS Name and Number	Distance and Direction from PEIR boundary	Description
		is in places extremely wet with seasonal standing water. The grass sward is dominated by cock's foot (Dactylis glomerata), meadow foxtail (Alopecurus geniculatus), plicate sweet-grass (Glyceria plicata) and Yorkshire-fog (Holcus lanatus). The herb cover consists mainly of creeping buttercup (Ranunculus repens), nettles (Urtica dioica), common chickweed (Stellaria media), and ribwort plantain (Plantago lanceolata). There are a variety of other species present but they are very occasional or in a few dispersed clumps such as hawthorn (Crataegus monogyna) scrub. The drier strip of improved grass along the eastern edge of the site contains a good variety of species though this is probably due, in part, to the soil having been disturbed in some places. Herbs account for most of the ground cover, the main species being angelica (Angelica sylvestris), mugwort (Artemesia vulgaris), daisy (Bellis perennis), ribwort plantain, creeping cinquefoil (Potentilla repens), red dead-nettle (Lamium purpureum) and creeping buttercup. Grasses are cock's foot, Yorkshire fog and wall barley (Hordeum murinum). Also at the eastern end of the site are two small blocks of alder (Alnus glutinosa) woodland with groundflora comprising mainly meadowsweet (Filipendula ulmaria) and ivy (Hedera helix). Also present are yellow iris (Iris pseudacorus), butterbur (Petasites hybridus), wood avens (Geum urbanum) and water mint (Mentha aquatica). Towards the centre of the site there is a loosely planted aspen (Populus tremula) plantation. The groundflora is similar to the other areas of woodland but also includes ragged robin (Lychnis flos-cuculi), enchanter's night-shade (Circaea lutetiana), meadow vetchling (Lathyrus pratensis) meadow vetchling and brooklime (Veronica beccabunga). Just to the south of this is a dense are of scrub comprising blackthorn (Prunus spinosa), hawthorn, gorse (Ulex europaeus), brambles (Rubus fruticosa) and elder (Sambucus nigra). Occasional saplings of ash (Fraxinus excelsior), oak (Quercus robur), aspen and horsechestnut (Aesculus hippocastanum) are also present. Last surveyed in 1996.
Mouse Wood: 2050	Approximately 1.16km west of the PEIR boundary near Weston Green	An ancient, replanted woodland which is now predominantly a commercially managed conifer plantation surrounded mainly by arable farmland. Privately owned. A public footpath runs along the northern boundary, leading into a narrow hedged lane. The wood is enclosed by a hedgerow and a central ride bisects it. The wood slopes gently towards the northern end; soils are light and sandy. There is evidence of past management with coppice regrowths of sweet chestnut. The plantation canopy is uniform and even-aged in structure, predominantly of Scots pine (Pinus sylvestris), with little or no understorey. The shrub layer is poorly developed and consists predominantly of elder (Sambucus nigra). Along the edges of the central ride and at the edge of the plantation woodland are belts of native broadleaved species, some of which have been underplanted. Predominant species are oak (Quercus robur), sycamore (Acer pseudoplatanus), silver birch (Betula pendula) and rowan (Sorbus acuparia), with occasional sweet chestnut (Castanea sativa). Beech (Fagus sylvatica) have been planted along the edges of the ride. A large proportion of the wood is heavily shaded, particularly where beech have been underplanted. The ground flora is dominated by bracken (Pteridium aquilinum) and bramble (Rubus fructicosus agg.), with abundant bluebell (Hyacinthoides non-scripta) and red campion

CWS Name and Number	Distance and Direction from PEIR boundary	Description
		(Silene dioica). There are several large patches of wood-sorrel (Oxalis acetosella). Other species of interest include foxglove (Digitalis purpurea), herb-Robert (Geranium robertianum), dog's mercury (Mercurialis perennis), three-nerved sandwort (Moehringia trinervia), selfheal (Prunella vulgaris) and hedge woundwort (Stachys sylvatica). A small area at the southeastern corner of the site has a lower tree density and here the ground flora includes yorkshire-fog (Holcus lanatus), cock's-foot (Dactylis glomerata) and false oat-grass (Arrhenatherum elatius), with bluebell, red campion, bracken and broom (Cytisus scoparius ssp. scoparius). Wood spurge (Euphorbia amygdaloides) occurs here on the edge of the wood. The wood is enclosed by a hedgerow which includes small-leaved lime (Tilia cordata) coppice-regrowth. The eastern and western hedgerows are species-rich, with hazel (Corylus avellana), hawthorn (Crataegus monogyna), field maple (Acer campestre), crab apple (Malus sylvestris), oak, ash (Fraxinus excelsior), blackthorn (Prunus spinosa), small-leaved lime and honeysuckle (Lonicera periclymenum). There is an earthbank along the northern boundary. Last surveyed in 1997.
Home & Lady's Meadows, Mannington Hall: 2074	Approximately 430 metres south-east of the PEIR boundary near Little Barningham	Part of the Mannington Estate, Home Meadow is an area of marshy grassland and tall herb fen in a shallow flat-bottomed valley, with dryer grassland gently sloping to the south-west of a dissecting stream/dyke. The adjoining Lady Meadow is mainly dry rough tussocky grassland, also with wetter areas to the north of the stream. The bottom of the valley remains wet throughout the year, being fed from a straightened dyke / stream (entering from Lady's Wood to the west). A network of parallel linear ditches crosses the site and it maintains good public access with a boardwalk circuiting the lower part of Home Meadow, with a small pond and dipping platform (and larger pond beyond) at its western end. The largest area of Home Meadow is best described as fen and remains waterlogged. Areas are dominated by lesser pond sedge (Carex acutiformis), meadowsweet (Filipendula ulmaria) and Angelica (Angelica sylvestris). Other species of note include purple loosestrife (Lythrum salicaria), common valerian (Valeriana officinalis), great willowherb (Epilobium hirsutum), greater tussock sedge (Carex paniculata), marsh marigold (Caltha palustris), watermint (Mentha aquatic), ragged robin (Silene flos-cuculi), marsh orchid (Dactylorhiza sp.), meadow vetchling (Lathyrus pratensis), hemp agrimony (Eupatorium cannabinum), marsh thistle (Cirsium palustre), lesser spearwort (Ranunculus flammula), branched bur-reed (Sparganium erectum), greater bird's-foot trefoil (Lotus pedunculatus), soft rush (Juncus effusus), reed sweet-grass (Glyceria maxima), common fleabane (Pulicaria dysenterica), fen bedstraw (Galium uliginosum), gypsywort (Lycopus europaeus), common hemp-nettle (Galeopsis tetrahit), brown sedge (Carex disticha) and hairy sedge (Carex hirta). There are no hard boundaries between the areas of fen and marshy grassland. The best areas of marshy grassland have common spotted (Dactylorhiza fuchsia) and marsh orchids, marsh marigold, Angelica, cuckoo flower (Cardimine pratense), watermint, bugle (Ajuga reptans), meadow buttercup (Ranunculus acris), common valerian, yellow rattle (Rhianthus minor), tormentil (Potentilla erecta), marsh thistle, marsh bedstraw (Galium palustre), blunt-flowered rush (Juncus subnodulosus), sharp-flowered rush (Juncus acutiflorus), soft rush and hairy sedge. These marshy

CWS Name and Number	Distance and Direction from PEIR boundary	Description
		grassland areas are also rich in invertebrates, with a diversity of dragonflies, damselflies, butterflies, bees and hoverflies. Encroaching reedbed at the north-east end of Home Meadow is rich with ragged robin, marsh marigold and devil's-bit scabious (Succisa pratensis) along it's edge, and the reedbed supports sedge warblers, water rail, reed buntings, woodcock and common snipe. The higher ground to the south of the site is dry rough grassland with species including tufted hair-grass (Deschampsia cespitosa), tufted vetch (Vicia cracca), black knapweed (Centaurea nigra), cow parsley (Anthriscus sylvestris), red campion (Silene dioica), cock's foot (Dactylis glomerata), meadow foxtail (Alopecurus geniculatus), lesser stitchwort (Stellaria graminea), Yorkshire fog (Holcus lanatus), creeping thistle (Cirsium arvense), yarrow (Achillea millefolium) and hogweed. The ponds both contain large areas of Crassula, as well as rigid hornwort (Myriophyllum sp.), water soldier (Stratiotes aloides), Nuttall's waterweed (Elodea nuttallii) in the pond- dipping pond and bogbean (Menyanthes trifoliate), white water lily (Nymphaea alba), and bulrush (Typha spp.). in the larger. They also support large numbers of amphibians and invertebrates, and birds in winter A thin border of woodland (oak (Quercus robur), willow (Salix sp.), birch (Betula sp.) and alder (Alnus glutinosa)) fringes the pond on Lady Meadow and at the eastern end of Home Meadow is an area of alder dominated wet carr woodland. There are several small areas on site dominated by nettle (Urtica dioica), hogweed (Heracleum sphondylium), docks and other ruderals. Islands of blackthorn (Prunus spinosa) and willow scrub support bullfinch, goldfinch, long-tailed tit, common whitethroat and garden warbler. Last surveyed in 2017.
The Cut: 2075	Approximately 1.04km east of the PEIR boundary near Little Barningham	Broad-leaved semi-natural carr woodland bisected by a small tributary stream of the River Bure. The Cut forms part of the Wolterton and Mannington Estate and comprises part of a cluster of CWSs. CWS 1125 is contiguous with the site's southwestern boundary. The woodland is managed predominantly by non-intervention, with a small-scale coppicing programme recently implemented. Coppice-stool regrowths of alder (Alnus glutinosa) are indicative of past management and a small area has been planted up with hybrid black-poplar (Populus x canadensis). A footpath runs along the western boundary providing public access as part of the Mannington Estate countryside walks network. Broad-leaved carr woodland over wet, peaty soils. Alder is dominant, with scattered Salix, birches (Betula), hazel (Corylus avellana) and holly (Ilex aquifolium). Honeysuckle (Lonicera periclymenum) is abundant. Ash (Fraxinus excelsior) is frequent in places, with occasional oak (Quercus robur), and in drier woodland at the southern end birch dominates the canopy. The understorey and shrub layer are diverse and well-developed with dense growth in places. Bird cherry (Prunus padus), hazel and birches are frequent, with vigorous rowan (Sorbus aucuparia) generation and remnant rhododendron (Rhododendron ponticum). Field-rose (Rosa arvensis) is abundant along the western fringes. Mosses are an abundant component of the ground flora and there are dense patches of bramble (Rubus fruticosus agg.). Where the woodland floor is damp, meadowsweet (Filipendula ulmaria), yellow iris (Iris pseudacorus), wild angelica (Angelica sylvestris), enchanter's-nightshade (Circaea lutetiana), broad buckler-fern

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		(Dryopteris dilatata), remote sedge (Carex remota) and pond-sedge (Carex) occur, and bugle (Ajuga reptans) is abundant. Opposite-leaved golden-saxifrage (Chrysosplenium oppositifolium) is frequent on the banks of the stream. Recently coppiced areas support abundant creeping buttercup (Ranunculus repens), with yellow iris, marsh-marigold (Caltha palustris), meadowsweet, great willowherb (Epilobium hirsutum), bugle, bog stitchwort (Stellaria alsine), yellow pimpernel (Lysimachia nemorum), red campion (Silene dioica), herb-Robert (Geranium robertianum) and soft-rush (Juncus effusus). Wood sage (Teucrium scorodonia) and foxglove (Digitalis purpurea) occur on dry, well-drained areas. The southern end of the site is drier, particularly along the western edge, and the shrub layer is more open. The ground flora includes common spotted-orchid (Dactylorhiza fuchsii), primrose (Primula vulgaris), sanicle (Sanicula europaea), greater stitchwort (Stellaria holostea), wood-sorrel (Oxalis acetosella), herb-Robert, dog-violet (Viola), ivy (Hedera helix), hairy brome (Bromus ramosus) and false brome (Brachypodium sylvaticum). A narrow break in the woodland supports tall-herb fen with meadowsweet, yellow iris, reed sweet-grass (Glyceria maxima), rosebay willowherb (Chamerion angustifolium) and marsh thistle (Cirsium palustre), and at the drier eastern end bracken (Pteridium aquilinum) is dominant. Last surveyed in 1998.
Barningham Green Plantation: 2097	Approximately 1.55km west of the PEIR boundary near Little Barningham	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 (Calluna vulgaris) 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. Heath bedstraw (Gallium saxatile) occurs in frequent large mats and field-forget-me-not (Myosotis arvensis) is also frequent. Bramble (Rubus fruticosus agg.) is abundant in this area, as are heath rush (Juncus squarrosus) and sheep's sorrel (Rumex acetosella). Both common gorse (Ulex europeaus) and western gorse (Ulex gallii) are present on this part of the site, along with occasional rhododendron (Rhododendron ponticum). The northern section of the footpath is notably sunken, as well as being damp and shaded by the adjacent woodland. Heather is rare on this section of path and the common species include soft rush (Juncus effusus), foxgloves (Digitalis purpurea) and hedge bedstraw (Galium mollugo). The central hollow, which appears to be a natural feature, contains extensive patches of bare ground, rapidly being colonised by heather. Birch (Betula pendula) seedlings occur in this area and there are frequent stands of common gorse, bracken (Pteridium aquilinum) and bramble. On the north-facing slope of the hollow, field wood rush (Luzula campestris) occurs, as does occasional male fern (Dryopteris filix-mas) and hard rush (Juncus inflexus). 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. The area is largely a mixture of young birch scrub, with some oak (Quercus robur) and open areas, including large patches of bare ground. There is extensive bracken cover on this part

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		of the site and other common species include broad-leaved dock (Rumex obtusifolius), groundsel (Senecio vulgaris), common bent (Agrostis capillaris), redshank (Polygonum persicaria), spear thistle (Cirsium vulgare) and ground ivy (Glechoma hederacea). Wood sage (Teucrium scorodonia) and soft rush are abundant, as are grasses including Yorkshire fog (Holcus lanatus), sheep's fescue (Festuca ovina), annual meadow grass (Poa annua) and cocksfoot (Dactylis glomerata). Heather occurs as a pioneer on bare soil and heath rush is occasional. Also present on bare areas are common ragwort (Senecio jacobaea), coltsfoot (Tussilago farfara) and rosebay willowherb (Chamaenerion angustifolium). To south of the site the footpath is open, with an abundance of flora typical of acid grasslands. The most common species include sheep's sorrel, perforate St John's wort (Hypericum perforatum), greater stitchwort (Stellaria holostea) and ribwort plantain (Plantago lanceolata). Red campion (Silene diocia) and climbing corydalis (Corydalis claviculata) also occur and thyme-leaved speedwell (Veronica serpyllifolia) is rare, being limited to the edges of the path. Last surveyed in 2001.
Holly Woods: 2103	Approximately 1.5km east of the PEIR boundary near Easton	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. Holly Wood is situated to the south of the site, and is largely composed of hazel coppice with standards, dominated by oak (Quercus robur) and sweet chestnut (Castanea sativa), with infrequent ash (Fraxinus excelsior), beech (Fagus sylvatica) and sycamore (Acer pseudoplatanus). There are occasional European larch (Larix deciduas), Douglas fir (Pseudostuga menziesii) and Scot's pine (Pinus sylvestris) specimens, and a number of veteran oak pollards occur in the south-west. The understorey consists of stored hazel (Corylus avellana) coppice, with occasional holly, field maple (Acer campestre) and silver birch (Betula pendula). Along the western edge of the woodland, rhododendron (Rhododendron ponticum) and cotoneaster (Cotoneaster spp.) have been planted as game cover, and honeysuckle (Lonicera periclymenum) and ivy (Hedera helix) are common throughout. The herb layer is dominated by bluebells (Hyacinthoides non-scripta), with broad-buckler fern (Dryopteris dilatata) and male fern (Dryopteris filix-mas) also present. Bramble (Rubus fruticosus agg.), nettle (Urtica dioica) and cleavers (Galium aparine) are abundant in the north, while bracken (Pteridium aquilinum) is common to the west and wild raspberry (Rubus idaeus) and soft rush (Juncus effusus) to the south. The greatest diversity in the herb layer is found along the rides and on the woodland edge. Dominant grasses here include false oat grass (Arrhenatherum elatius), cock's-foot (Dactylis glomerata), rough and smooth meadow-grass (Poa trivialis, Poa pratensis), Yorkshire fog (Holcus lanatus), wood false-brome (Brachypodium sylvatica) and red fescue (Festuca rubra). Forbs include marsh thistle (Cirsium palustre), hoary and ribwort plantain (Plantago media,Plantago lanceolata) herb robert (Geranium robertianum), black medick (Medicago lupulina), agrimony (Agrimonia eupatoria) and foxglove (Digitalis purpurea). Rough Ground forms the northern end of the site. Conifer clearance has resulted in a more open canopy, where spindly silver birch is abundant, with frequent mature hornbeam, occasional sweet chestnut, Norway maple (Acer platanoides), sycamore, rowan (Sorbus

CWS Name and Number	Distance and Direction from PEIR boundary	Description
		aucuparia), field maple, horse chestnut (Aesculus hippocastanum), oak, ash and wild cherry (Prunus avium). Large areas of bare ground in the south-west have been colonised by seedlings of canopy species, while herb species are dominated by foxglove (Digitalis purpurea), red campion (Silene dioica), bluebell, climbing corydalis (Corydalis claviculata), and occasional wood anemone (Anemone nemorosa) and wood sorrel (Oxalis acetosella). Large stands of bracken are present in the north-west. Old Wood, which connects the other two areas of wood, is dominated by exotic coniferous species, including Lawson's cypress (Chamaecyparis lawsoniana), Douglas fir, European larch, Scot's pine, giant fir (Abies grandis), Western hemlock (Tsuga heterophylla) and Western red cedar (Thuja plicata). Broad-leaved species include occasional beech, rowan, silver birch, sycamore and holly. Young self-seeded holly and rowan form the sparse understorey, while herb species include occasional wood sage (Teucrium scorodonia), climbing corydalis, wood dock (Rumex sanguineus), honeysuckle, bluebell, foxglove, wood sorrel, yellow pimpernel (Lysimachia nemorum), with broad-buckler fern, toad rush (Juncus bufonius) and soft rush. Last surveyed in 2004.
Harman's Grove & adj. grassland: 2104	Approximately 290 metres east of the PEIR boundary near Easton	A semi-natural ancient woodland, plus an area of species-rich acid grassland. The woodland is managed as coppice with standards and for pheasant shooting. A large pheasant release pen is present in the centre of the woodland. The standards are dominated by oak Quercus robur and sweet chestnut Castanea sativa. Ash Fraxinus excelsior, field maple Acer campestre, beech Fagus sylvatica, holly Ilex aquifolium and silver birch Betula pendula are occasional, as are standards of English elm Ulmus procera. To the south the canopy is closed, but it is more open to the north. The understorey is composed largely of hazel Corylus avellana, with some stools notable for their size and age. Sweet chestnut coppice is occasional in the understorey, as are hawthorn Crataegus monogyna, dog rose Rosa canina, blackthorn Prunus spinosa and elder Sambucus nigra. European larch Larix decidua has been planted in some areas of the wood. Where the canopy is open, in the north of the site, the ground flora is dominated by dense stands of bramble Rubus fruticosus agg. and bracken Pteridium aquilinum. Bluebell Hyacinthoides non-scripta is frequent throughout the site, covering much of the woodland floor early in the year. In the southern part of the wood and most notably on the woodland edge, the ground flora includes red campion Silene dioica, herb Robert Geranium robertianum and lesser stitchwort Stellaria graminea. Field bindweed Convolvulus arvensis and black bryony Tamus communis occur as climbers in the field layer. Ground ivy Glechoma hederacea is abundant in the southern part of the wood Some areas of the woodland floor appear to have been disturbed and in these areas the ground flora includes creeping thistle Cirsium arvense, creeping buttercup Ranunculus repens, common chickweed Stellaria media, silverweed Potentilla anserina, scentless mayweed Tripleurospermum maritimum, hoary plantain Plantago media, cleavers Galium aparine and nettles Urtica dioica. Grasses common throughout the site include cocksfoot Dactylis glomerata, Yorkshire fog Holcus lanatus, false oat grass Arrhenatherum elatius and occasional perennial rye grass Lolium perenne. The extension comprises a low, rabbit-grazed acid grassland sward between

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		Harman's Grove and a nearby plantation woodland. The grassland features a number of uncommon or declining plant species, including several which are more typically found on sites in the Norfolk/Suffolk Breckland, supporting Cladonia lichens, common cudweed Filago vulgaris, bird's-foot Ornithopus purpusillus, least medick Medicago minima and thyme-leaved sandwort Arenaria serpyllifolia. Last surveyed in 2017.
Old Covert, Wood Lane: 2109	Approximately 1.24km west of the PEIR boundary near Weston Green	A coppice with standards woodland that is not listed on the Ancient Woodland Inventory, although it may have once been part of a larger, ancient woodland. The wood is managed as active coppice and for shooting. The standards are mostly sweet chestnut (Castanea sativa), with frequent sycamore (Acer pseudoplanatus). Oak (Quercus robur) and ash (Fraxinus excelsior) are occasional, but more abundant in the north of the woodland. Field maple (Acer campestre) is rare to occasional throughout the site, as is holly (Ilex aquifolium). European larch (Larix decidua) has been planted in some areas and both silver birch (Betula pendula) and downy birch (Betula pubescens) occur rarely. The understorey is composed largely of hazel (Corylus avellana), especially in the north of the woodland. Other species found in the understorey, frequently as coppice stools, include hawthorn (Crataegus monogyna), elder (Sambucus nigra) and ash. Recent coppicing has largely taken place in the north of the wood, creating a more open canopy. The herb layer in this part of the wood is dominated by dog's mercury (Mercurialis perennis), with occasional wood avens (Geum urbanum), red campion (Silene dioica), lords and ladies (Arum maculatum) and herb robert (Geranium robertianum). Ground ivy (Glechoma hederacea) is also frequent. Early in the year bluebells (Hyacinthoides non-scripta) dominate the ground flora throughout the wood. Lady fern (Athyrium filix-femina) is occasional throughout the wood and male fern (Dryopteris filix-mas) is frequent. Both honeysuckle (Lonicera periclymenum) and ivy (Hedera helix) occur as climbers in the field layer. To the south of the wood, the canopy is more closed and the understorey dense. The herb layer here is dominated by bramble (Rubus fruticosa agg.), nettle and rosebay willowherb (Chamaenerion angustifolium). Herb robert is occasional, as are both marsh thistle (Cirsium palustre) and creeping thistle (Cirsium arvense). The most frequent grasses found in open areas of the woodland are annual meadow grass (Poa annua), creeping bent (Agrostis stolonifera), red fescue (Festuca rubra) and false oat grass (Arrhenatherum elatius). Yorkshire fog (Holcus lanatus) and common bent (Agrostis tenuis) also occur, as does soft rush. Herbs common in the more open areas of the wood and on the edges include hedge woundwort (Stachys sylvatica), lesser stitchwort (Stellaria graminea), black knapweed (Centaurea nigra) and creeping buttercup (Ranunculus repens). Last surveyed in 2003.
Jennis' Wood & Dryhill Plantation: 2113	Approximately 730 metres north-east of the PEIR boundary near Ringland	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

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		in the woodland is a line of veteran small-leaved lime trees (Tilia cordata), including some ancient coppice stools, which are present along part of the northern perimeter of the wood. Elsewhere, the canopy is composed predominantly of sycamore (Acer pseudoplatanus), with some oak (Quercus robur) and young silver birch (Betula pendula), and occasional beech (Fagus sylvatica) and sweet chestnut (Castanea sativa). A sparse shrub layer consists of elder (Sambucus nigra) and hawthorn (Crataegus monogyna), with new bramble (Rubus fruticosus) growth abundant in many areas. Elsewhere, the shrub layer is generally poorly developed or absent, particularly in the eastern part of the wood. The ground flora is variable, with abundant climbing corydalis (Corydalis claviculata) and bracken (Pteridium aquilinum) in the north and west, and dense nettle (Urtica dioica) in the south-east corner. There are extensive areas of bare earth and woodland litter, interspersed with stands of bluebell (Hyacinthoides non-scripta) and bracken on the heavily shaded eastern slope. Other species present in small numbers include foxglove (Digitalis purpurea), red campion (Silene dioica), green alkanet (Pentaglottis sempervirens), broad-leaved dock (Rumex obtusifolius), sorrel dock (Rumex acetosa), wood avens (Geum urbanum), hogweed (Heracleum sphondylium) and ground ivy (Glechoma hederacea). Last surveyed in 2004.
Land adjoining Foxburrow Plantation: 2116	Approximately 420 metres west of the PEIR boundary near Weston Green	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 with fool's watercress (Apium nodiflorum). 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 (Juncus effusus) dominates, particularly on the south side. The grassland contains a wide range of herbs, including lady's smock (Cardamine pratensis), great willowherb (Epilobium hirsutum), brooklime (Veronica beccabunga), marsh thistle (Circium palustre), lesser spearwort (Ranunculus flammula) and water chickweed (Myosoton aquaticum), with frequent water-mint (Mentha aquatica) and greater bird's-foot trefoil (Lotus uliginosus). Marsh fern (Thelypteris palustris) and ragged robin (Lychnis flos-cuculi) are occasional. In the drier areas, tufted vetch (Vicia cracca), meadow vetchling (Lathyrus pratensis), bluebell (Hyacinthoides non-scripta), red campion (Silene dioica) and germander speedwell (Veronica chamaedrys) are present. Grasses include false oat-grass (Arrhenatherum elatius) and Yorkshire fog (Holcus lanatus), while other coarse species include creeping thistle (Cirsium arvense) and bracken (Pteridium aquilinum) which grow amongst other vegetation rather than in dense stands. The wet meadow is bounded to the south-west by a low, dry bank on which grows frequent western gorse (Ulex gallii), bracken and goat willow (Salix caprea). Last surveyed in 2004.
Fen Plantation: 2117	Approximately 1.92km west of the PEIR boundary near Honingham	This site is situated on the south bank of the River Tud, and consists of dry to damp semi-natural woodland in the west, becoming increasingly wet towards the eastern end. There are a number of ditches draining the site, the majority of which is second generation poplar plantation. The western end of the site has a diverse canopy,

