



**Vattenfall Wind Power Ltd**

**Thanet Extension Offshore Wind Farm**

**Annex 5-1: Extended Phase 1 Habitat Survey  
Report**

June, 2018, Revision A

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Vattenfall Wind Power Ltd

Thanet Extension Offshore Wind Farm

Annex 5-1: Extended Phase 1 Habitat Survey Report

June, 2018

Drafted By:	Amec Foster Wheeler
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Date of Approval	June 2018
Revision	A

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## Vattenfall Wind Power Ltd

# Thanet Extension Offshore Wind Farm

### Annex 5-1: Extended Phase 1 Habitat Survey Report

**Please Note: This report contains a CONFIDENTIAL Appendix (Appendix D). This Appendix contains badger records which are CONFIDENTIAL and this information should not be made available in the public domain.**



June 2018

Amec Foster Wheeler  
Environment & Infrastructure UK  
Limited



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**Report for**

Vattenfall Wind Power Ltd

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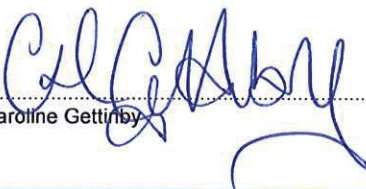
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**Document revisions**

No.	Details	Date
1	Draft Report	08/08/2017
2	Second Draft	12/09/2017
3	Third Draft	19/10/2017
4	Final Report (PEIR)	01/11/2017
5	Final Report (update, ES)	13/06/2018



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# 1. Introduction

## 1.1 Purpose of this Report

- 1.1.1 This report is an update of the equivalent PEIR report that was issued in November 2017. It contains only minor and non - material updates and still represents the prevailing baseline conditions in autumn 2017.
- 1.1.2 This report details the results of extended Phase 1 habitat surveys undertaken in 2017, in order to inform the Environmental Impact Assessment (EIA) for the Thanet Extension Offshore Wind Farm (Thanet Extension). This report forms a technical annex to Volume 3, Chapter 5 (Onshore Biodiversity) of the Environmental Statement (ES).

## 1.2 Background

- 1.2.1 GoBe Consultants, on behalf of Vattenfall Wind Power Ltd (VWPL), has commissioned Amec Foster Wheeler Environment & Infrastructure UK Ltd. (hereafter referred to as Amec Foster Wheeler) to undertake an extended Phase 1 habitat survey for Thanet Extension, located within Thanet and Dover districts, Kent. At the time of commission the proposed development comprised two options for the proposed route for the Thanet Extension: Option 1 (north) and Option 2 (south) – as illustrated in the scoping report<sup>1</sup> (Figure 1.2) and Figure 5.1: Study Area and Aol buffers for the Purpose of Scoping<sup>2</sup>. At that stage, the onshore Area of Interest (Aoi<sup>3</sup>) for ecology surveys was the 500 metre (m) buffer zone around the two 25m wide Option 1 and Option 2 routes above Mean High Water Springs (MHWS), plus respective receptor appropriate buffer zone.
- 1.2.2 The report is based on the Red Line Boundary (RLB) presented in the Preliminary Environmental Information Report (PEIR) submitted in November 2017. Since the publication of the scoping report, all biodiversity receptors have been re-scoped to take account of the revised RLB presented in the PEIR. The report includes receptors located within and, where appropriate, outside the RLB presented in the PEIR. Consequently, the spatial scope of surveys and results in this report reflects the RLB presented in the PEIR plus a buffer appropriate to the receptor concerned. All references to the RLB in this report are based on the RLB presented in the PEIR.
- 1.2.3 For the extended Phase 1 habitat survey, as the subject of this technical report, this spatial scope is illustrated on Figure 5.1.1a-5.1.1g, Appendix A.

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<sup>1</sup> Royal HaskoningDHV (2016) Thanet Extension Offshore Wind Farm, Environmental Impact Assessment, report to Inform Scoping.

<sup>2</sup> This figure is appended to the Onshore Biodiversity Chapter 5 in the PEIR.

<sup>3</sup> Figure 5.1 Study Area and Onshore Aol buffers for the Purpose of Scoping, appended to Volume 3, Chapter 5 (Onshore Biodiversity) in the PEIR.

## 1.3 Site Description

- 1.3.1 The proposed development is located within eastern Kent in the Thanet and Dover districts and comprises an assortment of land parcels with terrestrial habitats comprising agricultural land, improved and semi-improved grassland, dense and scattered scrub, woodland stands, extensive networks of drainage ditches and coastal floodplain and grazing marsh.
- 1.3.2 The RLB includes in part, land statutorily designated as Thanet Coast and Sandwich Bay Ramsar, Thanet Coast and Sandwich Bay Special Protection Area (SPA), Sandwich Bay Special Area of Conservation (SAC), Sandwich and Pegwell Bay National Nature Reserve (NNR), and Sandwich Bay to Hacklinge Marshes Sites of Special Scientific Interest (SSSI). ).
- 1.3.3 Non-statutory sites within the RLB are the Sandwich and Pegwell Bay Kent Wildlife Trust Reserve (KWTR) and the A256 Roadside Nature Reserve (RNR).
- 1.3.4 Habitats comprise semi-improved neutral and improved grassland, scattered and dense scrub and scattered trees, adjacent to an extensive area of mudflats, coastal saltmarsh, coastal sand dune and floodplain grazing marsh to the east; a minor road, residential properties and extensive golf courses to the west. It contains a sports facility dominated by amenity grassland and scattered trees, an area of hardstanding and a section of drainage ditch. The southern area of land within the RLB is largely hardstanding in the vicinity of Richborough Port. West of the A256 (Ramsgate Road), the RLB surrounds land comprising Richborough Energy Park (REP) dominated by man-made structures and hardstanding, with areas of improved grassland, scattered tree, scattered and dense scrub in its north west.
- 1.3.5 Beyond the RLB to the north, east and west lies reedbed, broadleaved woodland a network of drainage ditches and dense scrub – designated as Sandwich Bay to Hacklinge Marshes SSSI. To the west of the RLB, lies a large network of ditches, grazing marsh and arable land including the Woods and Grassland Minster Marshes, and the Ash Level and South Richborough Pasture Local Wildlife Sites (LWSs).



## 2. Legislative and Policy Context

- 2.1.1 A number of designated sites, habitats and species are protected through either statute, or national or local policy: details of these are provided in Boxes 1 and 2.

### Box 1 Designated Wildlife Sites, and Priority Habitats and Species

#### Statutory nature conservation sites

Internationally important sites: Special Areas of Conservation (SACs) and candidate SACs, Special Protection Areas (SPAs) and proposed SPAs, Sites of Community Importance, Ramsar sites and European offshore marine sites.

Nationally important sites: Sites of Special Scientific Interest (SSSIs) that are not subject to international designations and National Nature Reserves (NNRs)

Local Nature Reserves (LNRs) are statutory sites that are of importance for recreation and education as well as nature conservation. Their level of importance is defined by their other statutory or any non-statutory designation (e.g. if an LNR is also an SSSI but is not an internationally important site, it will be of national importance). If an LNR has no other statutory or non-statutory designation it should be treated as being of district-level importance for biodiversity (although it may be of greater socio-economic value).

#### Non-statutory nature conservation sites

Local Wildlife Sites (LWS): In Kent LWS are designated on a county level, by the Kent Biodiversity Partnership Steering Group - a specialist panel (which includes representatives from wildlife bodies, local authorities, and organisations representing landowners and farmers).

Sites of borough importance: Some LWS are designated as Roadside Nature Reserves (RNR) by the Road Verge Project (a partnership between Kent County Council, Kent Highways and Kent Wildlife Trust). These have been identified as containing scarce or threatened habitats or species, and act as important wildlife corridors.

Kent Wildlife Trust Reserves (KWTR) are sites managed by the Kent Wildlife Trust. Their level of importance accords with, and defer to the wider designation they are located within, and thus vary from borough to international.

#### Priority habitats and species

In this report, the geographic level at which a species/habitat has been identified as a priority for biodiversity conservation is referred to as its level of 'species/habitat importance'. For example, habitats and species of principal importance for the conservation of biological diversity in England (see the first bullet point below) are identified as of national species/habitat importance reflecting the fact that these species/habitats have been defined at a national level. The level of importance therefore pertains to the species/habitat as a whole rather than to individual areas of habitat or species populations, which cannot be objectively valued, other than for waterfowl, for which thresholds have been defined for national/international 'population importance'.