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		with a mixture of sycamore (Acer pseudoplatanus), ash (Fraxinus excelsior) and alder (Alnus glutinosa). The shrub layer consists mainly of hazel (Corylus avellana) and holly (Ilex aquifolium), with frequent elder (Sambucus nigra). The ground layer consists of a mixture of fen and woodland species, including dog's mercury (Mercurialis perennis), ramsons (Allium ursinum), nettle (Urtica dioica), great horsetail (Equisetum telmateia) and meadowsweet (Filipendula ulmaria). The major part of the site is poplar plantation, with a dense shrub layer consisting mainly of guelder rose (Viburnum opulus), grey willow (Salix cinerea), rowan (Sorbus aucuparia) and alder (Alnus glutinosa). The ground flora is dominated by purple small-reed (Calamagrostis canescens) and dense patches of lesser pond sedge (Carex acutiformis). Herb Paris (Paris quadrifolia) also occurs in places. Last surveyed in 2004.
Caistor St Edmund Roman Town: 2120	Approximately 650 metres east of the PEIR boundary near the onshore substation area	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 on the adjacent banks. Species of interest include the nationally scarce clustered clover (Trifolium glomeratum), fiddle dock (Rumex pulcher), hoary plantain (Plantago media), common calamint (Clinopodium ascendens), viper's bugloss (Echium vulgare), fern grass (Catapodium rigidum), small scabious (Scabiosa columbaria), wild clary (Salvia verbenaca), downy oat grass (Avenula pubescens), crested hair grass (Koeleria macrantha) and wallpepper (Sedum acre). Milk thistle (Silybum marianum) is frequent on the south rampart. Last surveyed in 2004.
land adjoining River Tud: 2128	The southern and western edges of this CWS directly border the PEIR boundary, near Easton	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, dominated by Yorkshire fog (Holcus lanatus), with frequent rough meadow-grass (Poa trivialis), cock's-foot (Dactylis glomerata), stinging nettle (Urtica dioica), creeping buttercup (Ranunculus repens) and broad-leaved dock (Rumex obtusifolius). The wetter areas north of the main drain include frequent hard rush (Juncus inflexus). At the east end of the site and to the north of the main ditch, the ground is damp and marshy, and the vegetation is dominated by very large stands of greater pond sedge, to the exclusion of almost all other vegetation. Some lengths of ditch have become overgrown and are dominated by greater and lesser pond sedge, reed canary-grass and reed sweet-grass, but elsewhere the vegetation in the ditches and along the banks is generally species-rich. Herb species in damp ground along the edges of the ditches include occasional lady's smock (Cardamine pratensis), fen bedstraw (Galium uliginosum), greater bird's-foot trefoil (Lotus pedunculatus), water figwort (Scrophularia auriculata), perforate St John's wort (Hypericum perforatum), ragged robin (Lychnis flos-cuculi) and southern marsh orchid (Dactylorrhiza praetermissa). Finer grasses include occasional yellow oat-grass (Trisetum flavescens), crested dog's-tail (Cynosurus cristatus), meadow foxtail (Alopecurus pratensis), sweet vernal grass

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		(Anthoxanthum odoratum) and smaller cat's-tail (Phleum pratense ssp bertolonii). Sedges and rushes include frequent hard rush, with occasional pendulous sedge (Carex pendula), glaucous sedge (Carex flacca), hairy sedge (Carex hirta), false-fox sedge (Carex otrubae), jointed rush (Carex articulatus) and common spike rush (Eleocharis palustris). The ditches contain occasional water-cress (Rorippa nasturtium-aquaticum), celery-leaved crowfoot (Ranunculus sceleratus), spiked water-milfoil (Myriophyllum spicatum), water plantain (Alisma plantago-aquatica), water forget-me-not (Myosotis scorpioides) and brooklime (Veronica beccabunga). Trees and shrubs along the ditch edges include very occasional goat willow (Salix caprea), alder (Alnus glutinosa) and blackthorn (Prunus spinosa). Last surveyed in 2004.
Beckhithe Meadow: 2132	Approximately 1.99km north-east of the PEIR boundary near Hethersett	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 such as ragged robin (Lychnis flos-cuculi), fleabane (Pulicora dysenterica), great horsetail (Equisetum telateria) and bog stitchwort (Stellaria alsine). Common spotted orchid (Dactylorhiza fuchsia) is frequent. Meadow foxtail (Alopecurus pratensis) is abundant across this part of the site, as are false oat grass (Arrhenatherum elatius) and cocksfoot (Dactylis glomerata). Sweet vernal grass (Anthoxanthum odoratum) is common and tufted hair grass (Deschampsia cespitosa) is also present. Soft rush (Juncus effusus) and blunt-flowered rush (Juncus subnodulosus) also occur in the damper areas. Cuckoo flower (Cardamine pratensis) is frequent in the damper areas and hairy sedge (Carex hirta) occurs throughout the damp grassland, as does marsh thistle (Cirsium palustre). Other herbs associated with the damp grassland include abundant greater birdsfoot trefoil (Lotus pedunculatus), great willowherb (Epilobium hirsutum), meadow vetchling (Lathyrus pratensis), water mint (Mentha aquatica), gipsywort (Lycopus europaeus), common vetch (Vicia sativa), water figwort (Scrophularia auriculata) and marsh bedstraw (Galium palustre). Hogweed (Heracleum sphondyllium) and cow parsley (Anthriscus sylvestris) also occur here and across the site, as do stinging nettle (Urtica diocia), red campion (Silene diocia), lesser stitchwort (Stellaria graminea), meadow buttercup (Ranunculus acris) and germander speedwell (Veronica chamaedrys). Two small ponds, which dry out seasonally, lie on the central ditch. Plants associated with the ponds include broad-leaved pondweed (Potamogetan natans), floating sweet grass (Glyceria fluitans), water starwort (Callitriche spp.), lesser water-parsnip (Berula erecta) and watercress (Nasturtium officinale). A notable feature of the site is the large, veteran oaks (Quercus robur), which show signs of having been pollarded in the past. Small patches of bramble (Rubus agg.) scrub occur across the site, but there was little invasion of scrub at the time of survey, presumably due to recent grazing. Occasional white willow (Salix alba) and common sallow (Salix caprea) occur along the ditch lines. The slope on the eastern part of the site is ranker than the damp grassland in the west

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		and is dominated by creeping thistle (Cirsium arvese), cocksfoot, Yorkshire fog (Holcus lanatus) and hogweed. Much of the site is surrounded by tall, mature hedgerows that are included in the CWS and are composed of blackthorn (Prunus spinosa), hawthorn (Crataegus monogyna), ash (Fraxinus excelsior), Hazel (Corylus avellana) and elder (Sambucus nigra). Where the hedge shades the meadow, hedge woundwort (Stachys sylvatica) is common. Last surveyed in 2005.
Mulbarton Common: 2142	Approximately 750 metres south of the PEIR boundary near Swardeston	A triangular-shaped area of registered common land (CL 46) in the centre of Mulbarton, bounded on all three sides by residential areas and surounded by arable farmland. Its primary use is for local amenity and an annual hay cut. The common is formed of three compartments (divided by minor roads/tracks), the central being the largest by far. Habitats mainly comprise a mix of neutral grasslands with roughly equal areas of unimproved, semi-improved and amenity. Multiple shallow, dry ditches run east to west across the common. Scattered patches of scrub and seven ponds further enhance the site's diversity. Unimproved grassland appears mainly in the north, semi-improved flanks the east and west and the southern third is predominantly amenity grassland. Within semi-improved areas tussocky grasses dominate, with false oat grass (Arrhenatherum elatius), cock's foot (Dactylis glomerate) and Yorkshire fog (Holcus lanatus), along with occasional tufted hair grass (Deschampsia cespitosa) and sweet-vernal grass (Anthoxanthum odoratum). To the north, the sward is typical of poor semi- improved grassland. Meadow foxtail (Alopecurus pratensis) is abundant, along with common stinging nettle (Urtica diocica), creeping thistle (Cirsium arvense) and hogweed (Heracleum sphondylium). Locally abundant amphibious bistort (Persicaria amphibia) and water figwort (Scrophularia auriculata) occur in a small area close to the northern boundary. To the south a slightly greater abundance and diversity of herbs incorprorate common knapweed (Centaurea nigra), lesser stitchwort (Stellaria graminea), cut-leaved crane's-bill (Geranium dissectum) and lady's bedstraw (Galium verum). Meadow buttercup, red clover, yarrow, and germander speedwell all occur frequently throughout and oxeye daisy locally eastwards. The northern unimproved areas form a fine, evenly mixed sward of high diversity. Balanced within a range of grasses are meadow vetchling (Lathyrus pratensis), meadow buttercup (Ranunculus acris), yarrow (Achillea millefolium), knapweed, bush vetch (Vicia sepium), goat's beard (Tragopogon pratensis subsp. Minor), black medick (Medicago lupulina), lesser stitchwort, common sorrel (Rumex acetosa), lesser trefoil (Trifolium dubium), lady's bedstraw, soft rush (Juncus effuses), field woodrush (Luzula campestris) and cut-leaved crane's-bill. The large areas of closely mown amenity grassland to the south offer little herb diversity and are limited to ground ivy (Glechoma hederacea), broad-leaved plantain (Plantago major), creeping buttercup (Ranunculus repens), silverweed (Potentilla anserine), birds-foot trefoil and self-heal (Prunella vulgaris). Dense, mature scrub of blackthorn (Prunus spinosa), bramble (Rubus fructicosus agg.), hawthorn (Crataegus monogyna) and hazel (Corylus avellana) extends from the northeast corner towards the centre and south of the common, as well as along the northwest edge.There are scattered, mature trees throughout of

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		oak (Quercus robur), ash (Fraxinus excelsior) and field maple (Acer campestre). Other pockets of scrub occur throughout the site, particularly in dry depressions or around the periphery of ponds where it creates impenetrable stands of elder (Sambucus nigra), hawthorn, bramble and willow (Salix spp.). The common holds seven ponds, many of which are scrubbing up or surrounded by trees and semi-natural broad-leaf woodland of oak and willow.The most easterly pond is open and light, with scattered trees overhanging. Marginal vegetation comprises soft rush, hedge woundwort (Stachys sylvatica) and ground ivy. Emergents include waterlily (Nymphea alba), yellow flag iris (Iris pseudacorus) and greater reed mace (Typha latifolia). There is a thick border of great willowherb (Epilobium hirsutum), creeping thistle, amphibious bistort and occasional gypsywort (Lycopus europaeus) and white bryony (Bryonia dioica). The large, most northerly pond is also open but with has no surrounding scrub and little floating vegetation. Common reed (Phragmites autralis) dominates the emergent vegetation. Great willowherb forms a thick stand around the perimeter of the pond, along with occasional common mallow (Malva sylvestris), butterbur (Petasites hybridus), hedge woundwort and creeping thistle. A newly planted mixed, native coppice borders the pond to the north where there is also a constructed hibernaculum. Of the two easterly ponds in the main compartment the most northerly one is the smallest and is hidden within tall, mature scrub and scattered oak. Reed sweet-grass (Glyceria maxima) forms a dense matt at one end and greater reed mace and branched burr-reed (Sparganium erectum) dominate the other. The other pond is very shallow and under a ring of scattered mature oaks, but is open and light to the south. The very shallow margins support vegetation verging on marshy grassland which harbour soft rush, marsh bedstraw (Galium palustre) and gypsywort. Submerged aquatic vegetation consists of branched burr-reed, greater reed mace and gypsywort. The south-east corner pond is dark, shady and surrounded by semi-natural broadleaf woodland. The pond has a silty bottom with high amounts of leaf litter and fallen dead wood. It's neighbouring pond in the south-west corner is obscured from view by inpenetrable scrub. The most westerly pond, surrounded by a thin strip of semi-natural broadleaf woodland and dense scrub is stagnant and with a silty bottom. Emergent vegetation includes abundant branched burr-reed and occasional gypsywort, brooklime Veronica beccabunga) and greater reed mace. The margins support species more associated with woodland such as wood avens (Geum urbanum), hard rush (Juncus inflexus) and self-heal. Last surveyed in 2016.
Pasture at Easton College: 2174	Approximately 1.9km east of the PEIR boundary near Easton	This is a large area of watermeadows 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; it has 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; soft rush Juncus effusus and hard rush Juncus inflexus occur throughout, with abundant common marsh-bedstraw Galium palustre, fen bedstraw Galium uliginosum,

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		creeping bent Agrostis stolonifera, meadow foxtail Alopecurus pratensis and locally frequent ragged robin Lychnis flos-cuculi, meadow buttercup Ranunculus acris, yellow rattle Rhinanthus minor, marsh marigold Caltha palustris, hairy sedge Carex hirta and meadow vetchling Lathyrus pratensis. The area between the two eastwest ditches on the second fifth from the west has an area of tall vegetation: ragged robin is abundant, growing amongst large areas of greater pond sedge Carex riparia, lesser pond sedge Carex acutiformis, reed sweet grass Glyceria maxima and blunt-flowered rush Juncus subnodulosus. Water forget-me-not Myosotis scorpioides, water mint Mentha aquatica and ragged robin grow with more creeping bent to the south of this area. The most easterly fifth is a very wet, wide area, with much standing water, dominated by tall growth of reed sweet-grass, greater pond sedge and reed canary-grass Phalaris arundinacea with occasional stands of grey willow Salix cinerea and osier Salix viminalis. Common meadow-rue Thalictrum minus, amphibious bistort Persicaria amphibia and yellow iris Iris pseudacorus occur amongst the tall vegetation. The second and third fifths from the east are dominated by creeping bent Agrostis stolonifera, with abundant hard and soft rush and are less diverse. Other local species include timothy Phleum pratense, common spike-rush Eleocharis palustris, marsh foxtail Alopecurus geniculatus and jointed rush Juncus articulatus, with additional species in the southerly part of the middle section including ragged robin, marsh and fen bedstraw and cuckoo-flower Cardamine pratensis. 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. The two ditches west of the Glyceria bed contain solid water soldier Stratiotes aloides for most of their length, while the ditch which runs southwards from the entrance gate has locally abundant water violet Hottonia palustris. The marginal vegetation on the ditch running eastwards just north of the entrance gate includes many of the plants found in the ditches on the site, such as common valerian Valeriana officinalis, purple loosestrife Lythrum salicaria, yellow loosestrife Lysimachia vulgaris, water violet, water soldier, yellow iris, common meadow-rue and watercress Rorippa nasturtium-aquaticum. Most of the ditches are fringed with a wide border of tall vegetation, often two or three plants from reed sweet-grass, reed canary-grass, lesser pond sedge and greater pond sedge. The River Yare is a broad and high watercourse here, bordered with a wide tangled band of grey willow, some of it quite tall, with occasional tall crack willow Salix fragilis. Some of the ground is very wet, though drier parts also occur. Ivy Hedera helix grows abundantly on the trees and garlic mustard Alliaria petiolata is plentiful, while other occasional species include common nettle Urtica dioica, common figwort Scrophularia nodosa, winter-cress Barbarea vulgaris, common angelica Angelica sylvestris and false brome Brachypodium sylvaticum. Tall hybrid poplar grow in lines along some wet drains, particularly in the south-east of the site. Some of the trees have blown over, with a clump of 5 joined fallen poplars in the centre of the site. Occasional alder Alnus glutinosa grow around the site, singly or in a line of a few together alongside a drain. A long hedge borders the road, with standard oak Quercus robur, hornbeam Carpinus

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		betulus and ash Fraxinus excelsior as well as tall shrubs of hawthorn Crataegus monogyna, buckthorn Rhamnus cathartica and hazel Corylus avellana. Frequent signs of otter have been reported, and signs of water vole have been found in the past. Last surveyed in 2008.
Yare Valley (Barford): 2216	Approximately 1.3km west of the PEIR boundary near Colton	This site lies to the south of the River Yare and consists of a mosaic of scrub, fen and wet neutral grassland. Areas of scrub have mature oak (Quercus robur) and crack willow (Salix fragilis) over dense sloe (Prunus spinosa). The ground flora includes patches of dog's mercury (Mercurialis perennis) and herb-robert (Geranium robertianum) where dry and reed (Phragmites australis) and great horsetail (Equisetum telmateia). The fen has tall growth of reed, meadowsweet (Filipendula ulmaria) and nettle (Urtica dioica) with scattered angelica (Angelica sylvestris) and great horsetail. This grades into grassland dominated by rye-grass (Lolium perenne) and Yorkshire fog (Holcus lanatus) but few other herbs except bristle club-rush (Isolepsis setacea).
Grassland at Saxthorpe: 2252	Approximately 1.15km south-west of the PEIR boundary near Saxthorpe	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 into a pond. The dampest areas of grassland support meadowsweet Filipendula ulmaria, wild angelica Angelica sylvestris, marsh thistle Cirsium palustre, marsh bedstraw Galium palustre, fen bedstraw Galium uliginosum, ragged robin Silene flos-cuculi, greater bird's-foot trefoil Lotus pedunculatus, , sharpflowered and jointed rush Juncus acutiflorus/articulatus and common sorrel Rumex acetosa. Common reed Phragmites australis, reed sweet-grass Glyceria maxima, reed canary-grass Phalaris arundinacea and common nettle occur along some of the western edge of the site. In drier areas are Yorkshire fog Holcus lanatus, creeping buttercup Ranunculus repens, lesser stitchwort Stellaria graminea, and germander speedwell Veronica chamaedrys. Himalayan balsam Impatiens glandulifera is locally abundant. Shallow wet drains traverse the site and alder Alnus glutinosa trees, some recently coppiced, line many of the east-west drains. The north boundary ditch is lined with alders, old hawthorn Crataegus monogyna, and occasional oak Quercus robur, sycamore Acer pseudoplatanus, bird cherry Prunus padus and holly Ilex aquifolium. This shaded ditch supports woodland species such as broad buckler fern Dryopteris dilatata and foxglove Digitalis purpurea. The ditches are often dominated by lesser pond sedge Carex acutiformis, reed canary-grass and reed sweet-grass, water figwort Scrophularia auriculata, lesser water-parsnip Berula erecta, meadowsweet and water mint Mentha aquatica. Other plants occur more rarely, such as iris Iris pseudacorus, large bitter-cress Cardamine amara and purple loosestrife Lythrum salicaria. A small stream flows west-east through the middle of the site, and into a pond near the south-east corner. The stream has a sandy, stony bed, and is lined on its south side by multi-stemmed alder and broad buckler fern. The pond, also fed by

CWS Name and Number	Distance and Direction from PEIR boundary	Description
		drains within the site, flows out towards the main river via a continuation of the stream, which here supports starwort Callitriche agg., lesser duckweed Lemna minor, and marginal plants including water-cress Nasturtium officinale, brooklime Veronica beccabunga, lesser water-parsnip and sweet rocket Hesperis matronalis. A small 'island' in the pond grows reed canary-grass and is edged with starwort, while around the pond edges are jointed rush, square-stalked St John's-wort Hypericum tetrapterum, blue water-speedwell Veronica anagallis-aquatica, lady's smock Cardamine Survey date: 10.7.13 pratensis purple loosestrife, and two alders. Spoil from the pond along its north edge now grows red campion, water figwort, square-stalked willowherb Epilobium tetragonum, purple loosestrife, iris and water forget-me-not as well as more ruderal species such as broad-leaved dock Rumex obtusifolius and common mallow Malva sylvestris. Last surveyed in 2013.
Algarsthorpe Marshes: 2288	Approximately 1.72km east of the PEIR boundary near Marlingford	The site consists of three separate parcels of grassland which lie adjacent to the River Yare and either side of a central track. West of the track one parcel lies north of the river and east of the track a further two parcels lie both north and south of the river. North of the river a central ditch runs east – west. The grassland comprises of grazing marsh and semi-improved neutral grassland and includes ditches, some of which are permanently wet and spring fed. North of the central ditch the land steadily rises up to the road and here the grassland is semi-improved and relatively species poor with sandy soils. Yorkshire fog Holcus lanatus is abundant, ragwort Senecio jacobae and perennial rye-grass Lolium perenne are locally abundant, common mouse-ear Cerastium fontanum is frequent, and creeping thistle Cirsium arvense and red clover Trifolium pratense locally frequent. Dandelion Taraxicum officinale agg., creeping buttercup Ranunculus repens and hogweed Heracleum sphondylium are occasional, redshanks is locally frequent, and meadow buttercup Ranunculus acris is rare. South of the central ditch are areas of grazing marsh with damp peaty soils and within which ditches and scrapes are present. Adjacent to these features areas of more diverse flora occur including species which are not seen elsewhere such as purple loosestrife Lythrum salicaria, water mint Mentha aquatica, fleabane Pulicaria dysenterica, water figwort Scrophularia auriculata, common valerian Valeriana officinalis and square stalked St John's wort Hypericum tetrapterum. West of the track the most dominant grass species is perennial rye-grass which is abundant and creeping buttercup, yorkshire fog, tufted hair-grass Deschampsia cespitosa, red fescue Festuca rubra, large timothy Phleum pratense, white clover Trifolium repens, and field horsetail Equisetum arvense are all frequent. Other species include jointed rush Juncus articulatus, common sorrel Rumex acetosa, hairy sedge Carex hirta, meadow buttercup Ranunculus acris and dandelion and which are locally frequent. Meadowsweet Filipendula ulmaria is occasional, cuckoo flower Cardamine pratensis and silverweed Potentilla anserina rare and reed sweet-grass Glyceria maxima is locally frequent. East of the track and north and south of the river is moderately more diverse than west of track and has damper soils. Creeping bent Agrostis stolonifera, tufted hair-grass, reed sweet-grass and red fescue are locally abundant, meadowsweet locally abundant, and fen bedstraw

CWS Name and Number	Distance and Direction from PEIR boundary	Description
		Galium uliginosum, meadow buttercup, greater pond sedge Carex riparia, greater bird's-foot trefoil Lotus pedunculatus, silverweed and cuckoo flower are locally frequent. Species which are rare include meadow vetchling Lathyrus pratensis, celery-leaved buttercup Ranunculus sceleratus, marsh thistle Cirsium palustre, and marsh horsetail. The ditches east of the track are the most notable, being permanently wet and spring fed. Floating aquatic plant species include rigid hornwort Ceratophyllum demersum, frogbit Hydrocharis morsus-ranae, Canadian pondweed Elodea canadensis and water starwort sp. Callitriche sp. and which are locally abundant, and stonewort Chara sp., and water violet Hottonia palustris are rare. A small pond is present east of the track and is linked to the wet ditches and which has banks dominated by reed canary-grass Phalaris arundinacea with reedmace sp. Typha sp. abundant. Rigid hornwort and frogbit are frequent and water horsetail Equisetum fluviatile is locally frequent. Stretches of hedgerows occur either side of the central track, along the northern boundary adjacent to the road and along the southern boundary east of the track. Species include elm Ulmus sp., hawthorn Crataegus monogyna, hazel Corylus avellana, crab apple Malus sylvestris, ash Fraxinus excelsior, oak Quercus robur, wild privet Lugustrum vulgare , rose sp. Rosa arvensis, elder Sambuscus nigra, field maple Acer campestris, and bramble Rubus fruticosus. The occasional mature tree occurs adjacent to the central ditch and river and mainly consisting of alder Alnus glutinosa, white willow Salix alba and oak. The River Yare flows east – west through the site and in general its bed is silty sandy although gravel sections occur frequently along its length. Branched bur-reed Sparganium erectum is locally dominant forming extensive areas. Arrowhead Sagittaria latifolia, water starwort sp., water plantain Alisma plantago-aquatica and floating sweet-grass Glyceria maxima are rare to locally frequent, yellow water lily Nupha lutea and watercress Nasturtium officinale occasional and water forget me-not Myosotis scorpioides locally abundant. Last surveyed in 2017.
Pack Lane Meadow: 2290	Approximately 190 metres north of the PEIR boundary near Lower East Carleton	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 meadow supports a notable population of both southern marsh orchid Dactylorhiza praetermissa and early marsh orchid Dactylorhiza incarnate. These mainly occur centrally, with scattered plants in the west and are primarily found in between tussocks of hard rush, this species being locally abundant across the site. Creeping buttercup Ranunculus repens is the dominant herb alongside abundant amphibious bistort Persicaria amphibia in the wetter areas. Common mouse-ear Cerastium fontanum, red clover Trifolium pratense and greater bird's foot trefoil Lotus pedunculatus are frequent; ragwort Senecio jacobaea, square-stemmed St John's wort Hypericum tetraperum, meadow vetchling Lathyrus pratensis and common cat's ear Hypochaeris radicata occasional, whilst ragged robin Silene flos-cuculi is rare. Blunt-flowered rush Juncus subnodulus is locally frequent and yorkshire fog Holcus lanatus and creeping bent Agrostis stolonifera are abundant. Two veteran oak Quercus robur

CWS Name and Number	Distance and Direction from PEIR boundary	Description
		pollards occur on a slightly raised area of land to the east of the meadow. The hedgerow contains mature ash Fraxinus excelsior trees and the dominant hedgerow species comprise of elder Sambucus nigra, hazel Corylus avellana and field maple Acer campestre. The tributary stream supports a diverse flora and has areas of both standing open water and sections that are choked with vegetation. Some sections are dominated by reed sweet-grass Glyceria maxima whilst others have reed canary-grass Phalaris arundinaceae as the dominant plant. Brooklime Veronica beccabunga, water figwort Scrophularia auriculata and yellow flag Iris pseudacorus are occasional and water mint Mentha aquatica, fools water cress Apium nodiflorum and great willowherb Epilobium hirsutum frequent. Common valerian Valeriana officinalis is rare. Last surveyed in 2016.
Church Meadow, Alder Carr, Three Corner Thicket and Nursery Plantation: 2296	Approximately 180 metres west of the PEIR boundary near Honingham	The site comprises mainly cattle grazed, unimproved wet pasture, bisected by spring-fed ditches (Church Marsh), with areas of wet and dry woodland (Alder Carr, Nursery Plantation and 3-Corner Thicket), some of which appears of be of ancient origin. To the north, there is an area of former lake, which has reverted to wetland, including a large reedbed. The River Tud flows west to east through the middle of the site. Church Marsh is old and unimproved wet, neutral grassland, supporting cuckooflower (Cardamine pratensis), common sorrel (Rumex acetosella), smooth tare (Vicia tetrasperma), meadow buttercup (Ranunculus acris), marsh thistle (Cirsium palustre), brooklime (Veronica beccabunga), watermint (Mentha aquatica), clustered dock (Rumex conglomeratus), square-stemmed St John's-wort (Hypericum tetrapterum), meadow vetchling (Lathyrus pratensis), greater birds-foot trefoil (Lotus pedunculatus), ragged robin (Silene flos-cuculi), glaucous sedge (Carex flacca), lesser pond sedge (Carex acutiformis), sharp-flowered rush (Juncus acutiflorus), jointed rush (Juncus articulatus). The marshy grassland also has locally abundant creeping thistle (Cirsium arvense) and dominanting soft rush (Juncus effusus). On drier ground notable species include crested dogstail (Cynosurus cristatus) and yellow oat grass (Trisetum flavescens). The spring-fed ditch system feature dense beds of stonewort (Chara vulgaris), water crowfoots (Ranunculus aquatilis and Ranunculus trichophyllus), water plantain (Alisma plantago-aquatica), water horsetail (Equisetum fluviatile), opposite leaved pondweed (Groenlandia densa), floating pondweed (Potamogeton natans), and fen rush (Juncus subnodulosus). Small teasel (Dipsacus pilosus) and great bittercress (Cardamine amara) grow in shady spots alongside the River Tud. There are stands of low lying, carr woodland and scrub beside the water, dominated by alder (Alnus glutinosa) and willow (Salix sp.), with marsh marigold (Caltha palustris), town hall clock (Adoxa moschatellina), flag iris (Iris pseudacorus), lady fern (Aythrium filix-foemina) and pond sedge (Carex riparia). Drier stands of woodland support primrose (Primula vulgaris), sanicle (Sanicla europaea), wood speedwell (Veronica montana), wood sorrel (Oxalis acetosella), climbing corydalis (Ceratocapnos claviculate), native bluebell (Hyacinthoides non-scripta), pignut (Conopodium majus), perennial mercury (Mercurialis perennis), wood sedge (Carex sylvatica), enchanters nightshade (Circaea lutetiana), wood false-brome (Brachythecium sylvaticum), wood anemone (Anemone nemorosa), bugle (Ajuga reptans), 3-nerved sandwort (Moerhingia

CWS Name and Number	Distance and Direction from PEIR boundary	Description
		trinerva), greater chickweed (Stellaria neglecta) and ramsons (Allium ursinum). Honingham Old Lake supports stands of reed (Phragmites australis) and reed sweet grass (Glyceria maxima), with water mint, pond sedge, reed canary grass (Phalaris arundinacea), hemp agrimony (Eupatorium cannabinum), common fleabane (Pulicaria dysenterica), wild angelica (Angelica sylvestris), marsh thistle, brooklime and fen rush. Last surveyed in 2017.
Long Dell and Westlodge Hills: 2297	Approximately 540 metres east of the PEIR boundary near Easton	This site comprises a semi-natural woodland of mainly oak (Quercus robur), beech (Fagus sylvatica) and ash (Fraxinus excelsior), with holly (Ilex aquifolium) and rowan (Sorbus aucaparia). The woodland has a varied age structure and includes areas of plantation, with some areas supporting pine sp. (Pinus sp.). The canopy is largely closed, while some areas have a more open structure, supporting a more varied woodland ground flora. The site lies on an east-west ridge of higher ground on light sandy soils with both south and north facing aspects. Clearings in the western part of the site feature acid grassland and gorse scrub. Throughout the wood, where soils are drier and more acidic, the ground flora includes climbing corydalis (Ceratocapnos claviculata), wood sedge (Carex sylvatica), enchanter's nightshade (Circaea lutetiana), wood false-brome (Brachythecium sylvaticum), wood sorrel (Oxalis acetosella) and broad buckler fern (Dryopteris dilatata). Where the ground is slightly damper, particularly on the north-facing slopes, species include male fern (Dryopteris filix-mas), wood melick (Melica uniflora), bluebell (Hyacinthoides non-scripta), ramsons (Allium ursinum), common figwort (Scrophularia nodosa) and wood anemone (Anemone nemorosa). Other flora present in the wood includes wood sage (Teucrium scorodonium), perennial mercury (Mercurialis perennis) and red campion (Silene dioica). Clearings in the western part of the site support areas of acid grassland, which is dominated by common bent (Agrostis capillaris), with gorse (Ulex europaeus) scrub. Associated species in these areas include wood sage and sheep's sorrel (Rumex acetosella) with common cudweed (Filago vulgaris) and hoary mullein (Verbascum pulverulentum) occurring locally on more disturbed ground. Last surveyed in 2017.