- ▶ International importance: populations of species or areas of habitat for which European Sites are designated;



- ▶ International importance: populations of birds meeting the threshold for European importance (1% of the relevant international population);
- ▶ National importance: Habitats and Species of Principal Importance for the conservation of biological diversity in England. These are listed on: <http://jncc.defra.gov.uk/page-5705>. These include those former UK Biodiversity Action Plan (UK BAP) priority habitats and species that occur in England.

### **Box 1 Designated Wildlife Sites, and Priority Habitats and Species**

- ▶ National importance: Species listed as being of conservation concern in the relevant UK Red Data Book (RDB) or the Birds of Conservation Concern<sup>4</sup> Red List;
- ▶ National importance: Nationally Scarce species, which are species recorded from 16 - 100 10 x 10km squares of the national grid;
- ▶ National importance: Populations of birds comprising at least 1% of the relevant British breeding/wintering population (where data are available);
- ▶ National importance: Ancient woodland (i.e. areas that have been under continuous woodland cover since at least 1600);
- ▶ County/Borough/District importance: Species and habitats listed in the Kent LBAP, with level dependant on the species/habitat quality and quantity.

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<sup>4</sup> Eaton, M.A. *et al.* (2009). *Birds of Conservation Concern 3: the population status of birds in the United Kingdom, Channel Islands and Isle of Man*. *British Birds*, **102**:296-341.



## Box 2 Legally Protected and Controlled Species

### Legal Protection

Many species of animal and plant receive some degree of legal protection. For the purposes of this study, legal protection refers to:

- ▶ Species included on Schedules 1, 5 and 8 of the *Wildlife and Countryside Act 1981* (as amended), excluding:
  - ▶ Species that are only protected in relation to their sale (see Section 9[5] and 13[2]), reflecting the fact that the proposed development does not include any proposals relating to the sale of species; and
  - ▶ Species that are listed on Schedule 1 but that are not likely to breed on or near the Site, given that this schedule is only applicable whilst birds are breeding;
- ▶ Species included on Schedules 2 and 5 of The *Conservation of Habitats and Species Regulations 2010* (as amended); and
- ▶ Badgers<sup>5</sup>, which are protected under the *Protection of Badgers Act 1992*.

A summary of the legislation pertaining to faunal species that may occur on the site is provided in Appendix C.

### Legal Control

Schedule 9 of the *Wildlife and Countryside Act 1981* (as amended) lists species of animal that it is an offence to release or allow to escape into the wild and species of plant that it is an offence to plant or otherwise cause to grow in the wild.

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<sup>5</sup> Please refer to Tables 4.12 and 4.13, Appendix F for all scientific names of species mentioned in this report.



## 3. Methods

### 3.1 Desk Study

- 3.1.1 As detailed in paragraph 1.2.1, at the time of the original desk study in March 2017, the study area was defined as the onshore Aol for ecology surveys plus an additional 2km buffer beyond the onshore Aol (the buffer for desk top data collection).
- 3.1.2 To inform the survey design and provide context for future assessment, a data-gathering exercise was undertaken to obtain information relating to statutory and non-statutory nature conservation sites, priority habitats and species, and legally protected and controlled species for a 2km buffer from the onshore Aol. This has subsequently been refined and recalculation of the distances of the records received in relation to the RLB has been undertaken for presentation and description in this report. Data is thus presented for up to 2km from the RLB presented in the PEIR. Definitions of site designations are provided in Table 3.1, Appendix B.
- 3.1.3 Data were obtained from Kent and Medway Biological Records Centre (KMBRC), Kent Wildlife Trust, the Multi-Agency Geographic Information for the Countryside (MAGIC)<sup>6</sup> website, Ordnance Survey mapping and from aerial photographs<sup>7</sup>
- 3.1.4 Data were gathered for the following search areas:
- ▶ Statutory designated sites (national and international) in or within a 2 km buffer of the RLB<sup>8</sup>;
  - ▶ Non-statutory designated sites of nature conservation interest located in or within a 2km buffer of the RLB;
  - ▶ Ancient woodland and other national/local priority habitats in or within a 2km buffer of the RLB (where not already covered by statutory and non-statutory sites);
  - ▶ Records of legally protected and otherwise notable species (excluding bats and birds) made in or within 2km buffer of the RLB;
  - ▶ Records of bats in or within a 5km buffer of the RLB (due to their highly mobile nature);
  - ▶ Records of birds within a 1km buffer of the onshore Aol<sup>9</sup>; and
  - ▶ Water bodies within the RLB and a 500m buffer of the RLB, not separated by barriers to great crested newt (GCN) movement (e.g. major roads, rivers, etc.).

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<sup>6</sup>DEFRA (2017) *Magic Map Application* [Online] Available from: <http://www.magic.gov.uk/MagicMap.aspx>

<sup>7</sup> Google (2017). Google maps [Online] Available from: <http://maps.google.co.uk>

<sup>8</sup> The HRA, Document 3.1, independently considers all onshore (including intertidal) European designated sites in and within 20 km of the RLB.

<sup>9</sup>Annex 5-4: Amec Foster Wheeler (2017) Thanet Offshore Windfarm Extension: Breeding Bird Survey Report, Amec Foster Wheeler, London.

- 3.1.5 This contextual information is important as it may point to notable species that could occur within the RLB and respective receptor buffers.
- 3.1.6 Analysis of data for the majority of species focuses only on records from made within the last ten years, as these are likely to be most relevant to the current conditions within the survey area.

## 3.2 Field Surveys

### Habitats

- 3.2.1 An extended Phase 1 habitat survey of the RLB plus a 50m buffer was undertaken by Amec Foster Wheeler ecologists from March through to July 2017. In addition, a 200m buffer to the RLB was surveyed for areas designated as statutory designated sites with potentially dust sensitive receptors, (illustrated on Figure 5.1.1a-5.1.1g, Appendix A). During these surveys, distinct habitats were identified and any features of interest subjected to a more detailed description in a Target Note (TN). As the standard Phase 1 habitat survey methodology is mainly concerned with vegetation communities, the survey was extended to allow for the provision of information on other ecological features, including identification of the presence/potential presence of legally protected and otherwise notable species. The conclusions of the protected species' assessments conducted to date are presented in the accompanying reports (refer to Annexes 5-2<sup>14</sup>, 5-3<sup>15</sup>, 5-4<sup>9</sup>).

### Hedgerows

- 3.2.2 Hedgerows located within the RLB and a 50m buffer, identified as part of the extended Phase 1 habitat survey, which were considered to be more than 30 years old and at least 20 m long were further assessed to identify whether they can be classified as 'important' as indicated by the criteria provided by the Hedgerow Regulations 1997.

### Veteran Trees

- 3.2.3 During the extended Phase 1 habitat survey, any individuals and groups of trees recorded as having potential to be classed as 'Veteran Trees'<sup>10</sup>, were subject to further surveys, in line with and considering methodology provided by the Specialist Survey Method (SSM)<sup>11</sup> and Natural England's standing advice<sup>12</sup>, in order to classify each tree and its veteran status.

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<sup>10</sup> The term veteran tree cannot be precisely defined, as a range of criteria are used to determine the veteran status of an individual tree when compared to others. However, it encompasses trees defined by three guiding principles: trees of interest biologically, aesthetically or culturally because of their age; trees in the ancient stage of their life; trees that are old relative to others of the same species. Size alone is a poor indicator of veteran status, as different species may have different rates of growth or natural life spans, and management practices may affect the overall size of a tree. For these reasons, the species, relative ages, management practice, aesthetic, cultural and biological importance are all taken into account when surveying or assessing potential veteran trees.

<sup>11</sup> Fay, N & de Berker, N (1996) *Veteran Trees Initiative, Specialist Survey Method*. Treework Environmental Consultancy on behalf of Natural England.

<sup>12</sup> Natural England (2003). *Evaluation of the Specialist Survey Method for Veteran Tree Recording*. Report number 529. [Online] Available from: <https://www.gov.uk/guidance/ancient-woodland-and-veteran-trees-protection-surveys-licences>

3.2.4 Various attributes were recorded, including size, status, features, surrounding habitat and the estimated level of disturbance, however veteran tree status is assessed based on the below characteristics:

- ▶ Age class - this is based on the general age class of a woodland block and/or features of an individual tree. To generate age estimations for trees diameter and girth at breast height were recorded along with the species, height and form (maiden, pollard or coppice). Table 3.1 below was used to provide an estimated age class for each tree<sup>13</sup>.