CWS Name and Number	Distance and Direction from PEIR boundary	Description
Spruce's Plantation and Carleton Corner Wood: 2302	Approximately 530 metres north-east of the PEIR boundary near Swardeston	The site is formed of two areas of mixed woodland which are 70m apart. Carleton Corner Wood is to the west and predominantly broadleaved and contains a pond. Spruce's Plantation is to the east and is both north and south of a tributary of the River Yare and is predominantly coniferous but contains woodbanks topped by mature coppiced stools and includes a network of drainage ditches. Spruce's Plantation is dominated by coniferous trees, although native broadleaved trees and a shrubby understory of native species also occur. Despite the young tree cover, south of the stream along both the northern and southern boundaries are wood banks topped by mature coppiced stools of primarily hornbeam Carpinus betulus and with hazel Corylus avellana, field maple Acer campestre and ash Fraxinus excelsior also present. The ground flora is diverse and contains many ancient woodland indicators. The soils range from damp to wet across most of the woodland although south of the stream the soils are dryer in the western half. A network of heavily sited up ditches occur and which appear to be permanently wet. Within these watermint Mentha aquatica is locally dominant and lesser water parsnip Berula erecta and fool's watercress Apium nodiflorum locally abundant. The stream has a gravel bed and Fool's watercress is locally frequent. South of the stream, Scot's pine Pinus sylvestris and Spruce sp. Picea sp. are locally dominant, and larch sp. Larix sp., and poplar sp. Populus sp. locally frequent. Despite the dominance of conifers, extensive areas occur where native trees and shrubs are frequent and which is a result of planting and also regeneration in areas subject to felling and windthrow. Alder Alnus glutinosa, ash, sycamore Acer pseudoplatanus, goat willow Salix caprea and oak Quercus robur are locally frequent and beech Fagus sylvatica and hornbeam are rare. The understory is very variable with hazel ranging from occasional to locally abundant, it being most prevalent in the east half. Both holly Ilex europaeus and suckering English elm Ulmus minor 'Atinia' are locally dominant in the west half. Bramble Rubus fruticosus ranges from frequent to locally dominant over extensive areas and is most prevalent in the west half. The ground flora is most diverse in the east half and in wetter areas lesser pond sedge Carex acutiformis, common reed Phagmites australis, yellow flag iris Iris pseudacorus, redcurrant Ribes rubrum, and watermint are locally abundant and remote sedge Carex remota locally frequent. In dryer areas wood anemone Anemone nemorosa, broad buckler fern Dryopteris dilatata and false broom Brachypodium sylvaticum are locally frequent, and bluebell Hyacinthoides non-scripta, dog's mercury Mercurialis perennis, bugle Ajuga reptans, enchanters nightshade Circaea lutetiana, lords and ladies Arum machulatum, field horsetail Equisetum arvense and violet sp.Viola sp. locally abundant. Gooseberry Ribes uva-crispa and raspberry Rubus idaeus are occasional. The dryer west half is less diverse and where dog's mercury, ivy Hedera helix and honeysuckle Lonicera periclymenum range from frequent to dominant, and both bluebell and violet sp. are locally frequent. North of the stream the woodland is again dominated by conifers with Scot's pine the dominant tree species and with poplar sp. locally frequent. Silver birch Betula pendula is locally frequent and sycamore and ash range from occasional - locally dominant. Young hazel stools are locally frequent

CWS Name and Number	Distance and Direction from PEIR boundary	Description
		and holly is rare. Oak and beech trees IRO 120 years occur along the northern boundary and in the north east part of the site. Within the ground flora nettle Urtica dioica and bramble are dominant, red campion Silene dioica, ground ivy Glechoma hederacea, and dog's mercury are frequent and redcurrant, creeping buttercup, broad buckler fern wood anemone and raspberry are locally frequent and bracken Pteridium aquilinum is locally dominant. Carleton Corner Wood, although mixed, contains many mature broadleaved trees. To the west the canopy is predominantly of oak and sycamore with frequent elm and occasional silver birch. At the far west end beech replaces oak as sycamore's co-dominant. At the far east corner there are frequent pine sp. trees. Within the understorey English elm is locally abundant, hazel and holly are frequent and elder Sambucus nigra and hawthorn Crataegus monogyna occasional. Abundant bracken is present amongst which English bluebell dominates the ground flora. Red campion, herb robert Geranium robertianum and ground ivy are frequent, moschatel Adoxa moschatellina is rare, and dog's mercury, nettle and bramble are locally dominant. A shaded pond occurs and which is surrounded by grey willow Salix cinerea and full of leaf litter and contains no aquatic plants. Last surveyed in 2017.
Primrose Grove, Ringland: 2305	Approximately 840 metres east of the PEIR boundary near Ringland	This is an area of woodland with some compartments thought to be of ancient origin and wider areas of mature secondary woodland. The CWS here forms only part of a much larger area of woodland, marked on most maps as Primrose Grove and Long Plantation, with further areas of woodland adjacent to the north-east, marked on maps as The Nursery and Rose Carr. CWS 1341, Broom and Spring Woods lies to the north-east across a small field, with CWS 2070, Wensum Pastures, beyond. Across the lane to Ringland, west of the site, is a further CWS, Gravel Pit Plantation. Permission to register CWS was given for the eastern part of Primrose Grove and for some northern blocks of Primrose Grove/Long Plantation, which was is divided into several small lots. In 2018, Permission to survey was given for St Peter's Wood, Primrose Corner Wood, Ponies Wood, St Walstan Wood and Munnings Wood. All other areas are of CWS quality and the remaining blocks were added to the CWS in 2019. The east of the wood comprises closed-canopy, broadleaved semi-natural and mixed plantation woodland, on dry to moist, generally free-draining, slightly acidic soils. Some stands are dominated by varying proportions of oak Quercus robur, beech Fagus sylvatica, sycamore Acer pseudoplatanus and ash Fraxinus excelsior, with a shrub layer featuring often-coppiced hazel Corylus avellana, hawthorn Crataegeus monogyna and holly Ilex aquifolium. Areas of conifer plantation feature western hemlock Thuja plicata, douglas fir Pseudotsuga menziesii and Scots pine Pinus sylvestris. The margins of the woodland, and part of its interior on the west of the site, are dominated by trees of varying age, mainly deciduous species including ash, oak and lime Tilia sp. (some older specimens of which have been pollarded), chestnut Castanea sativa, beech, and self-sown hornbeam Carpinus betulus, sycamore, cherry Prunus avium, holly and silver birch Betula pendula. The margins are non-linear, a substantial ditch marks a parish boundary, and there are areas of old hazel coppice-with-standards in

CWS Name and Number	Distance and Direction from PEIR boundary	Description
		the north west. The ground flora is variable, with ancient woodland indicator species, including carpets of bluebell Hyacinthoides non-scripta, greater chickweed Stellaria neglecta, town-hall clock Adoxa moschatellina and wood speedwell Veronica montana, present mainly towards the woodland margins and particularly under the broadleaved canopy. The more shaded conifer plantations feature climbing corydalis Ceratocapnos claviculata, greater chickweed and an often abundant fern flora. Other species include hedge woundwort Stachys sylvatica, lords and ladies Arum maculatum, primrose Primula vulgaris, wood false-brome Brachythecium sylvaticum, perennial mercury Mercurialis perennis, greater chickweed, wood speedwell, and red campion Silene dioica. The interior of the site is dominated by mixed conifer plantations interspersed with some broadleaved species, including oak, beech and silver birch. The ground flora is less diverse than that of the broadleaved woodland, with only sparse bluebell and greater chickweed, but featuring climbing corydalis at a much higher density and some spring beauty Claytonia perfoliata. Ferns are often abundant, however, and include broad buckler-fern Dryopteris dilatata, narrow-leaved buckler fern Dryopteris carthusiana and male fern Dryopteris filix-mas. The privately owned blocks to the west and into Long Plantation are broadly similar to the main area of Primrose Grove and are mostly separated by post and wire fences; the plots seem largely little managed and quiet. Bramble increases in the ground flora i to the north and occasional species include wood dock and herb Robert. Bracken occurs in some areas, often under Scot's Pine. Foxgloves Digitalis purpurea and primroses are occasional alongside the track. Permission was given to survey St Peter's Wood and the plot to the east of it. St Peter's is an area of mixed broadleaved woodland, much of which has been planted and has a low, dense canopy; dominant tree species here are oak, sycamore and sweet chestnut, along with bcherry and mature beech. To the west of the plot, mature sweet chesnut and silver birch occur, with a coppiced field maple Acer campestre near the track. Hawthorn is rare and the shrub layer poorly developed. Many of the trees appear relatively young and the ground flora here includes occasional bluebells, including one extensive area, town hall clocks, with abundant nettle Uritca diocia, bramble Rubus fruticosus agg. and occasional dog's mercury Mercurialis perennis; hedge garlic Alliaria petiolata is locally abundant to the west and foxgloves rare. Broad buckler fern and male fern are both rare. Last surveyed in 2018.

NBIS returned information on the following seven Roadside Nature Reserves (RNRs) within and up to 2km from the PEIR boundary. RNR number 63 is the only RNR within the PEIR boundary.

Table 3: RNR within and up to 2km from the PEIR boundary (to be read in conjunction with Figure 1-10)

RNR No.	Road Name, Number, Parish and Grid Ref.	Site Description	Habitat Description	Designated Species and Species of Interest
13	(Cutting) at Swainsthorpe A140 TG 223 011	This RNR lies on both sides (east and west) and extends for a maximum 160m. The site is wide (5m) 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.	Burlingham 1 brown earth East Anglian Plain Natural Area	Designated species: pyramidal orchid *Anacamptis pyramidalis*. Species of interest: Bee orchid *Ophrys apifera*; stone parsley *Sison amomum*; cowslip *Primula veris*; wild basil *Clinopodium vulgare*; common broomrape *Orobanche minor*
59	Fakenham Road A1067 at Attlebridge TG 143 155	This RNR lies on the north side of a busy 'A' road and extends to 185m. The verge is level and 5m wide and backed by a steep 3m wide bank rising to a fence with arable farmland beyond.	Hoary Mullein is a nationally scarce species and mostly confined to East Anglia. Threats Lack of management leading to sward becoming coarse and rank and eventually to scrub. Spray and fertilizer drift from adjacent farmland Grip digging and road widening. Soil Type: Newport 4 brown sands Natural Area: North Norfolk	Designated species: hoary mullein *Verbascum pulverulentum* Species of interest: small cudweed *Filago minima*; early forget-me-not *Myosotis ramosissima*; hare's-foot clover *Trifolium arvense*; bladder campion *Silene vulgaris*; *Cladonia* spp.
62	Ipswich Road A140 at Norwich TG 220 055	This RNR covers two separate sections on the western carriageway of the A140 Ipswich Road, South of Norwich's Outer ring road. The Southern section covers 87m of steep earth bank adjoining the metalled footway and is topped by Scots pine trees. The Northern section of the RNR covers approximately 500m of remnant hedgerow with standard oak trees and has recently been gapped up with native hedgerow species and replacement young oak trees by the residents' association. The	Sandy-Stilt Puffball is a Biodiversity Action Plan priority species. Threats Lack of management leading to sward becoming coarse and rank and eventually to scrub. Litter and dumping Grip digging and road widening. Soil Type: Newport 4 brown sands Natural Area: North Norfolk	Designated species: Sandy stilt puffball *Battarraea phalloides* (Red Data; native hedgerow species)

RNR No.	Road Name, Number, Parish and Grid Ref.	Site Description	Habitat Description	Designated Species and Species of Interest
		hedgerow and part of the verge between No.1 Welesford Rd and No.1 Constable Rd, is managed by the residents' association.		
2	Tuttles Lane (East) B1135 at Wymondham TG 125 026	This RNR lies on the south-west side of the road and extends for 226m. The site (approximately 5m wide) drops steeply down from a metalled footway to a drainage ditch. The verge is located between a busy road and a superstore car park.	Soil Type: Beccles 1 clay Natural Area: East Anglian Plain	Designated species: Water vole *Arvicola amphibius* Species of interest: thread-leaved water crowfoot *Ranunculus trichophyllus*; pendulous sedge *Carex pendula*; stone parsley *Sison amomum*; zig-zag clover *Trifolium medium*; bee orchid *Ophrys apifera*
65	U57217 at Ringland TG 124 141	This RNR lies on the north side of the road and extends for 184m. 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.	Hoary Mullein is a nationally scarce species found on sandy soils in East Anglia. It is now largely confined to road verges, hedge banks, and the edges of gravel pits. Threats: - Lack of management leading to sward becoming coarse and rank and eventually to scrub. - Spray and fertiliser drift from adjacent farmland. - Deposition of nutrient rich soil from adjoining pig units prone to erosion and spray from the muddy road. - Road widening. - Fly tipping (includes introduction of noxious weeds). - Roadwork activities. Soil Type: Freely draining slightly acid sandy soil. Natural Area: North Norfolk.	Designated species: Mossy stonecrop *Sedum acre* Species of interest: hoary cinquefoil *Potentilla argentea*; hoary mullein *Verbascum pulverulentum*; sand spurrey *Spergularia rubra*; silvery hairgrass *Aira caryophyllea*; heath pearlwort *Sagina apetala*; vipers bugloss *Echium vulgare*; field mouse-ear *Cerastium arvense*
63	Matlask Road U14319 at Corpusty TG 122 313	This RNR lies on the north west side and extends to 20m. The verge is backed by a hedge. The whole verge runs from south-west to north-east and is situated in an arable	Lowland calcareous grassland (BAP habitat) – Chalk underlies around 60% of Norfolk, although calcareous grassland is only found in Northwest Norfolk and Breckland. Lowland calcareous grasslands are	Designated species: Long-stalked cranesbill *Geranium columbinum*

RNR No.	Road Name, Number, Parish and Grid Ref.	Site Description	Habitat Description	Designated Species and Species of Interest
		landscape close to Mossymere wood.	developed on shallow lime-rich soils generally overlying limestone rocks, including chalk. In Norfolk most sites occur within existing SSSIs or CWS, except for rides within Thetford Forest, which are largely not notified, plus isolated churchyards and road verges. Management of RNR may contribute towards the Local BAP target to restore 50 ha of lowland calcareous grassland by 2015. Threats: - Lack of management leading to sward becoming coarse and rank, eventually forming scrub. - Spray and fertiliser drift from adjacent farmland. - Grip digging and road widening. - Cars passing or parking. - Fly tipping (includes introduction of noxious weeds). - Roadwork activities. Soil Type: Freely draining slightly acid loamy soils Natural Area: North Norfolk	
46	B1149/ C477 at Corpusty TG 114 294	This RNR lies on the junction of a busy 'B' road and a minor road and extends 40m. The verge is level (1-2m) and gradually rising to form a south-facing bank (3m wide) backed by a fence with scrub hedge. The RNR is set in arable farmland.	Threats Lack of management leading to sward becoming coarse and rank and eventually to scrub. Spray and fertilizer drift from adjacent farmland Grip digging and road widening. Soil Type: Wick 3 brown earth Natural Area: North Norfolk	Designated species: Sheepsbit *Jasione montana* Species of interest: burnet saxifrage *Pimpinella saxifraga*; hare's-foot clover *Trifolium arvense*; wild basil *Clinopodium vulgare*; mouse-ear hawkweed *Pilosella officinarum*; hop trefoil *Trifolium campestre*

NBIS also returned records of the following 34 candidate County Geodiversity Sites (cCGS) within and up to 2km from the PEIR boundary. These sites are noted for their geodiversity interest and no specific, noted ecological or ornithological interest.

Table 4: cCGS within and up to 2km from the PIER boundary (to be read in conjunction with Figure 1-10)

Site name	Grid Reference	Site description	Site type	Geodiversity features
Stoke Holy Cross Chalk Pit	TG 2359 0143	Disused quarry - Cretaceous geology	Geological	Exposure of Cretaceous Campanian Chalk of the Catton Sponge Bed (B.mucronata Zone)
Chapel Hill	TG 2284 0474	Road cutting - Pleistocene geology	Geological	Former exposure of Early Pleistocene marine sands and gravels of the Wroxham Crag Formation, How Hill Member, overlain by glacial sediments of the Middle Pleistocene Happisburgh Formation, Corton Till Member and tidal sediments ('Corton Sands'). Lowestof
Keswick Chalk Pit	TG 2133 0479	Disused quarry - Cretaceous geology	Geological	Exposure of the Cretaceous Campanian Chalk of the Weybourne Chalk sub-division (B.mucronata Zone) with rich mesofossil fauna.
Keswick Mill Gravel Pit	TG 214 051	Disused quarry - Pleistocene geology	Geological & Archaeological	Former exposure of Pleistocene terrace gravels of R. Yare banked against steep cliff of Cretaceous Chalk. Prolific findspot of Palaeolithic flint implements, including 75 Acheulian hand-axes.
Halfway House Chalk Pit	TG 2330 0268	Disused quarry - Cretaceous geology	Geological	Exposure of Cretaceous Campanian Chalk of the Catton Sponge Bed (B.mucronata Zone)
Dunston Common Borehole Site	TG 227 026	Borehole site - Pleistocene geology	Historical	Site of BGS borehole proving Pleistocene pre-Anglian quartzose gravels underlying Anglian Lowestoft Till containing deposits of Hoxnian interglacial age (the Dunston Common Formation) in a hollow [kettle hole] in the till. Link with biodiversity CWS.
Sheringham Shore	TG 159 435	Beach exposure - Cretaceous geology	Geological	Important intertidal beach exposure of Cretaceous Campanian Chalk of B.mucronata Zone, showing topmost Weybourne Chalk and the Beeston Chalk subdivisions. [Includes area of former Skelding Hill Cliffs SSSI]
Long Dale Pits	TG 150 111	Disused quarry - Pleistocene geology	Histoical	[Former exposures of Pleistocene glacial sand and gravel]

Site name	Grid Reference	Site description	Site type	Geodiversity features
Attlebridge Hall Pit	TG 1418 1570	Disused quarry - Cretaceous geology	Geological & Historical	Exposure of Cretacous Campanian chalk of G.quadrata zone, with many flints and a few paramoudras (Blake 1888) and fossil fauna recorded by Rhodes and Rowe.
Attlebridge Marl Pit	TG 134 165	Disused quarry - Cretaceous geology	Geological & Historical	Former exposure of Cretacous Campanian chalk of G.quadrata zone, now backfilled. Fossil fauna recorded including Gonioteuthis.
Deighton Hills Chalk Pit	TG 14956 15584	Disused quarry - Cretaceous geology	Geological & Historical	Exposure of Cretaceous Campanian Chalk considered to be transitional Quadrata / Mucronata Zones overlain by [Norwich Crag] with basal stone bed. Local stratigraphy suggests the presence of a chalk raft with Anglian glacial deposits banked against it (Woo
Ringland Lime Pit	TG 1300 1465	Disused quarry - Cretaceous geology	Geological	Former exposure of Cretaceous Campanian Chalk of the G.quadrata zone. A course of distinctive 'bent' flints recorded. Site located in floor of dry valley.
Costessey Lane Chalk Pit	TG 1395 1253	Disused quarry - Cretaceous geology	Geological	Exposure of Cretaceous Campanian Chalk of the G.quadrata zone. Site listed by Blake 1888. Located in area of chalk exposed in ancient meander bluff of R Wensum.
Slade Hill Chalk Pit	TG 1340 1314	Disused quarry - Cretaceous geology	Geological	Former exposure of Cretaceous Campanian Chalk of the G.quadrata zone. Site listed by Blake 1888.
Ringland Pits	TG 144 128	Disused quarry - Pleistocene geology	Geological	Former exposure of gravels mapped by BGS as Wensum Terrace 1 developed in inside loop of meander. Small remaining exposure present on sandy bank in the northern side of the western pit. Link with biodiversity CWS.
Alderford Chalk Pit	TG 129 182	Disused quarry - Cretaceous geology	Geological	Exposure of Campanian Chalk, upper zone of G. quadrata. Link with chalk grassland SSSI (bio).
Booton Clay Pits	TG 13487 22368	Disused quarry - Pleistocene geology	Geological	Exposure of Pleistocene [Happisburgh Formation]
Pretty Corner	TG 151 414	Glacigenic and periglacial landforms -	Geo-morphological	Good example of Pleistocene periglacial topography of the north side of the Cromer Ridge,

Site name	Grid Reference	Site description	Site type	Geodiversity features
		Pleistocene geomorphology		notably erosional ravines and dry valleys enlarged by solifluction, snow-melt and spring-sapping action. Link with biodiversity CWS.
Weybourne Town Pit SSSI	TG 1139 4304	Disused quarry - Pleistocene geology	Geological	Nationally important exposure of M Pleistocene glacigenic sediments of Sheringham Cliffs Formation, incl 'Marly Drift' facies. Type-site for the Weybourne Town Till Mbr. Significant as the only known site where evidence of both British and North Sea ice
Stonepit Hill Pit	TG 1497 3809	Disused quarry - Pleistocene geology	Historical	Former exposure of Pleistocene [Anglian] sands, gravels and clays], including probable findspot of Palaeolithic hand-axes and a Levallois flake.
Weybourne Cliffs SSSI	TG 127 436	Cliff exposure - Cretaceous and Pleistocene geology + Offshore reef landform - Holocene geomorphology	Geological & Geo-morphological	Nationally important cliff section containing: * Exposure of the Cretaceous Campanian Chalk of the Weybourne Chalk sub-division, B.mucronata Zone. 17m of mostly soft white chalk containing hardground rich in oysters, with several prominent flint bands. T
Attlebridge Quarry	TG 147 160	Disused quarry - Pleistocene geology	Historical	Former exposures of Pleistocene glacial and/or glaciofluvial sand and gravel of [Anglian] age, now backfilled and landscaped.
Lenwade Gravel Pits (East)	TG 109 184	Disused flooded quarry - Pleistocene geology	Historical	Former exposures of Pleistocene terrace gravels of River Wensum. Probable findspot of Palaeolithic hand-axes. Link with biodiversity CWS.
Barford Borehole	TG 111 069	Borehole site - Pleistocene geology	Historical	Site of [BGS] borehole proving deep channel (up to -34.7mOD) cut into Cretaceous Chalk containing Pleistocene Anglian Lowestoft Till overlain by lacustrine deposits of Hoxnian interglacial age (the Barford Formation).
Bawburgh Road Chalk Pit	TG 1464 0956	Disused quarry - Cretaceous geology	Geological	Exposure of chalk of G.quadrata with fossil fauna Chalk close to the surface here along side of R. Yare valley, and possibly emplaced in a glaciotectoic raft.

Site name	Grid Reference	Site description	Site type	Geodiversity features
Muckleburgh Hill	TG 100 430	Glacigenic landform - Pleistocene geology	Geo-morphological & Economic	Pleistocene glacial landform comprising erosional outlier on north side of Kelling Heath outwash plain [of Anglian age]. Probably associated with the de-glaciation of the Anglian ice sheet and connected to the Kelling and Salthouse Heath sandurs. Ironsto
Kelling Heath SSSI	TG 100 420	Area of glacial outwash plain - Pleistocene geology	Geo-morphological & Archaeological	Nationally important example of relict glacial outwash plain (sandur), including ice-contact slopes and dry valleys; associated with nearby Salthouse Heath and Muckleburgh Hill. Perhaps the best example of a glacial outwash plain in England (SSSI citatio
West Lodge Pit	TG 136 111	Disused quarry - Pleistocene geology	Geological	Exposure of Anglian 'cannon-shot' plateau gravels composing the Westlodge Hills, part of the Ringland Hills dissected outwash plain system.
Algarshorpe Chalk Pit	TG 1446 0888	Disused quarry - Cretaceous geology	Geological & Historical	Former exposure of Cretaceous Campanian chalk of G.quadrata zone, with fossil fauna.
Great Melton Chalk Pit	TG 1320 0786	Disused quarry - Cretaceous geology	Geological	Exposure of Cretaceous Campanian chalk of G.quadrata zone.
Marlingford Chalk Pit	TG 137 093	Disused quarry - Cretaceous geology	Geological	Exposure of Cretaceous Campanian chalk of G.quadrata zone, surrounded by sands and gravels interpreted as Terrace 4 on BGS map.
Marlingford Quarry	TG 120 093	Disused quarry - Pleistocene geology	Historical	Former exposure of Pleistocene glacial sands and gravels
North Norfolk Coast SSSI (North Norfolk District part)	TF 950 454	Coastline with geomorphological features in North Norfolk District - Holocene geomorphology	Geo-morphological & Envrionmental	Nationally important example of coastal landform assemblage, comprising part of a 40km stretch of Holocene intertidal sands and muds, saltmarshes, shingle banks and sand dunes, including the shingle spit at Blakeney Point and the offshore shingle bank at
Itteringham Gravel Pit	TG 139 305	Disused flooded quarry - Pleistocene geology	Geological & Environmental	Former exposures of Pleistocene terrace deposits of the R. Bure valley, including silts and gravels of Ipswichian and Devensian interglacial age yielding vertebrate fossil fauna, particularly a significant herpetofauna.

The data search with NBIS also revealed the following six Veteran trees within the PEIR boundary.

Table 5: Veteran Trees within the PEIR boundary

Civil Parish	Tree Species	Grid Reference	Location Description	Tree Description
Itteringham	Oak	TG 13520 32900	On side of Matlaske Road between Saxthorpe and Little Barningham, on the edge of the PEIR boundary.	Pollarded at 3m. Trunk circumference 3.3m.
Itteringham	Oak	TG 13520 32900	On side of Matlaske Road between Saxthorpe and Little Barningham, on the edge of the PEIR boundary.	Pollarded at 2m. Trunk circumference 3.3m.
Great Melton	Oak	TG 12304 07007	On the south side of Burdock Lane east of Barford.	Pollarded. Trunk circumference 2.5m.
Swainsthorpe	Oak	TG 21288 01522	In field boundary hedgerow south of Hickling Lane and east of Gowthorpe Lane.	Pollarded. Trunk circumference 4.06m.
Swainsthorpe	Beech	TG 22150 02659	On side of road leading into the National Grid substation at Norwich Main.	Trunk circumference 4.56m.

Maps showing the locations of the sites and features listed above are shown in Figures 1-10. These figures reproduce the the maps provided by NBIS and therefore show the search area as of January 2021. This includes a possible compound site on Attlebridge Airfield near Weston Longville which was under consideration at the time but has since been removed from the PEIR boundary. Designated nature conservation sites within 2km of this removed part of the PEIR boundary (but beyond 2km from the current PEIR boundary) are not included in this report.

Figure 1: Designated Nature Conservation Sites Map 1 – Landfall Location to Bodham (reproduced NBIS maps)

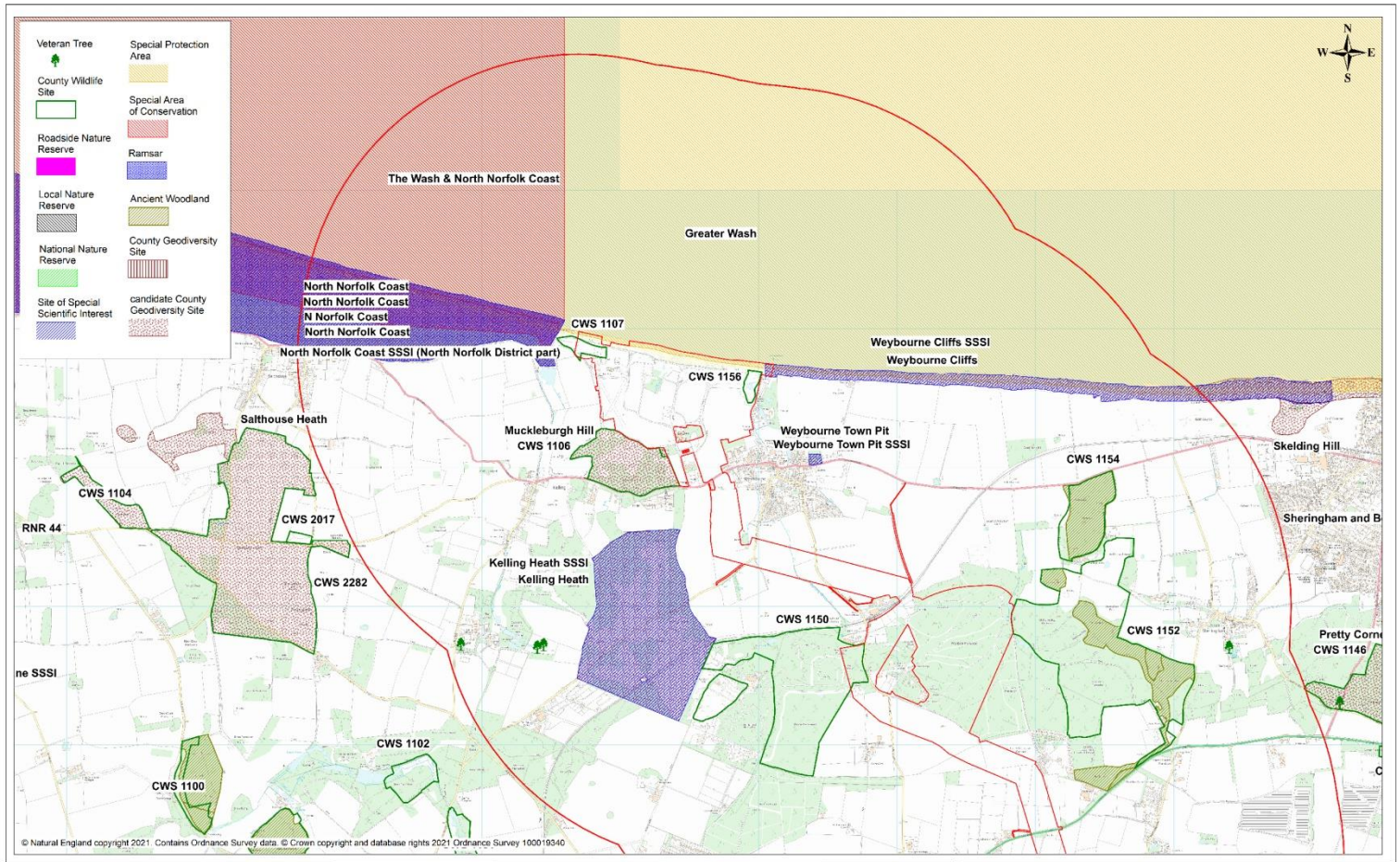


Figure 2: Designated Nature Conservation Sites Map 2 – Bodham to Little Plumstead (reproduced NBIS maps)

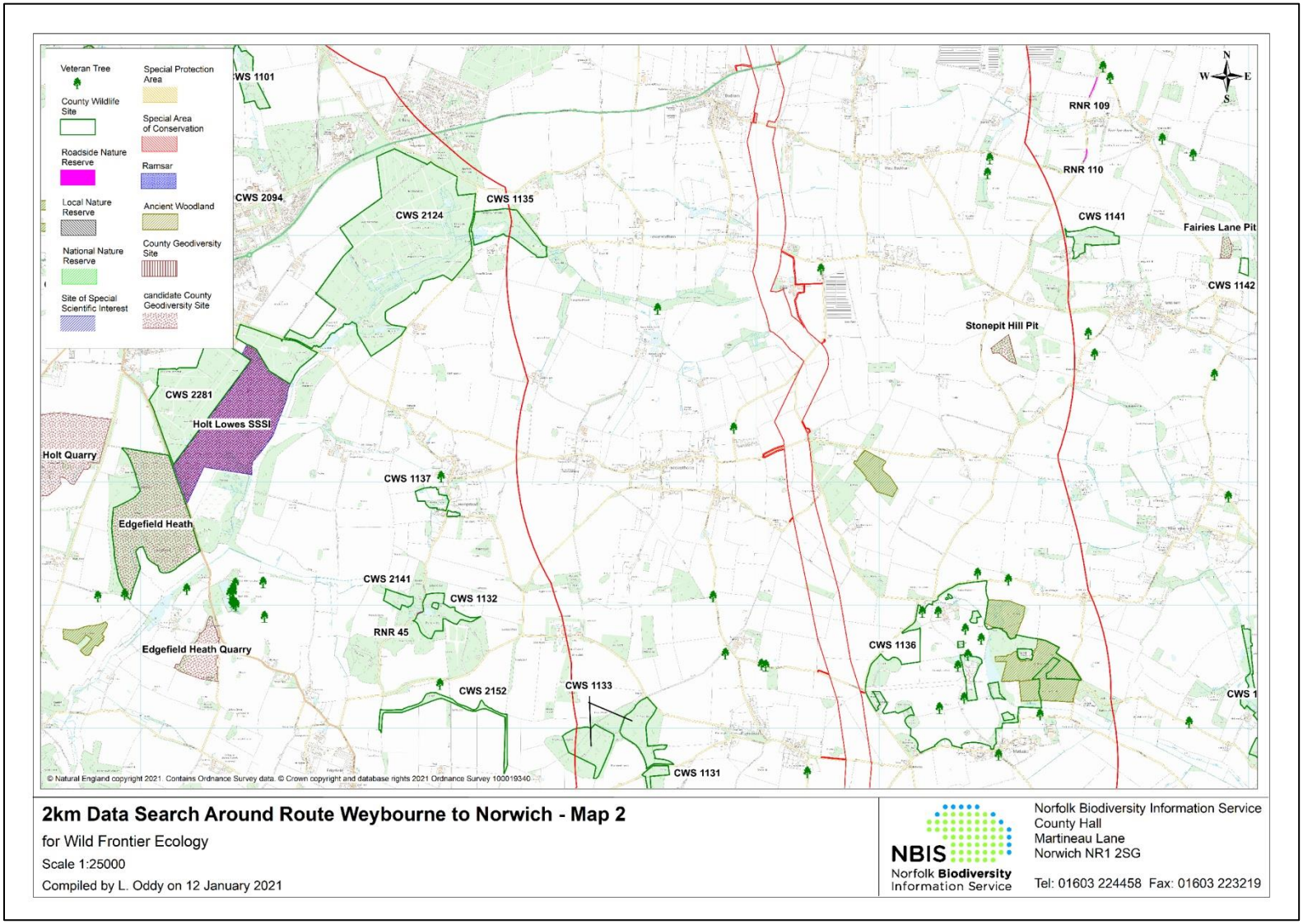


Figure 3: Designated Nature Conservation Sites Map 3 – Plumstead to Saxthorpe (reproduced NBIS maps)

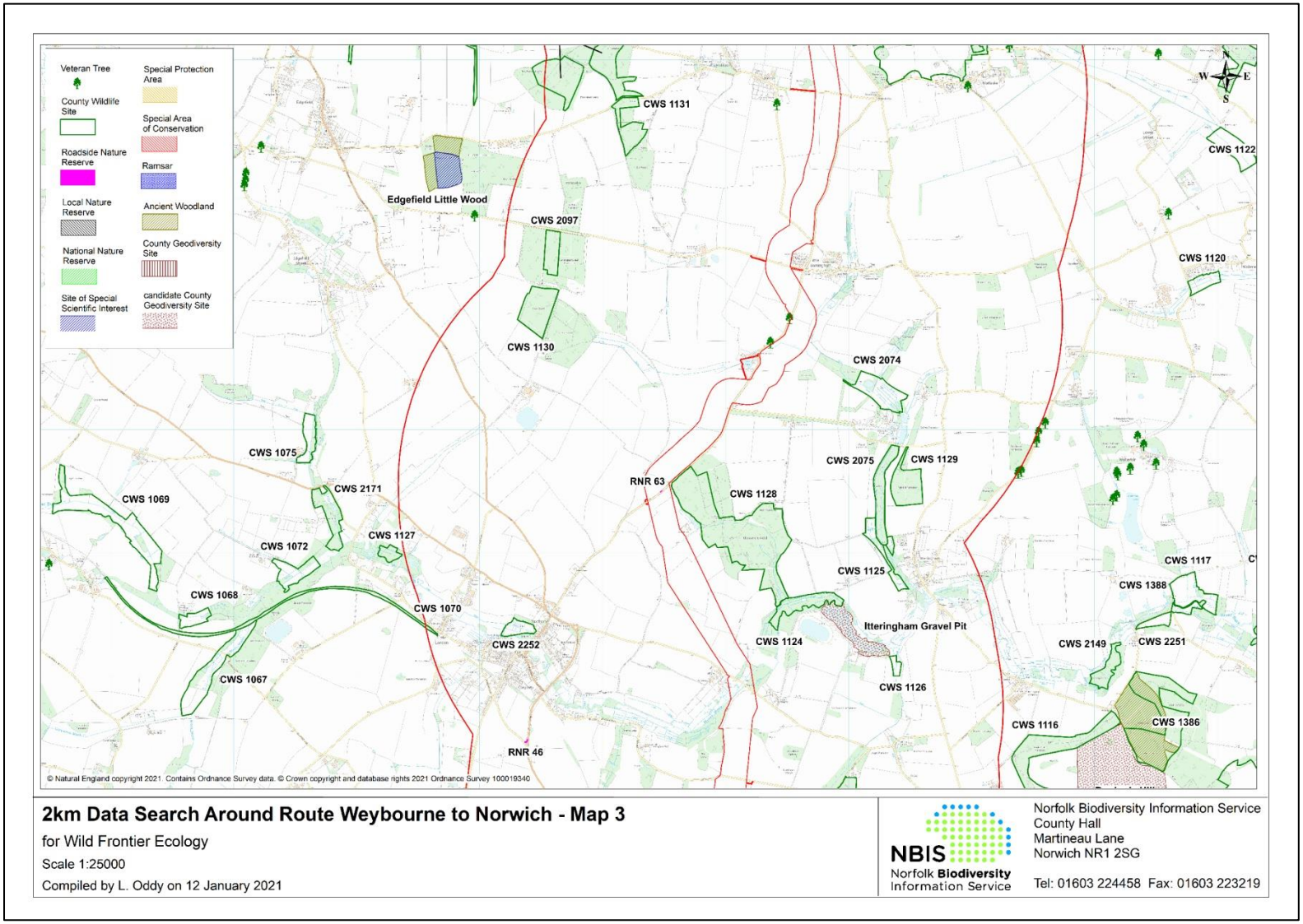


Figure 4: Designated Nature Conservation Sites Map 4 – Saxthorpe to Cawston (reproduced NBIS maps)

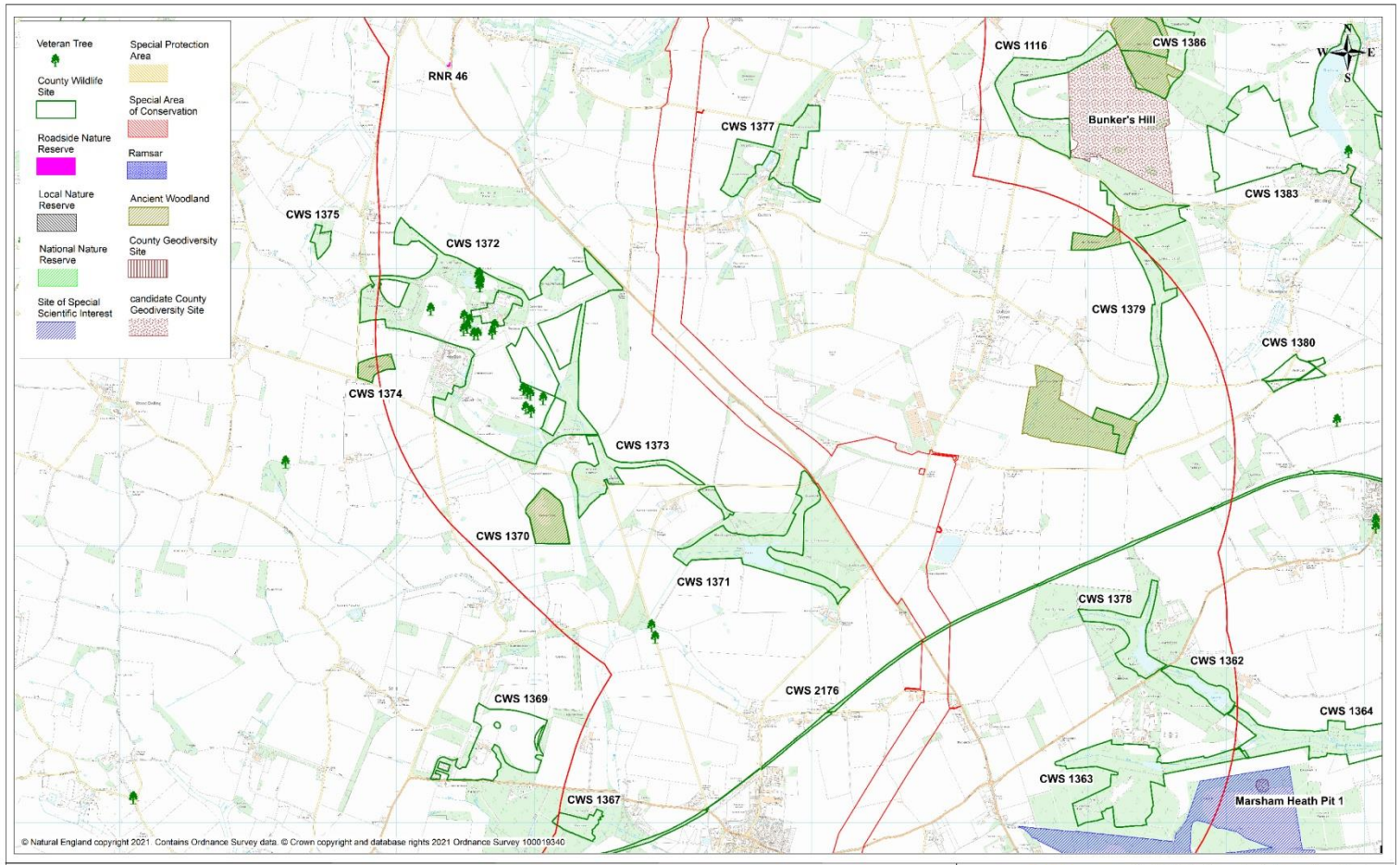


Figure 5: Designated Nature Conservation Sites Map 5 – Cawston to Swannington (reproduced NBIS maps)

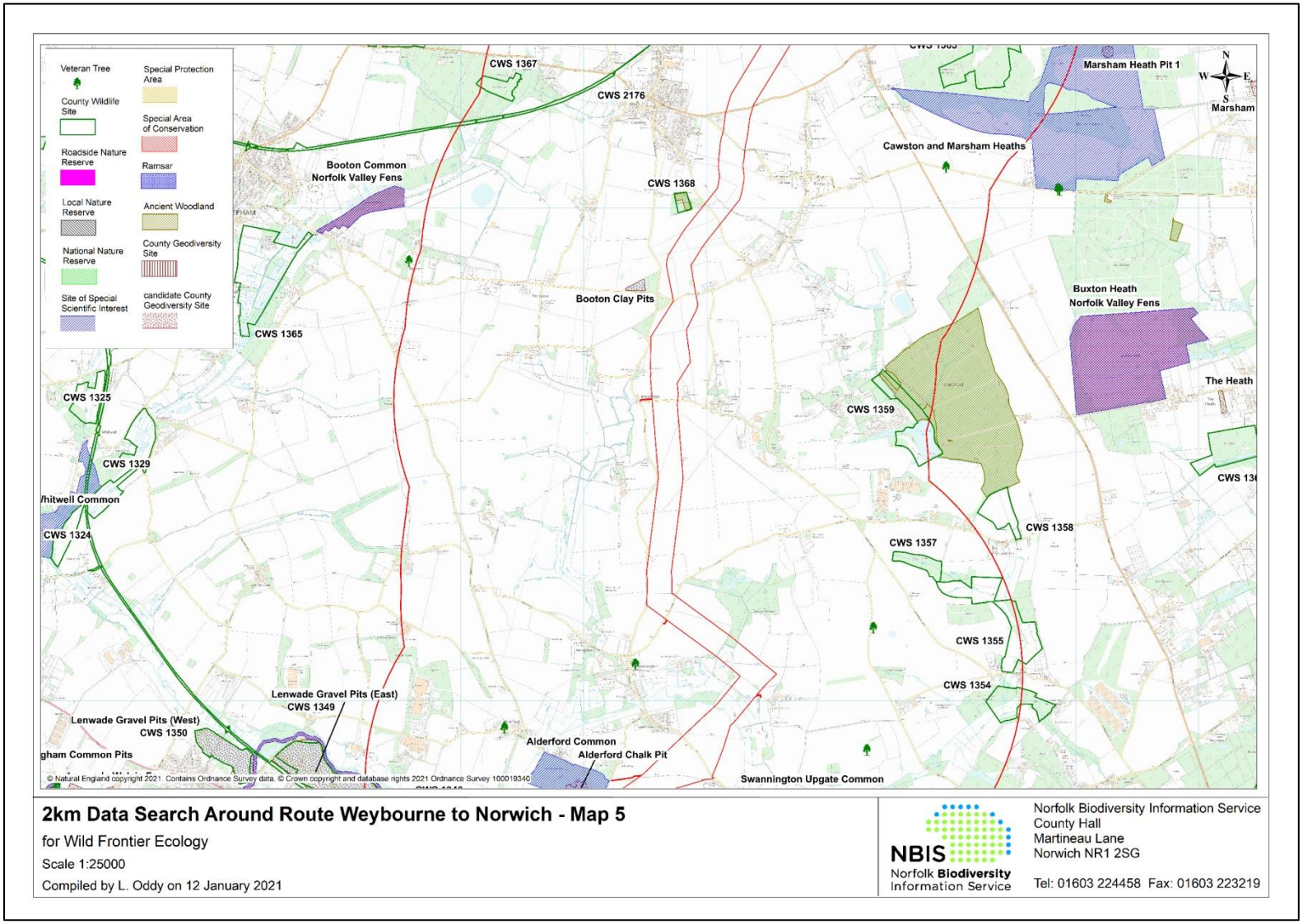


Figure 6: Designated Nature Conservation Sites Map 6 - Swannington to Weston Green* (reproduced NBIS maps)

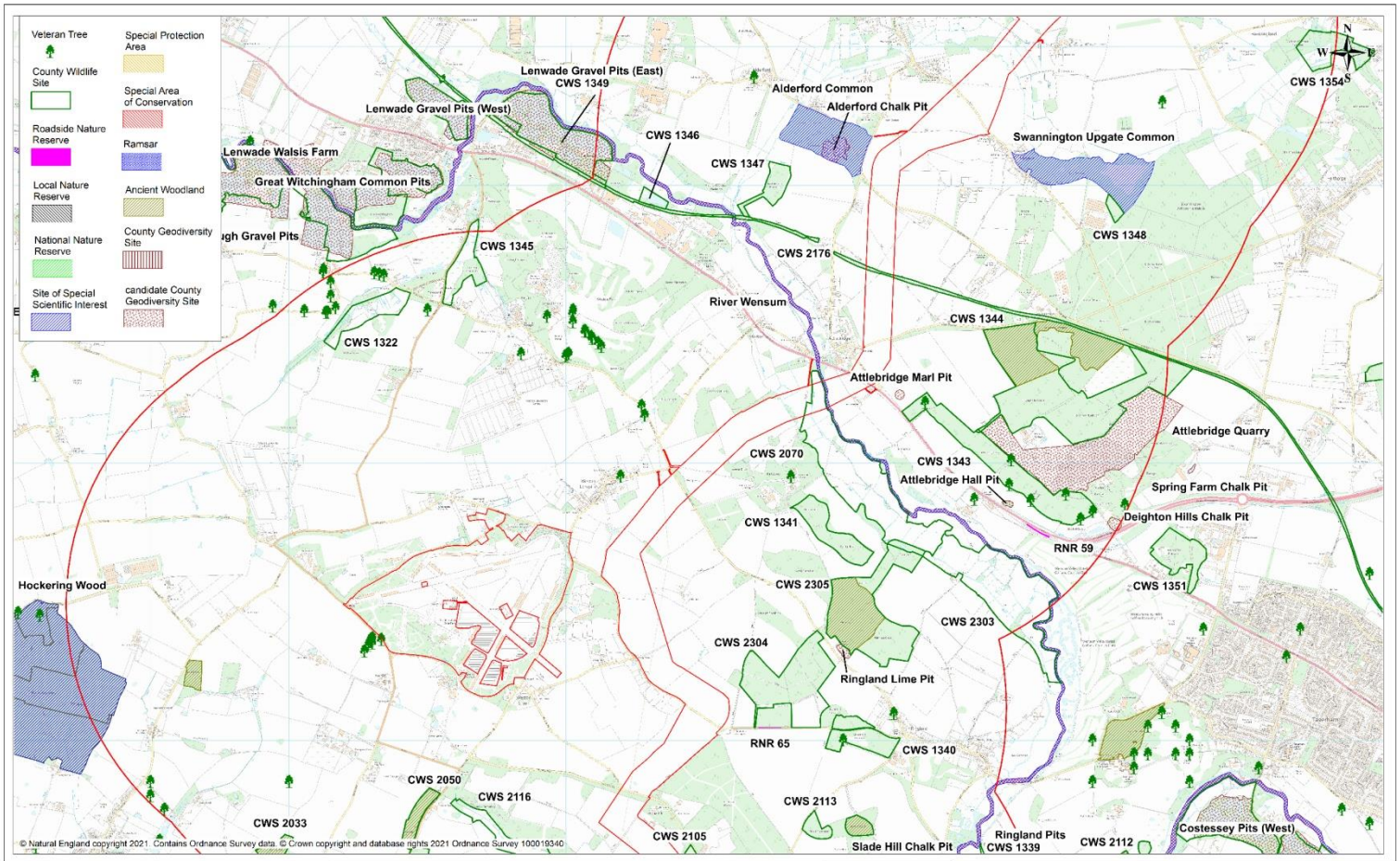


Figure 7: Designated Nature Conservation Sites Map 7 – Weston Green* to Marlingford (reproduced NBIS maps)