Table 3.1 Tree Age Class Definition Guidelines

Age Class	Smaller tree species	Oak, ash, alder	Poplar, beech, willow
<b>Mature</b>	<2.0m	<3.5m	<4.0m
<b>Fully-mature</b>	2.0< & <2.5m	3.5< & <4.0m	4.0< & <4.5m
<b>Ancient</b>	>2.5m	>4.0m	>4.5m

- ▶ Features - are the qualities associated with particular habitats in trees, especially those associated with dead wood, and their colonising organisms. They may have been created by intentional arboricultural treatment or as a consequence of environmental impacts, such as freezing, drought, storms and man-made damage. These include:
  - ▶ Hollowing: Any hollowing in the trunk or major limbs is important though extensive trunk hollowing is indicative of a tree of great age for its species;
  - ▶ Rot sites: Associated with wounds which are decaying following bark loss or limb loss and the subsequent colonisation by fungi and other microorganisms;
  - ▶ Holes and water pockets: Where rot holes are expanded by digestive activity of microorganisms and invertebrates, and when inundated can form water pools which can support invertebrates, bats and other mammals, and birds;
  - ▶ Dead wood: Branches or stems that have fallen or remain attached. They are typically colonised by decay fungi and may support different species;
  - ▶ Tears, scars and lightning strikes: Exposed woody tissue from bark loss associated with shedding limbs or lightning strikes may be compartmentalised with varying tissue quality;
  - ▶ Live stubs: Live growth associated with fracture ends and shattered tissue creates a large surface area for microorganism colonisation;
  - ▶ Fungal fruit bodies: Fungi typically associated with wood decay.

<sup>13</sup> Fay, N. (2007). *Defining and Surveying Veteran and Ancient Trees*. Treework Environmental Consultancy.

## Protected Species

3.2.5 The methodologies used to establish the presence/potential presence of specific species/species groups are summarised below; and are fully referenced within the accompanying protected species reports completed to date (see Annexes 5-2<sup>14</sup>, 5-3<sup>15</sup> and 5-4<sup>9</sup>). These relate to those species/biological taxa that the desk study and habitat types present indicated could potentially occur within the RLB and species' appropriate buffers.

### Water Vole, Otter and Eurasian Beaver

3.2.6 All watercourses and suitable drainage ditches within the RLB plus a buffer of up to 200m were scoped and where appropriate surveyed, for their potential to provide habitats that would support water vole. Such habitats would include the presence of any drainage ditches, waterbodies and foraging habitat<sup>16</sup>. In addition any signs of water vole activity were noted where suitable habitat did occur. Evidence for water vole presence includes:

- ▶ Droppings and latrines marking territories;
- ▶ Footprints;
- ▶ Feeding stations with characteristic cut vegetation close to the water's edge; and
- ▶ Burrows.

3.2.7 At the same time as the water vole scoping and surveys, all watercourses and suitable drainage ditches within the RLB plus a buffer of up to 200m were scoped for their potential to provide habitats that would support otter. The follow on surveys aimed to identify the presence/potential presence of otter. The signs of otter that were surveyed for included:

- ▶ Spraints;
- ▶ Holts and couches;
- ▶ Bankside slides: and
- ▶ Feeding remains; and footprints<sup>17</sup>.

3.2.8 Any field signs of Eurasian beaver were noted along the banks for water courses if observed whilst water vole and otter surveys were being undertaken, and during any of the surveys for other protected species and the Phase 1 habitat survey.

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<sup>14</sup> Annex 5-2: Amec Foster Wheeler (2017) Thanet Offshore Windfarm Extension: Water Vole and Otter Survey Report, Amec Foster Wheeler, London.

<sup>15</sup> Annex 5-3: Amec Foster Wheeler (2017) Thanet Offshore Windfarm Extension: Great Crested Newt Survey Report, Amec Foster Wheeler, London.

<sup>16</sup> Natural England (2014). [Online] Available from: <https://www.gov.uk/guidance/water-voles-protection-surveys-and-licences>

<sup>17</sup> Natural England (2014). *Otters: surveys and mitigation for development projects*. [Online] Available from: <https://www.gov.uk/guidance/otters-protection-surveys-and-licences>



### 3.2.9 Such field signs included:

- ▶ Beaver footprints;
- ▶ Feeding remains including de-barked tree branches by the water's edge, and cutting of herbaceous feed, and food caches, feeding stations and refuse from aquatic feeding;
- ▶ Scent mounds and scent sites (>1 scent mound at a single site);
- ▶ Teeth chisel marks on felled tree stumps;
- ▶ Well-worn paths;
- ▶ Areas cleared of trees and samplings; and
- ▶ Signs of beaver lodges – piles of wood by the water's edge or within the watercourse.