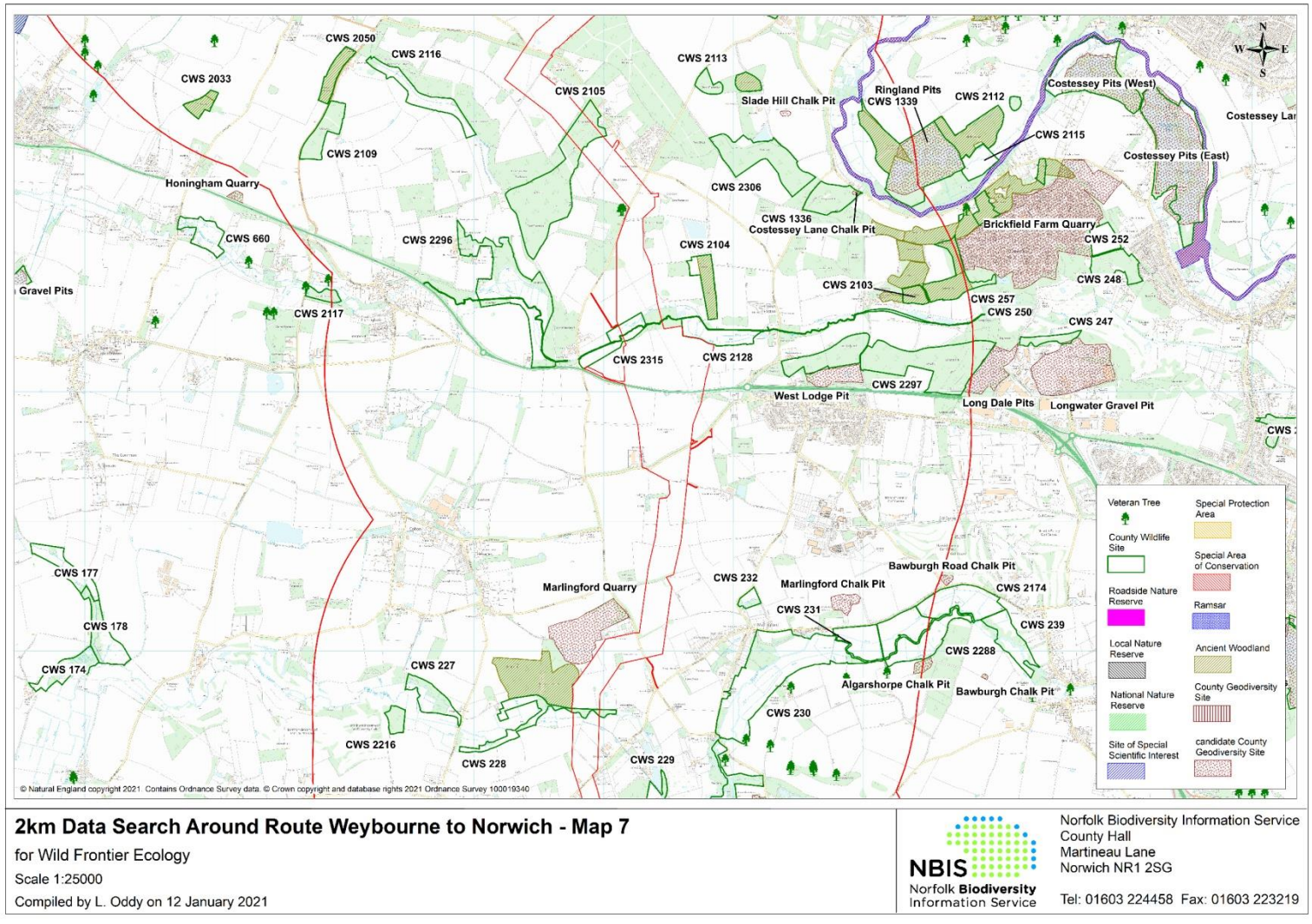


Figure 8: Designated Nature Conservation Sites Map 8 – Marlingford to Ketteringham (reproduced NBIS maps)

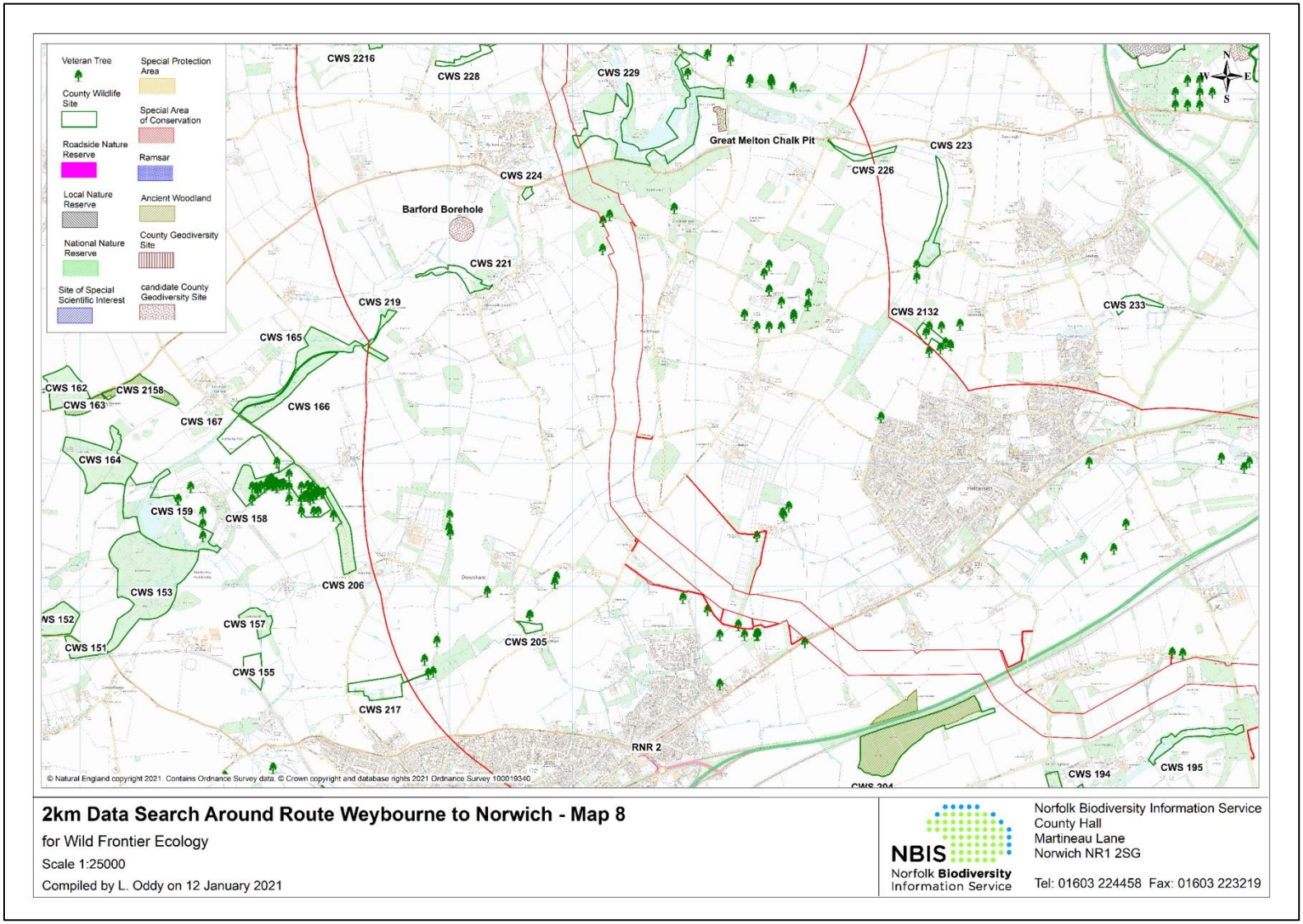


Figure 9: Designated Nature Conservation Sites Map 9 – Great Melton to Swardeston (reproduced NBIS maps)

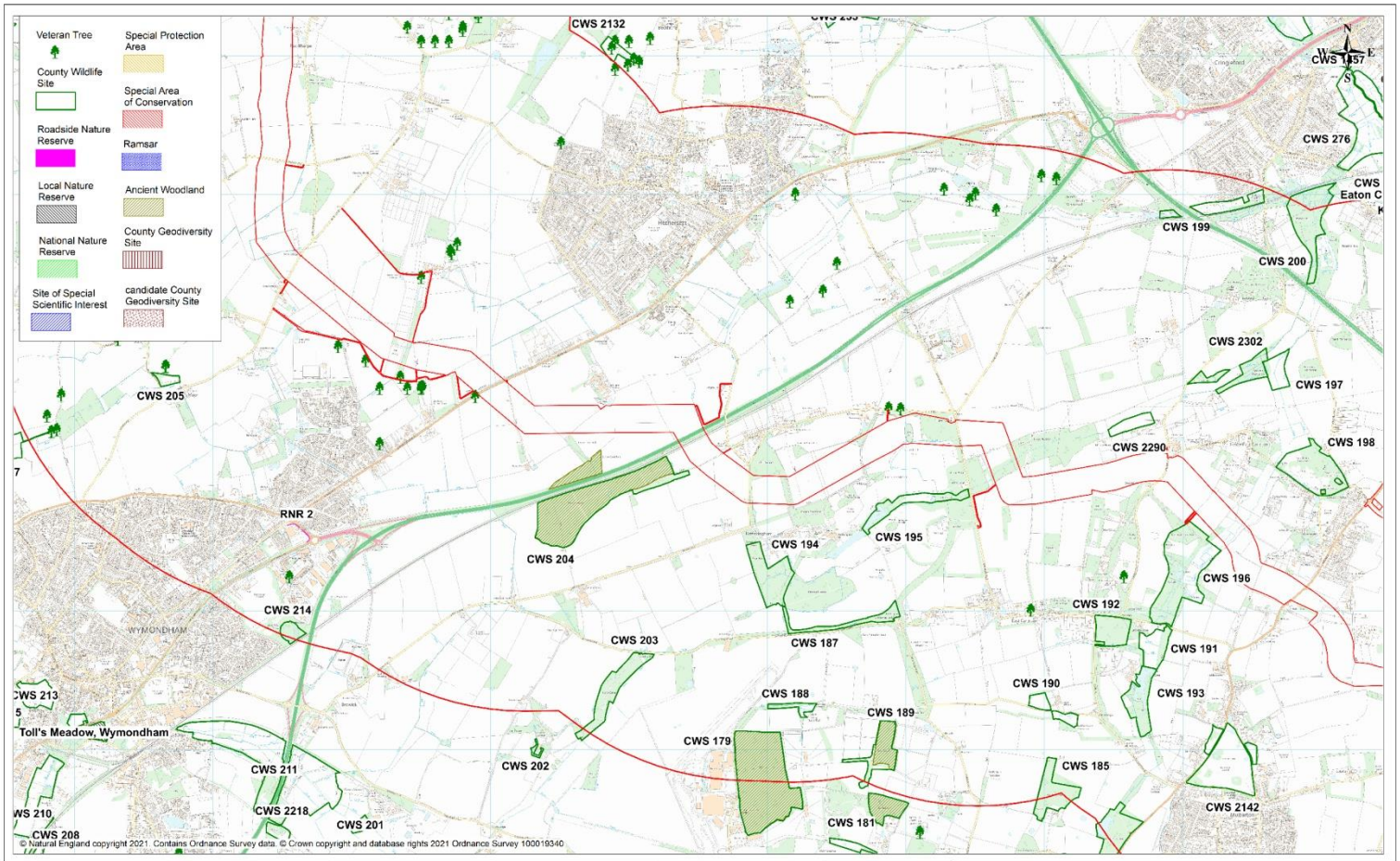
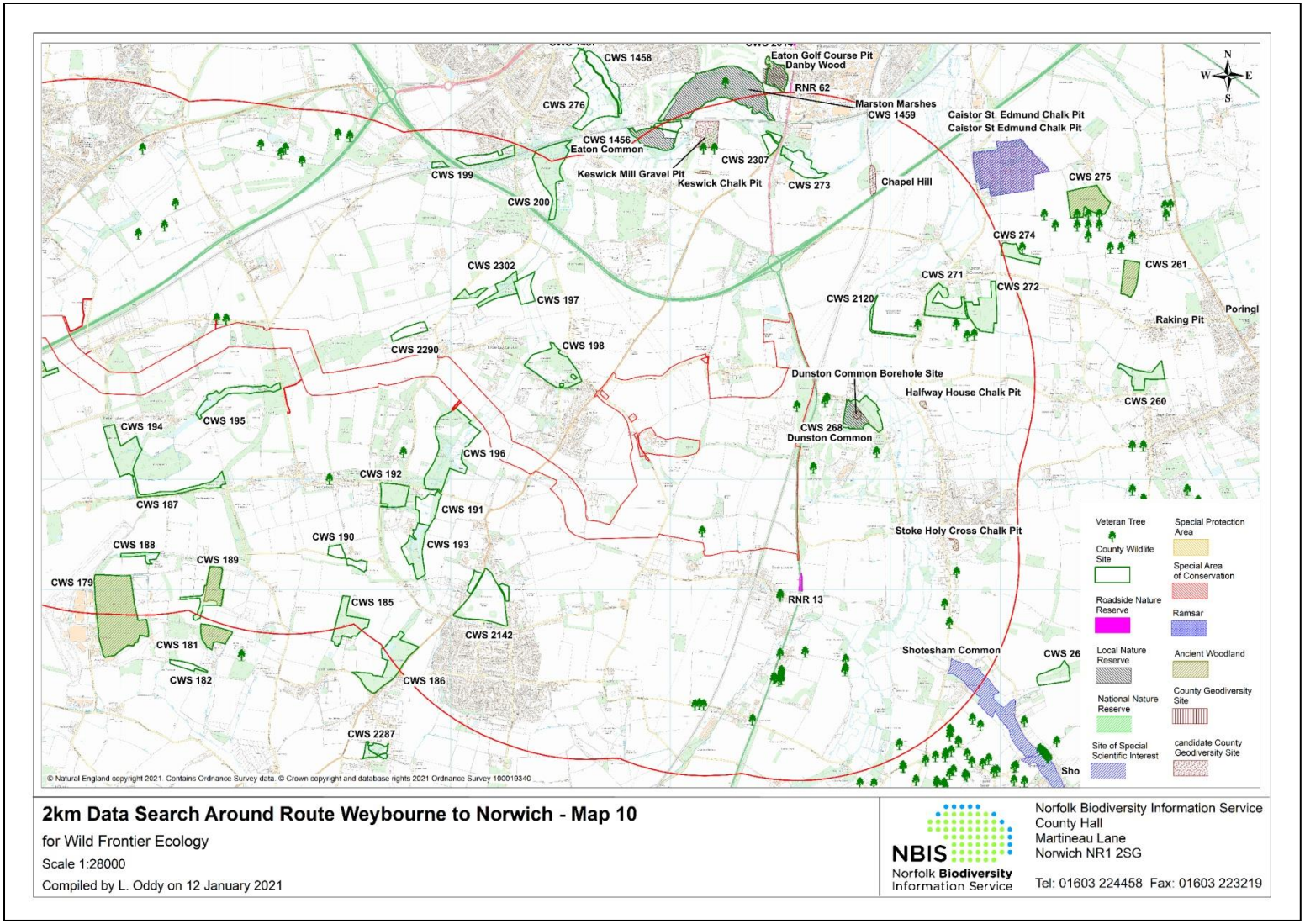


Figure 10: Designated Nature Conservation Sites Map 10 – Kettteringham to Onshore Substation Area (reproduced NBIS maps)



*Figures 6 and 7 include the potential construction compound on Attlebridge Airfield near Weston Longville. However, since the data request, this area has now been removed from the PEIR boundary and so the 2km search area in this location is different to that shown on these figures.

3.3. Biological Records from NBIS

The NBIS biological records search returned thousands of records relating to hundreds of species. Those relevant to specific species for which targeted surveys have been undertaken (e.g. bird records) are presented in the appropriate survey report and have not been repeated here. The remaining records are summarised below:

- Four records of two fungus species;
- One record of a liverwort;
- 24 records of 10 moss species;
- Nine records of seven flowering plant species;
- Five records of white-clawed crayfish: three records from the River Glaven (dated 2006) and one from the River Wensum near Attlebridge (dated 2009).
- One true insect (hemiptera) record;
- 10 records of eight beetle (coleoptera) species
- 5,220 records of 86 moth species;
- Eight records of five butterfly species;
- 94 records of 29 insect (hymenoptera) species;
- Five records of jawless fish, including three records of brook lamprey: one record from a tributary of the River Wensum (dated 2007), one from the River Bure and one from the River Tas (both dated 2006).
- 11 records of six bony fish species, including five records of bullhead: three records from the River Yare (dated 2005), one from a tributary of the River Wensum (dated 2007) and one from the River Tas (dated 2005);
- 60 records of smooth newt *Lissotriton vulgaris;*
- 61 records of common toad *Bufo bufo;*
- 64 records of common frog *Rana temporaria;*
- 16 records of common lizard;
- 20 records of slow worm *Anguis fragilis;*
- 16 records of grass snake *Natrix helveticus;*
- Six records of adder (records of all four reptile species are centred around Ketteringham/Swardeston, Ringland, Weston Longville, Attlebridge, Swannington and Bodham/Kelling);

- 616 records of hedgehog *Erinaceus europeaus*
- 58 records of otter, with records from water-bodies distributed throughout the PEIR boundary and surrounding 2km area;
- 195 records of badger, with most records relating to road fatalities on most major roads within and around the PEIR boundary, particularly the A11, A47, A1067, B1149 and A148;
- 20 records of polecat *Mustela pustorius;*
- 46 records of water vole, with records from water-bodies distributed throughout the PEIR boundary and surrounding 2km area;
- 20 records of harvest mouse *Micromys minutus;* and,
- 305 records of brown hare *Lepus europaeus*.

3.4. Other Data Sources

3.3.1. Norfolk Crayfish Group

The NCG 2020 Survey report results for relevant watercourses within the PEIR boundary are summarised in Table 5, below:

Table 5: NCG Survey Report Results Summary

Water body	Site	White-Clawed Crayfish	American Signal Crayfish	Notes
Weybourne Stream	Beach Road outfall	Unknown – assumed present	Unknown	Weybourne Stream is a receptor site for white-clawed crayfish taken from from the Rivers Wensum and Tat donor sites in September 2016
River Glaven	Letheringsett ford	Known present	Assumed absent	Major donor site
River Glaven	Hunworth ford	Assumed present	Assumed absent	None
River Glaven	Home Farm	Known present	Known present	Populations coexist in low numbers
River Glaven	Thornage, Gunthorpe	Assumed present	Assumed absent	Receptor site in 2012
River Bure	Moorgate Bridge	Assumed absent	Known present	None

3.3.2. Great Crested Newt data from UCL Pond Restoration Research Group

The data on great crested newts from the UCLPRRG is provided in full in the Great Crested Newt HSI and eDNA Survey Appendix 2020.

3.5. Constraints and Limitations of Survey

The biological records and the information on designated nature conservation sites are current as of January 2021; new records (particularly biological records) are added to NBIS's database fairly continuously, and so there may be newly submitted records (post-January 2021) not included in this data set.

Some of the organisations consulted for biological records have not responded as of April 2021, meaning there may be some relevant records which cannot be included in the assessment. It is expected that records will be provided later in 2021.

These constraints are not expected to have had any notable limitations on the assessment of the ecological baseline because it is extremely unlikely that substantial numbers of new/unknown records of species/sites of ecological interest are not included in the data obtained in this desk study.

Annex 1: Statutory Designated Site Citations

River Wensum SAC

NATURA 2000 - STANDARD DATA FORM

**For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)**

SITE **UK0012647**

SITENAME **River Wensum**

TABLE OF CONTENTS

1. SITE IDENTIFICATION

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1.1 Type	1.2 Site code
B	UK0012647

1.3 Site name

River Wensum

1.4 First Compilation date	1.5 Update date
2001-03	2015-12

1.6 Respondent:

Name/Organisation: Joint Nature Conservation Committee

Address: Joint Nature Conservation Committee Monkstone House City Road Peterborough PE1 1JY

Email:

Date site proposed as SCI:	2001-03
Date site confirmed as SCI:	2004-12
Date site designated as SAC:	2005-04
National legal reference of SAC designation:	Regulations 11 and 13-15 of the Conservation of Habitats and Species Regulations 2010 (http://www.legislation.gov.uk/uksi/2010/490/contents/made).

2. SITE LOCATION

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2.1 Site-centre location [decimal degrees]:

Longitude	Latitude
0.993888889	52.71777778

2.2 Area [ha]:

306.79

2.3 Marine area [%]

0.0

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code	Region Name
UKH1	East Anglia

2.6 Biogeographical Region(s)

Atlantic (100.0 %)

3. ECOLOGICAL INFORMATION

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3.1 Habitat types present on the site and assessment for them

Annex I Habitat types						Site assessment			
Code	PF	NP	Cover [ha]	Cave [number]	Data quality	A|B|C|D	A|B|C		
						Representativity	Relative Surface	Conservation	Global
3260			61.36		M	B	C	B	B
7210	X		1.53		G	D			
91E0	X		1.53		G	D			

- **PF:** for the habitat types that can have a non-priority as well as a priority form (6210, 7130, 9430) enter "X" in the column PF to indicate the priority form.
- **NP:** in case that a habitat type no longer exists in the site enter: x (optional)
- **Cover:** decimal values can be entered
- **Caves:** for habitat types 8310, 8330 (caves) enter the number of caves if estimated surface is not available.
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation)

3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species					Population in the site						Site assessment			
G	Code	Scientific Name	S	NP	T	Size		Unit	Cat.	D.qual.	A|B|C|D	A|B|C		
						Min	Max				Pop.	Con.	Iso.	Glo
I	1092	Austropotamobius pallipes			p				C	DD	C	B	B	B
F	1163	Cottus gobio			p				C	DD	C	B	C	C
F	1096	Lampetra planeri			p				C	DD	C	B	C	C
I	1016	Vertigo moulinsiana			p				C	DD	C	B	C	C

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see reference portal)
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

4. SITE DESCRIPTION

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4.1 General site character

Habitat class	% Cover
N06	42.0
N10	40.0
N07	12.0
N16	6.0
Total Habitat Cover	100

Other Site Characteristics

1 Terrestrial: Soil & Geology: alluvium,clay,nutrient-rich,neutral,sedimentary,peat,basic,sand 2 Terrestrial: Geomorphology and landscape: lowland,floodplain,valley

4.2 Quality and importance

Water courses of plain to montane levels with the Ranunculion fluitantis and Callitricho-Batrachion vegetation for which this is considered to be one of the best areas in the United Kingdom. Lampetra planeri for which the area is considered to support a significant presence. Cottus gobio for which the area is considered to support a significant presence. Vertigo moulinsiana for which the area is considered to support a significant presence. Austropotamobius pallipes for which this is considered to be one of the best areas in the United Kingdom.

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	Threats and pressures [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	J02		B
H	I01		B
H	H02		B

Positive Impacts			
Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	B02		I
H	A06		I
H	A04		I
H	A02		I

Rank: H = high, M = medium, L = low
Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification, T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions
i = inside, o = outside, b = both

4.5 Documentation

Conservation Objectives - the Natural England links below provide access to the Conservation Objectives (and other site-related information) for its terrestrial and inshore Natura 2000 sites, including conservation advice packages and supporting documents for European Marine Sites within English waters and for cross-border sites. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): http://publications.naturalengland.org.uk/category/6490068894089216

http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

http://publications.naturalengland.org.uk/category/3212324

5. SITE PROTECTION STATUS (optional)

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5.1 Designation types at national and regional level:

Code	Cover [%]	Code	Cover [%]	Code	Cover [%]
UK04	100.0				

6. SITE MANAGEMENT

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6.1 Body(ies) responsible for the site management:

Organisation:	Natural England
Address:	
Email:	

6.2 Management Plan(s):

An actual management plan does exist:

- [ ] Yes
- [ ] No, but in preparation
- [X] No

6.3 Conservation measures (optional)

For available information, including on Conservation Objectives, see Section 4.5.

EXPLANATION OF CODES USED IN THE NATURA 2000 STANDARD DATA FORMS

The codes in the table below are also explained in the official European Union guidelines for the Standard Data Form. The relevant page is shown in the table below.

1.1 Site type

CODE	DESCRIPTION	PAGE NO
A	Designated Special Protection Area	53
B	SAC (includes candidates Special Areas of Conservation, Sites of Community Importance and designated SAC)	53
C	SAC area the same as SPA. Note in the UK Natura 2000 submission this is only used for Gibraltar	53

3.1 Habitat representativity

CODE	DESCRIPTION	PAGE NO
A	Excellent	57
B	Good	57
C	Significant	57
D	Non-significant presence	57

3.1 Habitat code

CODE	DESCRIPTION	PAGE NO
1110	Sandbanks which are slightly covered by sea water all the time	57
1130	Estuaries	57
1140	Mudflats and sandflats not covered by seawater at low tide	57
1150	Coastal lagoons	57
1160	Large shallow inlets and bays	57
1170	Reefs	57
1180	Submarine structures made by leaking gases	57
1210	Annual vegetation of drift lines	57
1220	Perennial vegetation of stony banks	57
1230	Vegetated sea cliffs of the Atlantic and Baltic Coasts	57
1310	Salicornia and other annuals colonizing mud and sand	57
1320	Spartina swards (Spartinion maritimae)	57
1330	Atlantic salt meadows (Glauco-Puccinellietalia maritimae)	57
1340	Inland salt meadows	57
1420	Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi)	57
2110	Embryonic shifting dunes	57
2120	Shifting dunes along the shoreline with Ammophila arenaria ("white dunes")	57
2130	Fixed coastal dunes with herbaceous vegetation ("grey dunes")	57
2140	Decalcified fixed dunes with Empetrum nigrum	57
2150	Atlantic decalcified fixed dunes (Calluno-Ulicetea)	57
2160	Dunes with Hippopha□ rhamnoides	57
2170	Dunes with Salix repens ssp. argentea (Salicion arenariae)	57
2190	Humid dune slacks	57
21A0	Machairs (* in Ireland)	57
2250	Coastal dunes with Juniperus spp.	57
2330	Inland dunes with open Corynephorus and Agrostis grasslands	57
3110	Oligotrophic waters containing very few minerals of sandy plains (Littorelletalia uniflorae)	57
3130	Oligotrophic to mesotrophic standing waters with vegetation of the Littorelletea uniflorae and/or of the Isoëto-Nanojuncetea	57
3140	Hard oligo-mesotrophic waters with benthic vegetation of Chara spp.	57
3150	Natural eutrophic lakes with Magnopotamion or Hydrocharition - type vegetation	57

3.1 Relative surface

CODE	DESCRIPTION	PAGE NO
A	15%-100%	58
B	2%-15%	58
C	< 2%	58

3.1 Conservation status habitat

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	59
B	Good conservation	59
C	Average or reduced conservation	59

3.1 Global grade habitat

CODE	DESCRIPTION	PAGE NO
A	Excellent value	59
B	Good value	59
C	Significant value	59

3.2 Population (abbreviated to 'Pop.' in data form)

CODE	DESCRIPTION	PAGE NO
A	15%-100%	62
B	2%-15%	62
C	< 2%	62
D	Non-significant population	62

3.2 Conservation status species (abbreviated to 'Con.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent conservation	63
B	Good conservation	63
C	Average or reduced conservation	63

3.2 Isolation (abbreviated to 'Iso.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Population (almost) Isolated	63
B	Population not-isolated, but on margins of area of distribution	63
C	Population not-isolated within extended distribution range	63

3.2 Global Grade (abbreviated to 'Glo.' Or 'G.' in data form)

CODE	DESCRIPTION	PAGE NO
A	Excellent value	63
B	Good value	63
C	Significant value	63

3.3 Assemblages types

CODE	DESCRIPTION	PAGE NO
WATR	Non breeding waterfowl assemblage	UK specific code
SBA	Breeding seabird assemblage	UK specific code
BBA	Breeding bird assemblage (applies only to sites classified pre 2000)	UK specific code

4.1 Habitat class code

CODE	DESCRIPTION	PAGE NO
N01	Marine areas, Sea inlets	65
N02	Tidal rivers, Estuaries, Mud flats, Sand flats, Lagoons (including saltwork basins)	65
N03	Salt marshes, Salt pastures, Salt steppes	65
N04	Coastal sand dunes, Sand beaches, Machair	65
N05	Shingle, Sea cliffs, Islets	65
N06	Inland water bodies (Standing water, Running water)	65
N07	Bogs, Marshes, Water fringed vegetation, Fens	65
N08	Heath, Scrub, Maquis and Garrigue, Phygrana	65
N09	Dry grassland, Steppes	65
N10	Humid grassland, Mesophile grassland	65
N11	Alpine and sub-Alpine grassland	65
N14	Improved grassland	65
N15	Other arable land	65
N16	Broad-leaved deciduous woodland	65
N17	Coniferous woodland	65
N19	Mixed woodland	65
N21	Non-forest areas cultivated with woody plants (including Orchards, groves, Vineyards, Dehesas)	65
N22	Inland rocks, Screes, Sands, Permanent Snow and ice	65
N23	Other land (including Towns, Villages, Roads, Waste places, Mines, Industrial sites)	65
N25	Grassland and scrub habitats (general)	65
N26	Woodland habitats (general)	65

4.3 Threats code

CODE	DESCRIPTION	PAGE NO
A01	Cultivation	65
A02	Modification of cultivation practices	65
A03	Mowing / cutting of grassland	65
A04	Grazing	65
A05	Livestock farming and animal breeding (without grazing)	65
A06	Annual and perennial non-timber crops	65
A07	Use of biocides, hormones and chemicals	65
A08	Fertilisation	65
A10	Restructuring agricultural land holding	65
A11	Agriculture activities not referred to above	65
B01	Forest planting on open ground	65
B02	Forest and Plantation management & use	65
B03	Forest exploitation without replanting or natural regrowth	65
B04	Use of biocides, hormones and chemicals (forestry)	65
B06	Grazing in forests/ woodland	65
B07	Forestry activities not referred to above	65
C01	Mining and quarrying	65
C02	Exploration and extraction of oil or gas	65
C03	Renewable abiotic energy use	65
D01	Roads, paths and railroads	65
D02	Utility and service lines	65
D03	Shipping lanes, ports, marine constructions	65
D04	Airports, flightpaths	65
D05	Improved access to site	65
E01	Urbanised areas, human habitation	65
E02	Industrial or commercial areas	65

CODE	DESCRIPTION	PAGE NO
E03	Discharges	65
E04	Structures, buildings in the landscape	65
E06	Other urbanisation, industrial and similar activities	65
F01	Marine and Freshwater Aquaculture	65
F02	Fishing and harvesting aquatic ressources	65
F03	Hunting and collection of wild animals (terrestrial), including damage caused by game (excessive density), and taking/removal of terrestrial animals (including collection of insects, reptiles, amphibians, birds of prey, etc., trapping, poisoning, poaching, predator control, accidental capture (e.g. due to fishing gear), etc.)	65
F04	Taking / Removal of terrestrial plants, general	65
F05	Illegal taking/ removal of marine fauna	65
F06	Hunting, fishing or collecting activities not referred to above	65
G01	Outdoor sports and leisure activities, recreational activities	65
G02	Sport and leisure structures	65
G03	Interpretative centres	65
G04	Military use and civil unrest	65
G05	Other human intrusions and disturbances	65
H01	Pollution to surface waters (limnic & terrestrial, marine & brackish)	65
H02	Pollution to groundwater (point sources and diffuse sources)	65
H03	Marine water pollution	65
H04	Air pollution, air-borne pollutants	65
H05	Soil pollution and solid waste (excluding discharges)	65
H06	Excess energy	65
H07	Other forms of pollution	65
I01	Invasive non-native species	65
I02	Problematic native species	65
I03	Introduced genetic material, GMO	65
J01	Fire and fire suppression	65
J02	Human induced changes in hydraulic conditions	65
J03	Other ecosystem modifications	65
K01	Abiotic (slow) natural processes	65
K02	Biocenotic evolution, succession	65
K03	Interspecific faunal relations	65
K04	Interspecific floral relations	65
K05	Reduced fecundity/ genetic depression	65
L05	Collapse of terrain, landslide	65
L07	Storm, cyclone	65
L08	Inundation (natural processes)	65
L10	Other natural catastrophes	65
M01	Changes in abiotic conditions	65
M02	Changes in biotic conditions	65
U	Unknown threat or pressure	65
XO	Threats and pressures from outside the Member State	65

5.1 Designation type codes

CODE	DESCRIPTION	PAGE NO
UK00	No Protection Status	67
UK01	National Nature Reserve	67
UK02	Marine Nature Reserve	67
UK04	Site of Special Scientific Interest (UK)	67

River Wensum SSSI

Date of Notification: 4 February 1993

COUNTY: Norfolk SITE NAME: RIVER WENSUM

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981, section 17 of the Water Resources Act 1991, Section 4 of the Water Industry Act 1991 and Section 13 of the Land Drainage Act 1991.

National Rivers Authority Region: Anglian

International Drainage Board: River Wensum

Water Company: Anglian Water Plc

Local Planning Authorities: North Norfolk District Council, Norfolk County Council, Kings Lynn & West Norfolk District Council, South Norfolk District Council, Breckland District Council, Broadland District Council

National Grid Reference: TF 942246 to TG 250078

Length of River SSSI: Approx 71km Area: 393.31 (ha) 971.9 (ac)

Ordnance Survey Sheet 1:50,000: 132 133 134 1:10,000: TF 82 SE NE NW, TF 93 SE, TF 92 SE NE NW, TF 83 SE, TG 01 NE NW, TG 02 SW, TG 11 SE SW NW

Date of Notification (under 1981 Act): 1993

Other Information:
New site.

Description and Reasons for Notification:
Key features
The Wensum has been selected as one of a national series of rivers of special interest as an example of an enriched, calcareous lowland river. With a total of over 100 species of plants, a rich invertebrate fauna and a relatively natural corridor, it is probably the best whole river of its type in nature conservation terms, although short stretches of other similar rivers may show a slightly greater diversity of species.

The upper reaches are fed by springs that rise from the chalk and by run-off from calcareous soils rich in plant nutrients. This gives rise to dense beds of submerged and emergent vegetation characteristic of a chalk stream. Lower down, the chalk is overlain with boulder clay and river gravels, resulting in aquatic plant communities more typical of a slow-flowing river on mixed substrate. Diversity of plant species is further enhanced by mills and weirs; upstream the river slows to produce characteristic deep water plant communities, whilst below the barriers they are replaced by species tolerant of swirling and turbulent water.

Unusually for a lowland river in England, 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, including one of the most extensive reedbeds in the country outside the Broads, provide niches for a wide variety of specialised plants and animals.

The River itself supports an abundant and diverse invertebrate fauna including the native freshwater crayfish *Austropotamobius pallipes* as well as a good mixed fishery. Brown trout *Salmo trutta fario* form the major component of the fish community of the upper

Wensum, whilst the middle and lower reaches are dominated by chub *Leuciscus cephalus*, pike *Esox lucius*, eel *Anguilla anguilla* and barbel *Barbus barbus*. Kingfisher *Alcedo attthis* and little grebe *Tachybaptus ruficollis* breed along the River, whilst the adjacent wetlands have good populations of reed warblers *Acrocephalus scirpaceus*, sedge warblers *Acrocephalus schoenobaenus* and barn owls *Tyto alba*.

Flora

In the upper reaches on gravel substrates lesser water-parsnip *Berula erecta* and the brook water-crowfoot *Ranunculus penicillatus* form a large component of the flora. Where silt has been deposited, spiked water milfoil *Myriophyllum spicatum*, blue water-speedwell *Veronica anagalis-aquatica*, opposite leaved pondweed *Groenlandia densa*, willow moss *Fontinalis antipyretica* and the nationally rare short-leaved starwort *Callitriche truncata* occur.

The middle and lower stretches of the river are characterised by rich lowland plant communities. The dominants are yellow water-lily *Nuphar lutea*, flowering rush *Butomus umbellatus*, fennel pondweed *Potamogeton pectinatus*, perfoliate pondweed *Potamogeton perfoliatus*, arrowhead *Sagittaria sagittifolia* and unbranched bur-reed *Sparganium erectum*. Variations in the aquatic plant community reflect the alternation of fast-flowing shallows with deep slow-moving water. Other species with widespread distribution along the Wensum include rigid hornwort *Ceratophyllum demersum*, spiked water-milfoil *Myriophyllum spicatum*, fan-leaved water-crowfoot *Ranunculus circinatus*, branched bur-reed *Sparganium erectum*, common club-rush *Scirpus lacustris*, horned pondweed *Zannichellia palustris* and the nationally scarce river water-dropwort *Oenanthe fluviatilis*.

The marginal and bankside communities are typical of lowland rivers. Often there are dense and continuous stands of reeds or sedges. Reed sweet-grass *Glyceria maxima* is dominant in the lower reaches. Elsewhere stands of reed canary-grass *Phalaris arundinacea*, greater pond-sedge *Carex riparia*, reedmace *Typha latifolia* and common reed *Phragmites australis* are widespread. Where edges are not dominated by tall emergents, stragling or low-growing herbs such as fool's water-cress *Apium nodiflorum*, water-mint *Mentha aquatica*, water forget-me-not *Myosotis scorpioides* and brooklime *Veronica becaabunga* occur.

Of the semi-natural habitats associated with the River, the most frequently occurring are acidic or neutral unimproved wet grasslands. The flora of these grasslands is typified at Helhoughton and Turf Common by bogbean *Menyanthes trifoliata*, marsh marigold *Caltha palustris*, yellow rattle *Rhinanthus minor*, ragged robin *Lychnis flos-cuculi*, southern marsh orchid *Dactylorhiza praetermissa*, common spotted orchid *Dactylorhiza fuchsii*, water mint *Mentha aquatica* and yellow iris *Iris pseudacorus*.

Elsewhere the land is seasonally inundated so that grazing is restricted; extensive areas of reedbed and tall mixed fen communities have developed which provide valuable breeding and hunting grounds for birds such as the barn owl *Tyto alba* and hen harrier *Circus cyaneus*. Examples include Guist Common which is reed dominated; Goggs Mill Reserve near Fakenham which has a mixed fen community with species such as meadowsweet *Filipendula ulmaria*, angelica *Angelica sylvestris* and meadow rue *Thalictrum flavum*, and Sculthorpe Moor, which although gradually being invaded by willow *Salix* spp. scrub has a fen community of saw sedge *Cladium mariscus* and black bog-rush *Schoenus nigricans*. Although there are several areas of alder swamp interspersed with the above communities, Guist Carr forms the main example of wet woodland within the SSSI.

All of the habitats within the SSSI are intrinsically linked to and dependent on the River for their continued existence. Appropriately, in times of drought, these adjacent wetlands have a vital role in buffering the river against low flows; in wetter periods they absorb river flood waters and become swamp-like in nature.

Two tributaries have been included in the SSSI, the Tat and the Langor Drain. They are both major flow contributors to the main river; historically, the Tat may have been the

original Wensum. The Langor valley comprises an extensive area of semi-natural habitat which is dominated by fen vegetation. The specific composition ranges from almost exclusively reed to a mixture of meadowsweet and sedge species. Parts of Little Ryburgh Common are grazed, having bittersweet *Solanum dulcamara*, branched bur-reed *Sparganium erectum*, water cress *Rorippa nasturtium-aquaticum*, greater tussock sedge *Carex paniculata*, lesser water parsnip *Berula erecta*, water mint *Mentha aquatica*, and marsh marigold *Caltha palustris* as elements in their flora. The vegetation of the drier areas of Little Ryburgh Common includes bracken *Pteridium aquilinum*, honeysuckle *Lonicera periclymenum*, field scabious *Knautia arvensis*, harebell *Campanula rotundifolia* and soft rush *Juncus effusus*.

Invertebrates

The Wensum has an abundant and diverse mollusc fauna which includes the nationally rare, small snail *Vertigo moulinsiana*, which is associated with aquatic vegetation at the river edge. Two other aquatic molluscs which occur, *Valvata piscinalis* and *Gyraulus albus*, have a localised distribution in England. Water beetles are well represented; *Brychnus elevatus*, of localised distribution in England, is found in deep slow-flowing sections of the river. The mayflies *Ephemerella ignita*, *Caenis luctuosa*, *Centroptilium luteolum* and *Centroptilium pennulatum* are also of local distribution. There is a species of stonefly, *Amphinemura standfussi*, more usually associated with upland rivers. The flatworm *Crenobia alpina* is of note, being a relict in southern England where it is confined to cold-water springs.

Weybourne Cliffs SSSI

COUNTY: Norfolk SITE NAME: WEYBOURNE CLIFFS+

DISTRICT: North Norfolk

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981

Local Planning Authority: North Norfolk District Council

National Grid Reference: TG 111437 to TG 152435 Area: 39.8 (ha) 98.3 (ac)

Ordnance Survey Sheet 1:50,000: 133 1:10,000: TG 14 SW, SE

Date Notified (Under 1949 Act): +1964 *1954 Date of Last Revision: –

Date Notified (Under 1981 Act): 1985 Date of Last Revision: –

Other Information:
The site has been extended to include the former Skelding Hill Cliffs SSSI* and includes an extension which bridges the gap between the two old sites.

Reasons for Notification:
Cliffs east of Weybourne afford the best Pleistocene sections showing the pre-Cromerian deposits of the Cromer Forest bed. The Pastonian 'Weybourne Crag', here at its type locality, with its marine molluscs has been known since the early days of geology. An historic site with outstanding Pleistocene sections of national importance.

The marine "crags" here have yielded both large and small mammal remains, of Pastonian and probably also pre-Pastonian age. Little has been published on these important fossils and the site remains one with considerable potential for future vertebrate finds.

Additional biological interest is provided by colonies of sand martins in the cliff-face and of fulmars (73 pairs in 1982) on the cliff ledges.

North Norfolk Coast Ramsar Site

Information Sheet on Ramsar Wetlands (RIS)

Categories approved by Recommendation 4.7 (1990), as amended by Resolution VIII.13 of the 8th Conference of the Contracting Parties (2002) and Resolutions IX.1 Annex B, IX.6, IX.21 and IX. 22 of the 9th Conference of the Contracting Parties (2005).

Notes for compilers:

1. The RIS should be completed in accordance with the attached *Explanatory Notes and Guidelines for completing the Information Sheet on Ramsar Wetlands*. Compilers are strongly advised to read this guidance before filling in the RIS.
2. Further information and guidance in support of Ramsar site designations are provided in the *Strategic Framework for the future development of the List of Wetlands of International Importance* (Ramsar Wise Use Handbook 7, 2nd edition, as amended by COP9 Resolution IX.1 Annex B). A 3rd edition of the Handbook, incorporating these amendments, is in preparation and will be available in 2006.
3. Once completed, the RIS (and accompanying map(s)) should be submitted to the Ramsar Secretariat. Compilers should provide an electronic (MS Word) copy of the RIS and, where possible, digital copies of all maps.

1. Name and address of the compiler of this form:

FOR OFFICE USE ONLY.

DD MM YY

Designation date | Site Reference Number

Joint Nature Conservation Committee
Monkstone House
City Road
Peterborough
Cambridgeshire PE1 1JY
UK
Telephone/Fax: +44 (0)1733 – 562 626 / +44 (0)1733 – 555 948
Email: RIS@JNCC.gov.uk

2. Date this sheet was completed/updated:
Designated: 05 January 1976

3. Country:
UK (England)

4. Name of the Ramsar site:
North Norfolk Coast

5. Designation of new Ramsar site or update of existing site:

This RIS is for: Updated information on an existing Ramsar site

6. For RIS updates only, changes to the site since its designation or earlier update:

a) Site boundary and area:

** Important note: If the boundary and/or area of the designated site is being restricted/reduced, the Contracting Party should have followed the procedures established by the Conference of the Parties in the Annex to COP9 Resolution IX.6 and provided a report in line with paragraph 28 of that Annex, prior to the submission of an updated RIS.

b) Describe briefly any major changes to the ecological character of the Ramsar site, including in the application of the Criteria, since the previous RIS for the site:

7. Map of site included:

Refer to Annex III of the *Explanatory Notes and Guidelines*, for detailed guidance on provision of suitable maps, including digital maps.

a) A map of the site, with clearly delineated boundaries, is included as:

i) **hard copy** (required for inclusion of site in the Ramsar List): *yes* ✓ -or- *no* □;
ii) **an electronic format** (e.g. a JPEG or ArcView image) Yes
iii) **a GIS file providing geo-referenced site boundary vectors and attribute tables** *yes* ✓ -or- *no* □;

b) Describe briefly the type of boundary delineation applied:

e.g. the boundary is the same as an existing protected area (nature reserve, national park etc.), or follows a catchment boundary, or follows a geopolitical boundary such as a local government jurisdiction, follows physical boundaries such as roads, follows the shoreline of a waterbody, etc.

The site boundary is the same as, or falls within, an existing protected area.

For precise boundary details, please refer to paper map provided at designation

8. Geographical coordinates (latitude/longitude):

52 58 13 N 00 35 55 E

9. General location:

Include in which part of the country and which large administrative region(s), and the location of the nearest large town.

Nearest town/city: King's Lynn

The North Norfolk coast Ramsar site covers a 40 km length of coast between Hunstanton and Weybourne, and lies c. 45 km north-west of Norwich

Administrative region: Norfolk

10. Elevation (average and/or max. & min.) (metres): **11. Area** (hectares): 7862.39

Min. -2
Max. 5
Mean 2

12. General overview of the site:

Provide a short paragraph giving a summary description of the principal ecological characteristics and importance of the wetland.

This low-lying barrier coast site extends for 40 km from Holme to Weybourne and encompasses a variety of habitats including intertidal sands and muds, saltmarshes, shingle and sand dunes, together with areas of land-claimed freshwater grazing marsh and reedbed, which is developed in front of rising land. Both freshwater and marine habitats support internationally important numbers of wildfowl in winter and several nationally rare breeding birds. The sandflats, sand dune, saltmarsh, shingle and saline lagoons habitats are of international importance for their fauna, flora and geomorphology.

13. Ramsar Criteria:

Circle or underline each Criterion applied to the designation of the Ramsar site. See Annex II of the *Explanatory Notes and Guidelines* for the Criteria and guidelines for their application (adopted by Resolution VII.11).

1, 2, 5, 6

14. Justification for the application of each Criterion listed in 13 above:

Provide justification for each Criterion in turn, clearly identifying to which Criterion the justification applies (see Annex II for guidance on acceptable forms of justification).

Ramsar criterion 1

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.

Ramsar criterion 2

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.

Ramsar criterion 5

Assemblages of international importance:

Species with peak counts in winter:
98462 waterfowl (5 year peak mean 1998/99-2002/2003)

Ramsar criterion 6 – species/populations occurring at levels of international importance.

Qualifying Species/populations (as identified at designation):
Species regularly supported during the breeding season:

Sandwich tern , *Sterna (Thalasseus) sandvicensis sandvicensis*, W Europe	4275 apparently occupied nests, representing an average of 7.7% of the breeding population (Seabird 2000 Census)
Common tern , *Sterna hirundo hirundo*, N & E Europe	408 apparently occupied nests, representing an average of 4% of the GB population (Seabird 2000 Census)
Little tern , *Sterna albifrons albifrons*, W Europe	291 apparently occupied nests, representing an average of 2.5% of the breeding population (Seabird 2000 Census)

Species with peak counts in spring/autumn:

Red knot , *Calidris canutus islandica*, W & Southern Africa (wintering)	30781 individuals, representing an average of 6.8% of the population (5 year peak mean 1998/9-2002/3)

Species with peak counts in winter:

Pink-footed goose , *Anser brachyrhynchus*, Greenland, Iceland/UK	16787 individuals, representing an average of 6.9% of the population (5 year peak mean 1998/9-2002/3)
Dark-bellied brent goose, *Branta bernicla bernicla*,	8690 individuals, representing an average of 4% of the population (5 year peak mean 1998/9-2002/3)
Eurasian wigeon , *Anas penelope*, NW Europe	17940 individuals, representing an average of 1.1% of the population (5 year peak mean 1998/9-2002/3)
Northern pintail , *Anas acuta*, NW Europe	1148 individuals, representing an average of 1.9% of the population (5 year peak mean 1998/9-2002/3)

Species/populations identified subsequent to designation for possible future consideration under criterion 6.
Species with peak counts in spring/autumn:

Ringed plover , *Charadrius hiaticula*, Europe/Northwest Africa	1740 individuals, representing an average of 2.3% of the population (5 year peak mean 1998/9-2002/3)
Sanderling , *Calidris alba*, Eastern Atlantic	1303 individuals, representing an average of 1% of the population (5 year peak mean 1998/9-2002/3)
Bar-tailed godwit , *Limosa lapponica lapponica*, W Palearctic	3933 individuals, representing an average of 3.2% of the population (5 year peak mean 1998/9-2002/3)

Contemporary data and information on waterbird trends at this site and their regional (sub-national) and national contexts can be found in the Wetland Bird Survey report, which is updated annually. See www.bto.org/survey/webs/webs-alerts-index.htm.
Details of bird species occuring at levels of National importance are given in Section 22

15. Biogeography (required when Criteria 1 and/or 3 and /or certain applications of Criterion 2 are applied to the designation):

Name the relevant biogeographic region that includes the Ramsar site, and identify the biogeographic regionalisation system that has been applied.

a) biogeographic region:
Atlantic

b) biogeographic regionalisation scheme (include reference citation):
Council Directive 92/43/EEC

16. Physical features of the site:

Describe, as appropriate, the geology, geomorphology; origins - natural or artificial; hydrology; soil type; water quality; water depth, water permanence; fluctuations in water level; tidal variations; downstream area; general climate, etc.

Soil & geology	sedimentary, metamorphic, sandstone/mudstone, limestone/chalk, clay, mud, sand, shingle, boulder
Geomorphology and landscape	coastal, intertidal sediments (including sandflat/mudflat), open coast (including bay)
Nutrient status	mesotrophic
pH	circumneutral
Salinity	brackish / mixosaline, fresh, saline / euhaline
Soil	mainly mineral
Water permanence	usually permanent
Summary of main climatic features	Annual averages (Marham, 1971–2000) (www.metoffice.com/climate/uk/averages/19712000/sites/marham.html) Max. daily temperature: 13.8° C Min. daily temperature: 5.7° C Days of air frost: 51.9 Rainfall: 621.3 mm Hrs. of sunshine: 1536.6

General description of the Physical Features:

The North Norfolk Coast is a low-lying barrier coast that extends for 40 km from Holme to Weybourne and includes a great variety of coastal habitats. The main habitats – found along the whole coastline – include extensive intertidal sand- and mud-flats, saltmarshes, shingle and sand dunes, together with areas of freshwater grazing marsh and reedbed.

To the west, the coastal habitats of North Norfolk Coast are continuous with The Wash, with the ecology of thie two sites intimately linked.

17. Physical features of the catchment area:

Describe the surface area, general geology and geomorphological features, general soil types, general land use, and climate (including climate type).

The North Norfolk Coast is a low-lying barrier coast that extends for 40 km from Holme to Weybourne and includes a great variety of coastal habitats. The main habitats – found along the whole coastline – include extensive intertidal sand- and mud-flats, saltmarshes, shingle and sand dunes, together with areas of freshwater grazing marsh and reedbed.

To the west, the coastal habitats of North Norfolk Coast are continuous with The Wash, with the ecology of thie two sites intimately linked.

18. Hydrological values:

Describe the functions and values of the wetland in groundwater recharge, flood control, sediment trapping, shoreline stabilization, etc.

Shoreline stabilisation and dissipation of erosive forces

19. Wetland types:

Marine/coastal wetland

Code	Name	% Area
G	Tidal flats	50.3
H	Salt marshes	27.5
Tp	Freshwater marshes / pools: permanent	13
E	Sand / shingle shores (including dune systems)	9
J	Coastal brackish / saline lagoons	0.2

20. General ecological features:

Provide further description, as appropriate, of the main habitats, vegetation types, plant and animal communities present in the Ramsar site, and the ecosystem services of the site and the benefits derived from them.

The area consists primarily of intertidal sands and muds, saltmarshes, saline lagoons, shingle banks, and sand dunes. There are also extensive areas of freshwater grazing marsh and reedbed. The coast is of great physiographic interest and the shingle spit of Blakeney Point and the barrier island of Scolt Head Island are of special importance. The salt marshes are mostly developed behind barrier beaches or on sheltered parts of the coast and show zonation from scarcely vegetated sand and mud at the seaward edge to maritime grassland and tidal reedbed at the landward margin. The middle salt marsh is dominated in particular by *Limonium vulgare*, *Armeria maritima*, *Aster tripolium* and *Puccinellia* species. A nationally rare distinct community dominated by *Suaeda vera* occurs at the boundary between saltmarsh and sand dunes and includes a number of nationally rare plants. Dune systems occur in various places and range from moderately calcareous to moderately acid. There is a full development from foredunes to grey mature dunes though slacks are relatively small. The dunes are covered with dune grassland, in places lichen heath whilst at Holkham, mature plantations of the introduced Corsican pine *Pinus nigra* var. *maritima* occur. The vegetation of the shingle ranges from disturbed almost unvegetated through to lichen heath. Natural brackish lagoons occur in places and are dominated mostly by *Ruppia*. The reclaimed grazing marshes are mostly semi-improved but have dyke floras which may be brackish or fresh. There are extensive freshwater reedbeds in places.

Ecosystem services

21. Noteworthy flora:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Nationally important species occurring on the site.

Higher Plants.

Limonium bellidifolium (RDB Nationally Threatened), *Gnaphalium luteoalbum* (RDB Critical), *Dryopteris cristata* (RDB Nationally Threatened), *Juncus acutus* (Nationally Scarce), *Parapholis incurva* (Nationally Scarce), *Poa bulbosa*, *Ruppia cirrhosa* (Nationally Scarce), *Vulpia fasciculata*, *Vulpia ciliata* var. *ambigua* (Nationally Scarce), *Suaeda vera* (Nationally Scarce).

22. Noteworthy fauna:

Provide additional information on particular species and why they are noteworthy (expanding as necessary on information provided in **12**. Justification for the application of the Criteria) indicating, e.g. which species/communities are unique, rare, endangered or biogeographically important, etc., including count data. *Do not include here taxonomic lists of species present – these may be supplied as supplementary information to the RIS.*

Birds

Species currently occurring at levels of national importance:

Species regularly supported during the breeding season:

Eurasian marsh harrier , *Circus aeruginosus*, Europe	10 pairs, representing an average of 6.6% of the GB population (6 year mean 1992-1997)
Mediterranean gull , *Larus melanocephalus*, Europe	2 apparently occupied nests, representing an average of 1.8% of the GB population (Seabird 2000 Census)
Black-headed gull , *Larus ridibundus*, N & C Europe	4270 apparently occupied nests, representing an average of 3.3% of the GB population (Seabird 2000 Census)
Roseate tern , *Sterna dougallii dougallii*, W Europe	1 apparently occupied nests, representing an average of 1.9% of the GB population (Seabird 2000 Census)

Species with peak counts in spring/autumn:

Great cormorant , *Phalacrocorax carbo carbo*, NW Europe	366 individuals, representing an average of 1.5% of the GB population (5 year peak mean 1998/9-2002/3)
Little egret , *Egretta garzetta*, West Mediterranean	29 individuals, representing an average of 1.7% of the GB population (5 year peak mean 1998/9-2002/3)
Gadwall , *Anas strepera strepera*, NW Europe	218 individuals, representing an average of 1.2% of the GB population (5 year peak mean 1998/9-2002/3)
Grey plover , *Pluvialis squatarola*, E Atlantic/W Africa -wintering	2154 individuals, representing an average of 4% of the GB population (5 year peak mean 1998/9-2002/3)
Ruff , *Philomachus pugnax*, Europe/W Africa	135 individuals, representing an average of 19.2% of the GB population (5 year peak mean 1998/9-2002/3)
Black-tailed godwit , *Limosa limosa islandica*, Iceland/W Europe	246 individuals, representing an average of 1.5% of the GB population (5 year peak mean 1998/9-2002/3 - spring peak)
Whimbrel , *Numenius phaeopus*, Europe/Western Africa	143 individuals, representing an average of 4.7% of the GB population (5 year peak mean 1998/9-2002/3)

Eurasian curlew , *Numenius arquata arquata*, N. a. arquata Europe (breeding)	2123 individuals, representing an average of 1.4% of the GB population (5 year peak mean 1998/9-2002/3)
Spotted redshank , *Tringa erythropus*, Europe/W Africa	15 individuals, representing an average of 11% of the GB population (5 year peak mean 1998/9-2002/3)
Common greenshank , *Tringa nebularia*, Europe/W Africa	163 individuals, representing an average of 27.3% of the GB population (5 year peak mean 1998/9-2002/3)
Ruddy turnstone , *Arenaria interpres interpres*, NE Canada, Greenland/W Europe & NW Africa	620 individuals, representing an average of 1.2% of the GB population (5 year peak mean 1998/9-2002/3)
Species with peak counts in winter:	
Great bittern , *Botaurus stellaris stellaris*, W Europe, NW Africa	2 individuals, representing an average of 2% of the GB population (5 year peak mean 1998/9-2002/3)
Greater white-fronted goose , *Anser albifrons albifrons*, NW Europe	349 individuals, representing an average of 6% of the GB population (5 year peak mean for 1996/7-2000/01)
Common shelduck , *Tadorna tadorna*, NW Europe	1123 individuals, representing an average of 1.4% of the GB population (5 year peak mean 1998/9-2002/3)
Eurasian teal , *Anas crecca*, NW Europe	3984 individuals, representing an average of 2% of the GB population (5 year peak mean 1998/9-2002/3)
Northern shoveler , *Anas clypeata*, NW & C Europe	181 individuals, representing an average of 1.2% of the GB population (5 year peak mean 1998/9-2002/3)
Black (common) scoter , *Melanitta nigra nigra*,	3480 individuals, representing an average of 6.9% of the GB population (5 year peak mean 1998/9-2002/3)
Velvet scoter , *Melanitta fusca fusca*, Baltic/W Europe	30 individuals, representing an average of 1% of the GB population (5 year peak mean 1998/9-2002/3)
Red-breasted merganser , *Mergus serrator*, NW & C Europe	108 individuals, representing an average of 1% of the GB population (5 year peak mean 1998/9-2002/3)
Water rail , *Rallus aquaticus*, Europe	15 individuals, representing an average of 3.3% of the GB population (5 year peak mean 1998/9-2002/3)
Eurasian oystercatcher , *Haematopus ostralegus ostralegus*, Europe & NW Africa -wintering	3707 individuals, representing an average of 1.1% of the GB population (5 year peak mean 1998/9-2002/3)
European golden plover , *Pluvialis apricaria apricaria*, P. a. altifrons Iceland & Faroes/E Atlantic	3788 individuals, representing an average of 1.5% of the GB population (5 year peak mean 1998/9-2002/3)
Common redshank , *Tringa totanus totanus*,	1586 individuals, representing an average of 1.3% of the GB population (5 year peak mean 1998/9-2002/3)

Species Information

Species occurring at levels of international importance.

Mammals.
Phoca vitulina

Nationally important species occurring on the site.

Amphibians.
Bufo calamita

Assemblage.
This site supports a diverse assemblage of invertebrates.

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23. Social and cultural values:

Describe if the site has any general social and/or cultural values e.g. fisheries production, forestry, religious importance, archaeological sites, social relations with the wetland, etc. Distinguish between historical/archaeological/religious significance and current socio-economic values.

Aesthetic
Aquatic vegetation (e.g. reeds, willows, seaweed)
Environmental education/ interpretation
Fisheries production
Livestock grazing
Non-consumptive recreation
Scientific research
Sport fishing
Sport hunting
Tourism
Transportation/navigation

b) Is the site considered of international importance for holding, in addition to relevant ecological values, examples of significant cultural values, whether material or non-material, linked to its origin, conservation and/or ecological functioning? No

If Yes, describe this importance under one or more of the following categories:

i) sites which provide a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland:

ii) sites which have exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland:

iii) sites where the ecological character of the wetland depends on the interaction with local communities or indigenous peoples:

iv) sites where relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland:

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24. Land tenure/ownership:

Ownership category	On-site	Off-site
Non-governmental organisation (NGO)	+	
Local authority, municipality etc.	+	
National/Crown Estate	+	
Private	+	+
Other	+	

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25. Current land (including water) use:

Activity	On-site	Off-site
Nature conservation	+	
Tourism	+	+
Recreation	+	+
Current scientific research	+	
Collection of non-timber natural products: (unspecified)	+	
Collection of non-timber natural products: commercial	+	
Fishing: commercial	+	+
Fishing: recreational/sport	+	
Marine/saltwater aquaculture	+	
Gathering of shellfish	+	
Bait collection	+	
Permanent arable agriculture	+	+
Livestock watering hole/pond	+	
Grazing (unspecified)	+	
Hunting: recreational/sport	+	
Sewage treatment/disposal	+	+
Harbour/port	+	+
Irrigation (incl. agricultural water supply)	+	+
Oil/gas exploration		+
Oil/gas production		+
Transport route	+	+
Domestic water supply		+
Urban development		+
Non-urbanised settlements		+
Military activities	+	+

26. Factors (past, present or potential) adversely affecting the site's ecological character, including changes in land (including water) use and development projects:

Explanation of reporting category:

1. *Those factors that are still operating, but it is unclear if they are under control, as there is a lag in showing the management or regulatory regime to be successful.*
2. *Those factors that are not currently being managed, or where the regulatory regime appears to have been ineffective so far.*

NA = Not Applicable because no factors have been reported.

Adverse Factor Category	Reporting Category	Description of the problem (Newly reported Factors only)	On-Site	Off-Site	Major Impact?
No factors reported	NA				

For category 2 factors only. What measures have been taken / are planned / regulatory processes invoked, to mitigate the effect of these factors?
Is the site subject to adverse ecological change? NO

27. Conservation measures taken:

List national category and legal status of protected areas, including boundary relationships with the Ramsar site; management practices; whether an officially approved management plan exists and whether it is being implemented.

Conservation measure	On-site	Off-site
Site/ Area of Special Scientific Interest (SSSI/ASSI)	+	
National Nature Reserve (NNR)	+	
Special Protection Area (SPA)	+	
Land owned by a non-governmental organisation for nature conservation	+	
Management agreement	+	
Site management statement/plan implemented	+	
Other	+	+
Area of Outstanding National Beauty (AONB)	+	+
Special Area of Conservation (SAC)	+	

b) Describe any other current management practices:
The management of Ramsar sites in the UK is determined by either a formal management plan or through other management planning processes, and is overseen by the relevant statutory conservation agency. Details of the precise management practises are given in these documents.

28. Conservation measures proposed but not yet implemented:

e.g. management plan in preparation; official proposal as a legally protected area, etc.

No information available

29. Current scientific research and facilities:

e.g. details of current research projects, including biodiversity monitoring; existence of a field research station, etc.

Environment.
This coast has been and continues be subject to a wide variety of research and monitoring projects including the following:

Fauna.
Numbers of migratory and wintering wildfowl and waders are monitored annually as part of the national Wetland Birds Survey (WeBS) organised by the British Trust for Ornithology, Wildfowl & Wetlands Trust, the Royal Society for the Protection of Birds and the Joint Nature Conservation Committee.
Breeding bird surveys.
Various invertebrate studies, both freshwater and marine.

Flora.
NVC of sand dunes, shingle and saltmarsh completed late 1980s.
Survey of saline lagoons 1996.
Recent saltmarsh survey (2002)

An important area for research on various coastal processes both on macro scale and within salt marshes.

Completed.

Habitat.
Study of historical evolution of the coast (Loeps) finished 1997

30. Current communications, education and public awareness (CEPA) activities related to or benefiting the site:

e.g. visitor centre, observation hides and nature trails, information booklets, facilities for school visits, etc.

The site is used extensively by schools and universities for ecological and geomorphological studies. There are some interpretation facilities on the coast, principally at Cley and Blakeney Point. Other activities include guided walks, and leaflets are available.

31. Current recreation and tourism:

State if the wetland is used for recreation/tourism; indicate type(s) and their frequency/intensity.

Activities, Facilities provided and Seasonality.
Large numbers of tourists visit the area especially during the period April to September, but increasingly throughout the year. The nature reserves at Holme, Titchwell, Holkham, Blakeney and Cley all provide facilities for birdwatching through the provision of hides. Most visitors are concentrated on the beaches and their approaches and there is generally only low levels of pressure on saltmarshes and grazing marshes. A visitor management plan has been written with the objective of encouraging sustainable tourism.

32. Jurisdiction:

Include territorial, e.g. state/region, and functional/sectoral, e.g. Dept. of Agriculture/Dept. of Environment, etc.

Head, Natura 2000 and Ramsar Team, Department for Environment, Food and Rural Affairs, European Wildlife Division, Zone 1/07, Temple Quay House, 2 The Square, Temple Quay, Bristol, BS1 6EB

33. Management authority:

Provide the name and address of the local office(s) of the agency(ies) or organisation(s) directly responsible for managing the wetland. Wherever possible provide also the title and/or name of the person or persons in this office with responsibility for the wetland.

Site Designations Manager, English Nature, Sites and Surveillance Team, Northminster House, Northminster Road, Peterborough, PE1 1UA, UK

34. Bibliographical references:

Scientific/technical references only. If biogeographic regionalisation scheme applied (see **15** above), list full reference citation for the scheme.

Site-relevant references

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Please return to: **Ramsar Secretariat, Rue Mauverney 28, CH-1196 Gland, Switzerland**
Telephone: +**41 22 999 0170** • Fax: +**41 22 999 0169** • email: **ramsar@ramsar.org**

North Norfolk Coast SAC

NATURA 2000 - STANDARD DATA FORM

**For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)**

SITE **UK0019838**

SITENAME **North Norfolk Coast**

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1. SITE IDENTIFICATION

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1.1 Type	1.2 Site code
B	UK0019838

1.3 Site name

North Norfolk Coast

1.4 First Compilation date	1.5 Update date
1996-01	2015-12

1.6 Respondent:

Name/Organisation:	Joint Nature Conservation Committee
Address:	Joint Nature Conservation Committee Monkstone House City Road Peterborough PE1 1JY
Email:	

Date site proposed as SCI:	1996-01
Date site confirmed as SCI:	2004-12
Date site designated as SAC:	2005-04
National legal reference of SAC designation:	Regulations 11 and 13-15 of the Conservation of Habitats and Species Regulations 2010 (http://www.legislation.gov.uk/uksi/2010/490/contents/made).

2. SITE LOCATION

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2.1 Site-centre location [decimal degrees]:

Longitude	Latitude
0.610555556	52.96888889

2.2 Area [ha]:

3148.6

2.3 Marine area [%]

10.1

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code	Region Name
UKH1	East Anglia

2.6 Biogeographical Region(s)

Atlantic (100.0 %)

3. ECOLOGICAL INFORMATION

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3.1 Habitat types present on the site and assessment for them

Annex I Habitat types						Site assessment			
Code	PF	NP	Cover [ha]	Cave [number]	Data quality	A|B|C|D	A|B|C		
						Representativity	Relative Surface	Conservation	Global
1150	X		152.71		P	B	B	B	B
1220			96.66		G	A	C	A	A
1420			18.58		P	A	A	A	A
2110			31.17		G	A	B	A	A
2120			93.51		G	A	B	A	B
2130	X		236.77		G	A	C	A	A
2160			6.3		G	D			
2190			18.58		G	A	C	A	A

- **PF:** for the habitat types that can have a non-priority as well as a priority form (6210, 7130, 9430) enter "X" in the column PF to indicate the priority form.
- **NP:** in case that a habitat type no longer exists in the site enter: x (optional)
- **Cover:** decimal values can be entered
- **Caves:** for habitat types 8310, 8330 (caves) enter the number of caves if estimated surface is not available.
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation)

3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species					Population in the site						Site assessment			
G	Code	Scientific Name	S	NP	T	Size		Unit	Cat.	D.qual.	A|B|C|D	A|B|C		
						Min	Max				Pop.	Con.	Iso.	Glo.
M	1355	Lutra lutra			p	1	5	i		M	C	C	C	C
P	1395	Petalophyllum ralfsii			p	50	50	i		G	C	C	A	C
A	1166	Triturus cristatus			p				P	DD	D			

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see reference portal)
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

4. SITE DESCRIPTION

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4.1 General site character

Habitat class	% Cover
N04	65.3
N02	3.7
N14	5.6
N05	19.1
N07	6.3
Total Habitat Cover	100

Other Site Characteristics

1 Terrestrial: Soil & Geology: basic,mud,neutral,clay,sand,sedimentary,shingle,alluvium 2 Terrestrial: Geomorphology and landscape: lowland,coastal,floodplain 3 Marine: Geology: gravel 4 Marine: Geomorphology: shingle bar,barrier beach,islands,lagoon,open coast (including bay)

4.2 Quality and importance

Coastal lagoons for which this is considered to be one of the best areas in the United Kingdom. Perennial vegetation of stony banks for which this is considered to be one of the best areas in the United Kingdom. Mediterranean and thermo-Atlantic halophilous scrubs (Sarcocornetea fruticosi) for which this is one of only four known outstanding localities in the United Kingdom. which is considered to be rare as its total extent in the United Kingdom is estimated to be less than 1000 hectares. Embryonic shifting dunes for which this is considered to be one of the best areas in the United Kingdom. which is considered to be rare as its total extent in the United Kingdom is estimated to be less than 1000 hectares. Shifting dunes along the shoreline with Ammophila arenaria (?white dunes?) for which this is considered to be one of the best areas in the United Kingdom. Humid dune slacks for which this is considered to be one of the best areas in the United Kingdom. Fixed dunes with herbaceous vegetation (?grey dunes?) for which this is considered to be one of the best areas in the United Kingdom. Lutra lutra for which the area is considered to support a significant presence. Petalophyllum ralfsii for which the area is considered to support a significant presence.

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	Threats and pressures [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	G01		I
H	M01		B
H	M02		B

Positive Impacts			
Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	D05		I
H	D05		I
H	B02		I
H	A02		I
H	A04		I

Rank: H = high, M = medium, L = low
Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification, T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions
i = inside, o = outside, b = both

4.5 Documentation

Conservation Objectives - the Natural England links below provide access to the Conservation Objectives (and other site-related information) for its terrestrial and inshore Natura 2000 sites, including conservation advice packages and supporting documents for European Marine Sites within English waters and for cross-border sites. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): http://publications.naturalengland.org.uk/category/3212324
http://publications.naturalengland.org.uk/category/6490068894089216

http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

5. SITE PROTECTION STATUS (optional)

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5.1 Designation types at national and regional level:

Code	Cover [%]	Code	Cover [%]	Code	Cover [%]
UK04	100.0	UK01	22.6		

6. SITE MANAGEMENT

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6.1 Body(ies) responsible for the site management:

Organisation:	Natural England
Address:	
Email:	

6.2 Management Plan(s):

An actual management plan does exist:

- [ ] Yes
- [ ] No, but in preparation
- [X] No

6.3 Conservation measures (optional)

For available information, including on Conservation Objectives, see Section 4.5.

North Norfolk Coast SPA

NATURA 2000 - STANDARD DATA FORM

**For Special Protection Areas (SPA),
Proposed Sites for Community Importance (pSCI),
Sites of Community Importance (SCI) and
for Special Areas of Conservation (SAC)**

SITE **UK9009031**

SITENAME **North Norfolk Coast**

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1. SITE IDENTIFICATION

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1.1 Type	1.2 Site code
A	UK9009031

1.3 Site name

North Norfolk Coast

1.4 First Compilation date	1.5 Update date
1989-01	2015-12

1.6 Respondent:

Name/Organisation:	Joint Nature Conservation Committee
Address:	Joint Nature Conservation Committee Monkstone House City Road Peterborough PE1 1JY
Email:	

1.7 Site indication and designation / classification dates

Date site classified as SPA:	1989-01
National legal reference of SPA designation	Regulations 12A and 13-15 of the Conservation Habitats and Species Regulations 2010, (http://www.legislation.gov.uk/uksi/2010/490/contents/made) as amended by The Conservation of Habitats and Species (Amendment) Regulations 2011 (http://www.legislation.gov.uk/uksi/2011/625/contents/made).

2. SITE LOCATION

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2.1 Site-centre location [decimal degrees]:

Longitude	Latitude
0.598611111	52.97027778

2.2 Area [ha]:

7862.27

2.3 Marine area [%]

46.4

2.4 Sitelength [km]:

0.0

2.5 Administrative region code and name

NUTS level 2 code	Region Name
UKH1	East Anglia

2.6 Biogeographical Region(s)

Atlantic (100.0 %)

3. ECOLOGICAL INFORMATION

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3.2 Species referred to in Article 4 of Directive 2009/147/EC and listed in Annex II of Directive 92/43/EEC and site evaluation for them

Species					Population in the site						Site assessment			
G	Code	Scientific Name	S	NP	T	Size		Unit	Cat.	D.qual.	A|B|C|D	A|B|C		
						Min	Max				Pop.	Con.	Iso.	G
B	A050	Anas penelope			w	14039	14039	i		G	B		C	
B	A040	Anser brachyrhynchus			w	23802	23802	i		G	B		B	
B	A021	Botaurus stellaris			r	1	1	p		G	B		B	
B	A675	Branta bernicla bernicla			w	11512	11512	i		G	B		C	
B	A143	Calidris canutus			w	10801	10801	i		G	B		C	
B	A081	Circus aeruginosus			r	10	10	p		G	B		B	
B	A132	Recurvirostra avosetta			r	126	126	p		G	C		B	
B	A132	Recurvirostra avosetta			w	126	126	i		G	C		B	
B	A195	Sterna albifrons			r	330	330	p		G	B		C	
B	A193	Sterna hirundo			r	460	460	p		G	B		C	

B	A191	Sterna sandvicensis			r	3700	3700	p		G	A		C

- **Group:** A = Amphibians, B = Birds, F = Fish, I = Invertebrates, M = Mammals, P = Plants, R = Reptiles
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Type:** p = permanent, r = reproducing, c = concentration, w = wintering (for plant and non-migratory species use permanent)
- **Unit:** i = individuals, p = pairs or other units according to the Standard list of population units and codes in accordance with Article 12 and 17 reporting (see reference portal)
- **Abundance categories (Cat.):** C = common, R = rare, V = very rare, P = present - to fill if data are deficient (DD) or in addition to population size information
- **Data quality:** G = 'Good' (e.g. based on surveys); M = 'Moderate' (e.g. based on partial data with some extrapolation); P = 'Poor' (e.g. rough estimation); VP = 'Very poor' (use this category only, if not even a rough estimation of the population size can be made, in this case the fields for population size can remain empty, but the field "Abundance categories" has to be filled in)

3.3 Other important species of flora and fauna (optional)

Species					Population in the site				Motivation					
Group	CODE	Scientific Name	S	NP	Size		Unit	Cat.	Species Annex		Other categories			
					Min	Max		C|R|V|P	IV	V	A	B	C	D
B	WATR	Waterfowl assemblage			91536	91536	i						X	

- **Group:** A = Amphibians, B = Birds, F = Fish, Fu = Fungi, I = Invertebrates, L = Lichens, M = Mammals, P = Plants, R = Reptiles
- **CODE:** for Birds, Annex IV and V species the code as provided in the reference portal should be used in addition to the scientific name
- **S:** in case that the data on species are sensitive and therefore have to be blocked for any public access enter: yes
- **NP:** in case that a species is no longer present in the site enter: x (optional)
- **Unit:** i = individuals, p = pairs or other units according to the standard list of population units and codes in accordance with Article 12 and 17 reporting, (see reference portal)
- **Cat.:** Abundance categories: C = common, R = rare, V = very rare, P = present
- **Motivation categories: IV, V:** Annex Species (Habitats Directive), **A:** National Red List data; **B:** Endemics; **C:** International Conventions; **D:** other reasons

4. SITE DESCRIPTION

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4.1 General site character

Habitat class	% Cover
N07	2.0
N05	1.0
N02	48.0
N15	1.0
N14	10.0
N03	28.0
N04	9.0
N19	1.0

Total Habitat Cover	100

Other Site Characteristics

1 Terrestrial: Soil & Geology: limestone,shingle,sedimentary,sand 2 Terrestrial: Geomorphology and landscape: coastal,lowland 3 Marine: Geology: sand,shingle,sedimentary,mud,metamorphic 4 Marine: Geomorphology: intertidal sediments (including sandflat/mudflat),estuary,open coast (including bay)

4.2 Quality and importance

ARTICLE 4.1 QUALIFICATION (79/409/EEC) During the breeding season the area regularly supports: Botaurus stellaris (Europe - breeding) at least 5% of the GB breeding population 6 year mean, 1992-1997 Circus aeruginosus 6.4% of the GB breeding population 6 year mean, 1992-1997 Recurvirostra avosetta (Western Europe/Western Mediterranean - breeding) 30% of the GB breeding population Count, as at late 1980s Sterna albifrons (Eastern Atlantic - breeding) at least 13.8% of the GB breeding population 5 year mean, 1992-1996 Sterna hirundo (Northern/Eastern Europe - breeding) at least 3.7% of the GB breeding population Count, as at 1996 Sterna sandvicensis (Western Europe/Western Africa) 26.4% of the GB breeding population 5 year mean, 1992-1996 Over winter the area regularly supports: Recurvirostra avosetta (Western Europe/Western Mediterranean - breeding) 9.9% of the GB population 5 year peak mean 1991/92-1995/96 ARTICLE 4.2 QUALIFICATION (79/409/EEC) Over winter the area regularly supports: Anas penelope (Western Siberia/North-western/North-eastern Europe) 1.1% of the population 5 year peak mean 1991/92-1995/96 Anser brachyrhynchus (Eastern Greenland/Iceland/UK) 10.6% of the population 5 year peak mean 1991/92-1995/96 Branta bernicla bernicla (Western Siberia/Western Europe) 3.8% of the population 5 year peak mean 1991/92-1995/96 Calidris canutus (North-eastern Canada/Greenland/Iceland/North-western Europe) 3.1% of the population 5 year peak mean 1991/92-1995/96 ARTICLE 4.2 QUALIFICATION (79/409/EEC): AN INTERNATIONALLY IMPORTANT ASSEMBLAGE OF BIRDS Over winter the area regularly supports: 91536 waterfowl (5 year peak mean 1991/92-1995/96) Including: Anser brachyrhynchus , Branta bernicla bernicla , Anas penelope , Recurvirostra avosetta , Calidris canutus

4.3 Threats, pressures and activities with impacts on the site

The most important impacts and activities with high effect on the site

Negative Impacts			
Rank	Threats and pressures [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	K03		I
H	G01		I
H	F02		I
H	M02		B
H	M01		B

Positive Impacts			
Rank	Activities, management [code]	Pollution (optional) [code]	inside/outside [i|o|b]
H	D05		I
H	B02		I
H	A04		I
H	A02		I
H	G03		I

Rank: H = high, M = medium, L = low
Pollution: N = Nitrogen input, P = Phosphor/Phosphate input, A = Acid input/acidification,
T = toxic inorganic chemicals, O = toxic organic chemicals, X = Mixed pollutions
i = inside, o = outside, b = both

4.5 Documentation

Conservation Objectives - the Natural England links below provide access to the Conservation Objectives (and other site-related information) for its terrestrial and inshore Natura 2000 sites, including conservation advice packages and supporting documents for European Marine Sites within English waters and for cross-border sites. See also the 'UK Approach' document for more information (link via the JNCC website).

Link(s): http://publications.naturalengland.org.uk/category/6490068894089216

http://publications.naturalengland.org.uk/category/3212324
http://jncc.defra.gov.uk/pdf/Natura2000_StandardDataForm_UKApproach_Dec2015.pdf

5. SITE PROTECTION STATUS (optional)

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5.1 Designation types at national and regional level:

Code	Cover [%]	Code	Cover [%]	Code	Cover [%]
UK04	100.0	UK01	71.0		

6. SITE MANAGEMENT

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6.1 Body(ies) responsible for the site management:

Organisation:	Natural England
Address:	
Email:	

6.2 Management Plan(s):

An actual management plan does exist:

- [ ] Yes
- [ ] No, but in preparation
- [X] No

6.3 Conservation measures (optional)

For available information, including on Conservation Objectives, see Section 4.5.

North Norfolk Coast SSSI

COUNTY: NORFOLK **SITE NAME:** NORTH NORFOLK COAST

DISTRICT: BOROUGH OF KING'S LYNN & WEST NORFOLK, NORTH NORFOLK

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981 as amended.

Local Planning Authority: West Norfolk District Council & North Norfolk District Council

National Grid Reference: TF 690443 to TG 095440 **Area:** 7,700 (ha.) 19,027 (ac.)

Ordnance Survey Sheet 1:50,000: 132, 133 **1:10,560:** TF 74 SW
1:10,000: TF 64 SE, TF 74 NE, SE
TF 84 NW, NE, SW, SE
TF 94 NW, NE, SW, SE
TG 04 NW, SW, SE

Date Notified (Under 1949 Act): 1954 – Blakeney Point, Holme Dunes, Cley & Salthouse Marshes
1968 – Morston Saltmarshes, Brancaster Manor
1969 – Stiffkey Saltmarshes
1972 – Thornham Marshes
1973 – Titchwell Marshes

Date Notified (Under 1981 Act): 1986 **Date of Last Revision:** –

Other Information:
This is a composite site made up of two National Nature Reserves at Scolt Head and Holkham, and the former separate Sites of Special Scientific Interest at Holme Dunes, Thornham Marshes, Titchwell Marshes, Brancaster Manor, Stiffkey Saltmarshes, Morston Saltmarshes, Blakeney Point, Cley and Salthouse Marshes, plus several substantial additions. The area is described in the Nature Conservation Review. Scolt Head, Holkham, Blakeney Point, Cley and Salthouse Marshes are recognised as a RAMSAR wetland site and are included in the UNESCO list of Biosphere Reserves. The whole of the North Norfolk Coast SSSI has now been proposed as a RAMSAR site and also for designation as a Special Protection Area under the EEC Birds Directive. Most of the coast is managed for nature conservation by the National Trust, the Norfolk Naturalists' Trust, Norfolk Ornithologists Association, the Royal Society for the Protection of Birds and the Nature Conservancy Council. It has also been designated as a Heritage Coast by the Countryside Commission and is part of the Norfolk Coast Area of Outstanding Natural Beauty.

Reasons for Notification:
The North Norfolk marshland Coast extends for some 40kms between Hunstanton and Weybourne. The area consists primarily of intertidal sands and muds, saltmarshes, shingle banks and sand dunes. There are extensive areas of brackish lagoons, reedbeds and grazing marshes. The coast is of great physiographic interest and the shingle spit at Blakeney Point and the offshore shingle bank at Scolt Head Island are of special importance. The whole coast has been intensively studied and is well documented.

A wide range of coastal plant communities is represented and many rare or local species occur. The whole coast is of great ornithological interest with nationally and internationally important breeding colonies of several species. The geographical position of the North Norfolk Coast and its range of habitats make it especially valuable for migratory birds and wintering waterfowl, particularly brent and pink-footed geese. The area, much of which

remains in its natural state, now constitutes one of the largest expanses of undeveloped coastal habitat of its type in Europe.

Intertidal Sands and Muds
Extensive intertidal areas are present along the entire coast. Intertidal flats mostly consist of sand or mud and shingle and are unvegetated. Some mudbanks have seasonal growths Eel Grass *Zostera marina* and green algae (mostly *Enteromorpha* sp. and *Vaucheria* sp.) which provide valuable feeding grounds for wintering ducks and geese. The mudflats also have locally abundant concentrations of invertebrates of importance as wildfowl and wader food sources.

Saltmarsh
The saltmarshes are the finest coastal marshes in Britain and among the best in Europe. They have accreted in sheltered positions either behind sand bars such as on Scolt Head or on sheltered parts of the coast as at Stiffkey. Differences in marsh height reflect differences in age. The saltmarsh flora is exceptionally diverse and includes a number of uncommon species.

Succession is clearly shown from scarcely vegetated mud at the seaward boundary of the marsh to maritime grassland on the upper marsh. The foremarsh is characterised by colonising species such as glasswort *Salicornia spp.* and cord grass *Spartina anglica*. Sea Aster *Aster tripolium* is often dominant on the lower marsh which in turn grades into the extensive areas of midmarsh. Sea lavender *Limonium vulgare* is dominant with sea purslane *Halimione portulacoides* lining the banks of the creeks. Other species occurring in this zone include sea plantain *Plantago maritima*, sea arrow grass *Triglochin maritima*, annual seablite *Suaeda maritima* and sea wormwood *Artemisia maritima*. The upper saltmarsh is characterised by grasses such as sea couch grass *Elymus pycnanthus* and sea poa grass *Puccinellia maritima*. A shorter vegetation is often found on the upper marsh near the saltmarsh-shingle interface. It is diverse and includes two rare species; matted sea lavender *Limonium bellidifolium* and sea heath *Frankenia laevis*.

The saltmarshes, with their associated shingle structures, form a geomorphological unit of the highest importance for tracing the post-glacial evolution of the area.

Dunes
Dune systems occur at a number of localities along the coast but are best developed at Holme and Holkham. On Scolt Head Island and at Blakeney Point sand dunes have developed on a shingle base. The stabilised, mature dunes hold a rich flora including a number of uncommon halophytic (salt tolerant) species.

The foredunes are generally comprised of wind-blown sand with scattered plants of the primary colonising species sand couch-grass *Elymus farctus* and lyme-grass *Leymus arenarius*. Ephemeral species such as sea rocket *Cakile maritima* and saltwort *Salsola kali* also occur in this zone. The yellow dunes are further consolidated by the binding rhizomes of marram grass *Ammophila arenaria* and several other species occur including sea holly *Eryngium maritimum*, sea sandwort *Honkenya peploides* and sand sedge *Carex arenaria*. The vegetation is most diverse on the stable grey dunes. Marram grass is still abundant but red fescue *Festuca rubra* is often co-dominant. The calcareous nature of the dunes is revealed by the presence of such species as spring whitlow-grass *Erophila verna agg.*, centaury *Centaurium erythraea*, bird's-foot trefoil *Lotus corniculatus*, pyramidal orchid *Anacamptis pyramidalis*, and bee orchid *Ophrys apifera*. Two rare plants, Jersey cudweed *Gnaphalium luteo-album* arid grey hair-grass *Corynephorus canescens* are associated with the grey dunes.

Corsican pine *Pinus nigra* var. *maritima*, has been planted at Holkham to stabilize the dunes, and has spread through self-seeding. Creeping ladies' tresses *Goodvera repens* and yellow bird's-nest *Monotropa hypopitys* occur locally under the mature pines. Secondary

mixed woodland and scrub have developed on the landward side of the pines which provide valuable cover for migratory passerine birds.

Dune slacks are present behind the main dune systems at Holme and Holkham. These wet areas have a characteristic flora that includes pennywort *Hydrocotyle vulgaris*, marsh helleborine *Epipactis palustris* and southern marsh orchid *Dactylorhiza praetermissa*.

Shingle
The North Norfolk Coast is rich in shingle structures consisting of material derived and re-worked from glacial drift. Scolt Head Island is an extensive offshore barrier island with a complex sequence of shingle ridges and dunes and is of the highest national importance as a geomorphological site, and Blakeney Point is a large shingle spit; both are important educational and research sites, that have been well studied and feature extensively in the literature.

The shingle banks are colonised by a variety of specialised plants. Characteristic species include biting stonecrop *Sedum acre*, thrift *Armeria maritima*, sea campion *Silene maritima*, yellow horned-poppy *Glaucium flavum*, sea sandwort, sea beet *Beta vulgaris* ssp. *maritime* and bird's-foot-trefoil. At the saltmarsh-shingle interface, a discrete community occurs including shrubby seablite *Suaeda vera*, an uncommon species in Britain, which is often abundant here with rock sea lavender *Limonium binervosum* and sea wormwood.

Brackish Lagoons and Reedbeds
Natural brackish lagoons are present at Holme and in the Cley-Salthouse area. In addition, artificial lagoons have been created at Titchwell and Cley. The shallow water, and an abundant invertebrate fauna in the mud, make these coastal lagoons important feeding sites for wintering and passage waders and waterfowl.

Extensive reedbeds have developed at Cley, Brancaster and Titchwell; here Reed *Phragmites australis* is dominant with mud rush *Juncus gerardii*, brackish water-crowfoot *Ranunculus baudotii*, sea club-rush *Scirpus maritimus* and great reed-mace *Typha latifolia*. Many of the reedbeds are managed to provide the conditions favoured by rare breeding birds.

Maritime Pasture and Grazing Marsh
Maritime pasture is present on the Cley and Salthouse Marshes, where several plants characteristic of damp grazed areas occur including marsh fox-tail *Alopecurus geniculatus*, annual beard-grass *Polypogon monspeliensis*, jointed rush *Juncus articulatus* and silverweed *Potentilla anserina*.

Extensive areas of permanent grazing marsh derived from reclaimed saltmarsh are present in several places along the coast. The dominant grass species in the sward are creeping bent *Agrostis stolonifera*, common fox-tail *Alopecurus pratensis* and perennial rye-grass *Lolium perenne*. The wet, rough grassland is suitable breeding habitat for several species of wader and is a valuable feeding area for wintering wildfowl.

A number of relict saltmarsh creeks on the marshes have developed into brackish reedbeds of considerable ornithological importance. The grazing marsh at Holkham was reclaimed in the 17th and 18th centuries. A network of clear water dykes is present with a variety of marginal plants including reed, lesser spearwort *Ranunculus flammula*, water mint *Mentha aquatica* and gipsy-wort *Lycopus europaeus*. Amongst several interesting species of water plant recorded are the uncommon soft hornwort *Ceratophyllum submersum* and blunt-leaved pondweed *Potamogeton obtusifolius*. A fringe of dry grassland is present above the saltmarsh at Holkham and is annually mown and occasionally grazed.

Vertebrate Fauna
The breeding bird communities of the North Norfolk Coast are of national and international importance. Most noteworthy are breeding colonies totalling up to 4,500 pairs of sandwich

terns *Sterna sandvicensis* which represent about 1/12th of the world population. The largest colony of little terns *Sterna albifrons* in Western Europe is located on Blakeney Point. On the North Norfolk Coast as a whole, there are up to 400 pairs of little terns which constitute over 20% of the British population. Bird species with breeding populations of national importance include up to 1,000 pairs of common terns *Sterna hirundo*, 27 pairs (in 1982) of avocets *Recurvirostra avosetta* and up to 100 pairs of bearded tits *Panurus biarmicus*. Bitterns *Botaurus stellaris* and marsh harriers *Circus aeruginosus* are regular breeders in small numbers and garganey *Anas querquedula* and black-tailed godwit *Limosa limosa* breed on occasions.

Migratory birds, notably waders and passerines, are often present in great abundance in the spring and autumn. Wintering birds include large numbers of brent geese *Branta bernicla* and smaller numbers of pink-footed geese *Anser brachyrhynchus* and white-fronted geese *Anser albifrons*. Ducks and waders are also present in great abundance on the marshes and intertidal areas. The shingle banks and foreshore provide suitable habitats for wintering passerines such as twite *Acanthis flavirostris*, snow buntings *Plectrophenax nivalis* and shore larks *Eremophila alpestris*.

The natterjack toad *Bufo calamita*, a rare amphibian in Britain, breeds in shallow pools in the dune slacks at two sites on the coast.

Red squirrels *Sciurus vulgaris* occurred in the dune pine woods until 1981 at Holkham. Otters *Lutra lutra* breed and hunt within the whole site.

Weybourne Town Pit SSSI

COUNTY: Norfolk SITE NAME: WEYBOURNE TOWN PIT

DISTRICT: North Norfolk

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981

Local Planning Authority: North Norfolk District Council

National Grid Reference: TG 114431 Area: 0.62 (ha) 1.5 (ac)

Ordnance Survey Sheet 1:50,000: 133 1:10,000: TG 14 SW

Date Notified (Under 1949 Act): 1964 Date of Last Revision: N/A

Date Notified (Under 1981 Act): 1983 Date of Last Revision: –

Other Information:

Reasons for Notification:
Weybourne Town Pit is the type locality for the Pleistocene 'Marly Drift', a chalk-rich glacial till of supposed Anglian age. The relationship of the 'Marly Drift' to other glacigenic deposits in the area has been much discussed and it is important that this site remains available for future study of the Quaternary.

Kelling Heath SSSI

COUNTY: Norfolk SITE NAME: KELLING HEATH

DISTRICT: North Norfolk

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981

Local Planning Authority: North Norfolk District Council

National Grid Reference: TG 101420 Area: 88.2 (ha) 217.9 (ac)

Ordnance Survey Sheet 1:50,000: 133 1:10,000: TG 04 SE, TG 14 SW

Date Notified (Under 1949 Act): 1954 Date of Last Revision: –

Date Notified (Under 1981 Act): 1986 Date of Last Revision: –

Other Information:

Reasons for Notification:
Kelling Heath, together with Salthouse Heath, are two distinct outwash plains dating from different halt stages of the same glaciation. Kelling Heath provides perhaps the best example of a glacial outwash plain in England. Both sites have steep ice-contact slopes and are dissected by deep dry valleys, and are geomorphological sites of national importance. A fine example of 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.

The extensive areas of dry, acid heathland are dominated by Heather *Calluna vulgaris* with frequent Bell Heather *Erica cinerea* and Western Gorse *Ulex gallii*. Small areas of acidic grassland, with Wavy Hair-grass *Deschampsia flexuosa*, form a mosaic with the heath in two places. Bracken *Pteridium aquilinum* is dominant on the steep slopes and Gorse *Ulex europaea* is locally abundant on the northern part of the site. Young Silver Birch *Betula pendula* and Scots Pine *Pinus sylvestris* are thinly scattered over the entire heath. Numerous paths cross the heath and the flora of these includes the introduced Pirri-pirri Bur *Acaena anserinifolia*.

A band of secondary woodland, dominated by Pedunculate Oak *Quercus robur*, is present along a steep escarpment at the eastern margin of the site. Small areas of Hawthorn *Crataegus monogyna* and Blackthorn *Prunus spinosa* scrub are also present.

Nightjars *Caprimulgus europaeus* breed on the site and other typical heathland species include whitethroat *Sylvia communis*, Nightingale *Luscinia megarhinchos* and Linnet *Acanthis cannabina*. The heath supports a Hen Harrier *Circus cyaneus* roost in winter. Reptiles favour the warm, dry conditions present on the heath and Common Lizards *Lacerta vivipara* and Adders *Vipera berus* are abundant.

There is an ancient ‘flaking’ site on the heath.

Cawston and Marsham Heath SSSI

COUNTY: Norfolk SITE NAME: CAWSTON AND MARSHAM HEATHS

DISTRICT: Broadland

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981

Local Planning Authority: Broadland District Council

National Grid Reference: TG 170235 Area: 125.7 (ha) 310.6 (ac)

Ordnance Survey Sheet 1:50,000: 133 1:10,000: TG 12 SW

Date Notified (Under 1949 Act): – Date of Last Revision: –

Date Notified (Under 1981 Act): 1986 Date of Last Revision: –

Other Information:
A new site.

Description and Reasons for Notification:
Cawston and Marsham Heaths form the largest area of Heather-dominated heathland now remaining in east Norfolk. They represent a locally scarce type which shows affinities to the Atlantic coastal heaths found in western Britain. Dry Heather-heathland has developed on glacial sands and gravels and the site has been subject to generations of grazing and burning. As a result there is a diverse flora which includes a rich assemblage of lichens. The site is also of considerable ornithological interest.

Although contiguous, the vegetation on the two heaths illustrates interesting variations due to differences in past management practices. Cawston Heath is dominated by Heather *Calluna vulgaris* and Bell Heather *Erica cinerea* and the uneven age structure provides suitable conditions for many low-growing lichens including *Cladonia gonechi* at its only East Anglian locality. On Marsham Heath, Western Gorse *Ulex gallii*, a local species more usually associated with Atlantic coastal heaths, is co-dominant with Heather. Cross-leaved Heath *Erica tetralix* is abundant in damp hollows where Soft Rush *Juncus effusus* and Purple Moor-grass *Molinia caerulea* are also frequent. Other heathland plants of interest include Petty Whin *Genista anglica*, Wavy Hair-grass *Deschampsia flexuosa* and Heath Bedstraw *Galium saxatile*. A number of paths cross the open heath and these support a characteristic acid grassland flora with Early Hair-grass *Aira praecox*, Green-ribbed Sedge *Carex binervis*, Tormentil *Potentilla erecta* and Field Woodrush *Luzula campestris*.

Wet heath habitats are not well-developed but there is a small permanent pool on Cawston Heath with some surrounding marshy vegetation which includes Pennywort *Hydrocotyle vulgaris*, Soft Rush and bog mosses *Sphagnum* spp.

Gorse *Ulex europaeus* is scattered over much of the heath with occasional saplings of Silver Birch *Betula pendula* and Pedunculate Oak *Quercus robur*. These two species form a closed canopy of young secondary woodland in places. Quaker's Wood is an old plantation of coppiced Sweet Chestnut *Castanea sativa* with some Birch and Rowan *Sorbus aucuparia*. The ground flora is dominated by Bracken *Pteridium aquilinum* and Creeping Soft-grass *Holcus mollis* with Wood Sage *Teucrium scorodonia* and Honeysuckle *Lonicera periclymenum*. Self-sown stands of Scots Pine *Pinus sylvestris* with Birch have developed near mature conifer plantations.

A wide variety of heathland birds nest on the site including Tree Pipits, Whinchats and occasional Nightjars and the site is important as a winter roost for Hen Harriers.

Alderford Common SSSI

COUNTY: Norfolk SITE NAME: ALDERFORD COMMON

DISTRICT: Broadland

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981

Local Planning Authority: Broadland District Council

National Grid Reference: TG129184 Area: 16.8 (ha) 41.6 (ac)

Ordnance Survey Sheet 1:50,000: 133 1:10,000: TG 11 NW

Date Notified (Under 1949 Act): Date of Last Revision: –

Date Notified (Under 1981 Act): 1986 Date of Last Revision: –

Other Information:
The site is a registered common.

Reasons for Notification:
Alderford Common is 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 is dominated by Red Fescue *Festuca rubra*, Crested Hair-grass *Koelaria macrantha* and False Brome *Brachypodium sylvaticum*. Many herb-species are associated with the grassland and include Wild Basil *Clinopodium vulgare*, Burnet Saxifrage *Pimpinella saxifraga*, Dwarf thistle *Cirsium acaule*, Larger Wild Thyme *Thymus pulegoides*, Dropwort *Filipendula vulgaris* and Common Spotted Orchid *Dactylorhiza fuchsii*. Damp holloes, on low-lying ground, have a characteristic flora which includes Water Mint *Mentha aquatica*, Pennywort *Hydrocotyle vulgaris* and a large population of Adder's Tongue *Ophioglossum vulgatum*.

Secondary woodland dominated by Silver Birch *Betula pendula* and Pedunculate Oak *Quercus robur*, open Bracken heath and dense scrub surround the marl workings. Two ponds are also present and a small marshy area has developed around one with abundant Meadowseet *Filipendula ulmaria*.

The thick Blackthorn *Prunus spinosa* and Hawthorn *Crataegus monogyna* scrub provides suitable nesting sites for a wide range of breeding birds including the largest population of Nightingales in East Norfolk. Other notable breeding birds are Lesser Whitethroat, Whitethroat, Turtle Dove, Woodcock and Hawfinch.

The ponds are used as breeding sites by several species of amphibians including a small population of the scarce Warty Newt *Triturus cristatus*.

An old lime-kiln is used by bats both as a winter hibernating site and as a daytime roost during the summer months.

Swannington Upgate Common SSSI

COUNTY: Norfolk SITE NAME: SWANNINGTON UPGATE COMMON

DISTRICT: Broadland

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981

Local Planning Authority: Broadland District Council

National Grid Reference: TG 148181 Area: 20.03 (ha) 49.49 (ac)

Ordnance Survey Sheet 1:50,000: 133 1:10,000: TG 11 NE, TG 11 NW

Date Notified (Under 1949 Act): 1958 Date of Last Revision: –

Date Notified (Under 1981 Act): 1985 Date of Last Revision: –

Other Information:
Much of the site is registered commonland.

Reasons for Notification:
An unusual site supporting 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. These variations in soils and wetness and a variable topography have provided conditions for the development of an exceptionally wide range of semi-natural vegetation including 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.

Small areas of dry acidic heathland are present on high ground and are dominated by Heather *Calluna vulgaris* with occasional Bell Heather *Erica cinerea*. The sandy soils also support areas of grassland with abundant Sheep's Fescue *Festuca ovina*, Sheep's Sorrel *Rumex acetosella* and Tormentil *Potentilla erecta*, scrub and bracken heath. Secondary lowland birch–pedunculate oak woodland now covers much of the high ground and the ground flora includes Wood Sage *Teucrium scorodonia*, Honeysuckle *Lonicera periclymenum* and the moss *Leucobryum glaucum*.

There is an abrupt transition from dry heath to a wet heath and grassland mosaic dominated by Cross-leaved Heath *Erica tetralix*, Heather and Purple Moor-grass *Molinia caerulea* on sloping ground. Springs emerge from the underlying sands and bog mosses *Sphagnum* spp. are abundant along the seepage lines. Young Downy Birch *Betula pubescens* woodland has spread over these wet, acidic areas.

Acid valley alder woodland occurs by the side of the stream. *Sphagnum* is present in the ground flora which also includes the locally scarce Opposite-leaved Golden Saxifrage *Chrysosplenium oppositifolium*. An area of open fen on low-lying ground is dominated by Blunt-flowered Rush *Juncus subnodulosus* and Meadowsweet *Filipendula ulmaria*. The fen is floristically rich and species of interest include Bogbean *Menyanthes trifoliata*, Marsh Cinquefoil *Potentilla palustris*, Southern Marsh Orchid *Dactylorhiza praetermissa* and Panicled Sedge *Carex paniculata*. There is a distinct zone with Great Pond Sedge *Carex riparia* and Reed-grass *Phalaris arundinacea* by the stream.

There are several ponds on the common and they support a rich assemblage of water-plants dominated by Broad-leaved Pondweed *Potamogeton natans* and Stoneworts *Chara* spp. These ponds provide suitable breeding conditions for several species of amphibian including the scarce Warty Newt *Triturus cristatus*.

The variety of habitats supports a wide range of breeding birds including Teal, Woodcock, Lesser Whitethroat, Sedge Warbler and Redpoll.

Shotesham Common SSSI

COUNTY: NORFOLK SITE NAME: SHOTESHAM COMMON

DISTRICT: SOUTH NORFOLK

Status: Site of Special Scientific Interest (SSSI) notified under Section 28 of the Wildlife and Countryside Act 1981.

Local Planning Authority: South Norfolk District Council

National Grid Reference: TM 241998 Area: 19.6 (ha.) 48.4 (ac.)

Ordnance Survey Sheet 1:50,000: 134 1:10,000: TG 20 SW, TM 29 NW

Date Notified [Under 1949 Act]: – Date of Last Revision: –

Date Notified [Under 1981 Act]: 1987 Date of Last Revision: –

Other Information:
A new site.

Description and Reasons for Notification:
Shotesham Common is a valley site in the catchment of the River Tas. Extensive areas of unimproved grassland are now rare in Norfolk due to agricultural improvement but the majority of Shotesham Common has remained under a traditional management regime and a good variety of grassland types are present. These range from permanently wet marshy grassland on the valley bottom, through wet neutral grassland, to drier grassland on the slopes. A stream runs through the site and there is a small area of basic flush on the valley side. The scientific interest of the site is maintained by light grazing and a diverse well developed flora is present with several uncommon species.

The areas of marshy grassland are dominated by blunt-flowered rush *Juncus subnodulosus*, sharp-flowered rush *J. acutiflorus* and meadowsweet *Filipendula ulmaria* with frequent bogbean *Menyanthes trifoliata*, marsh marigold *Caltha palustris*, ragged robin *Lychnis flos-cuculi* and southern marsh orchid *Dactylorhiza praetermissa*. More uncommon species present include marsh lousewort *Pedicularis palustris*, marsh helleborine *Epipactis palustris* and common cotton-grass *Eriophorum angustifolium*.

Wet neutral grassland is present on less waterlogged soils. Grasses are dominant in the sward and the more frequent species are tufted hair-grass *Deschampsia cespitosa*, Yorkshire fog *Holcus lanatus* and creeping bent *Agrostis stolonifera*. Herb species are well represented and include cowslip *Primula veris*, common spotted orchid *Dactylorhiza fuchsii*, common twayblade *Listera ovata* and adder's tongue *Ophioglossum vulgatum*. Small areas of dry, neutral grassland on hummocky ground are dominated by sweet vernal grass *Anthoxanthum odoratum* and Yorkshire fog with meadow saxifrage *Saxifraga granulata*, lady's bedstraw *Galium verum* and common quaking grass *Briza media*.

The small flush has a bryophyte-dominated carpet with a short-sward vegetation that includes marsh arrow-grass *Triglochin palustris*, common quaking grass and cuckoo flower *Cardamine pratensis*.

The site also includes small areas of semi-improved and improved grassland.