3.2.10 Further details relating to water vole, otter and Eurasian beaver survey work are provided in a separate report, Annex 5-2<sup>15</sup>.

### Bat

3.2.11 A general assessment of the suitability of the habitats to support roosting, foraging and commuting bats within the RLB and a 100m buffer from it was undertaken in accordance with Natural England guidance<sup>18</sup> and the Bat Conservation Trust *Good Practice Guidance*<sup>19</sup> Mature trees were inspected for evidence of cavities, splits, cracks, loose bark and dense and woody ivy growth that could be used by bats for roosting.

### Badger

3.2.12 The habitats within and bordering the RLB and a 30m buffer were assessed for their potential to provide suitable areas for badger sett excavation and foraging. Any evidence of badger activity as defined by Natural England<sup>20</sup> was also recorded, such as:

- ▶ Setts - comprising either single holes or a series of holes likely to be connected underground;
- ▶ Hairs - usually with a white root, black band, white tip (often caught in sett entrances/fences/vegetation);
- ▶ Footprints – located in soft mud, often in sett entrances;
- ▶ Evidence of foraging – usually in the form of 'snuffle holes' (small scrapes created by badgers searching for insects and earthworms);

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<sup>18</sup> Natural England (2015). *Bats: surveys and mitigation for development projects*. [Online] Available from: <https://www.gov.uk/guidance/bats-surveys-and-mitigation-for-development-projects>

<sup>19</sup> Collins, J (ed.) (2016) *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd edn). The Bat Conservation Trust, London.

<sup>20</sup> Natural England (2015). *Badgers: surveys and mitigation for development projects*. [Online] Available from: <https://www.gov.uk/guidance/badgers-surveys-and-mitigation-for-development-projects>

- ▶ Latrines - badgers usually deposit faeces in holes or scrapes in the ground; and
- ▶ Paths - particularly around setts or leading to feeding areas.

3.2.13 Mammal paths and snuffle holes were assumed to be created by badgers if the character of the path (in terms of size) was appropriate, and if other field signs were in close vicinity.

### Breeding Birds

3.2.14 A breeding bird survey was undertaken in the breeding season of 2017. The main purpose of the breeding bird survey was to identify the distribution of all identified target species within the RLB and plus a species specific 100 – 500m buffer.

3.2.15 Further details relating to breeding bird survey work are provided in a separate report, Annex 5-4<sup>9</sup>.

### Non-breeding Birds

3.2.16 Wintering bird surveys were undertaken over the last winter season – 2016/17. The main purpose of the wintering bird surveys was to identify the distribution and flight activity of wader, wildfowl, raptor and other target species within the RLB and defined buffers.

3.2.17 Further details relating to non-breeding bird survey work are provided in the respective report Annex 5-4<sup>9</sup>.

### Reptile

3.2.18 The habitats within the RLB and 30m buffer were assessed for their potential to provide sheltering, foraging and breeding habitats for the four common reptile species: slow worm, viviparous lizard, grass snake and adder in accordance with Natural England recommendations<sup>21</sup>.

3.2.19 These native reptile species generally require open areas with mixed-height vegetation, such as heathland, rough grassland, open scrub or (in the case of grass snake) water body margins. Suitable well drained and frost free areas are needed so that they can survive the winter.

### Great Crested Newt

3.2.20 Waterbodies within the RLB and up to a 500 m buffer search area were identified by the desktop study and, with their associated terrestrial habitats, were assessed for their potential to support GCN<sup>22</sup>. Such waterbodies would comprise the following characteristics: generally still, fish-free, good water quality, supporting a diverse assemblage of invertebrates and aquatic plant life, adjacent

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<sup>21</sup> Natural England (2014). *Reptiles: surveys and mitigation for development projects* [Online] Available from: <https://www.gov.uk/guidance/reptiles-protection-surveys-and-licences>

<sup>22</sup> DEFRA (2014). *Analytical and methodological development for improved surveillance of the Great Crested Newt, and other pond vertebrates - WC1067* [Online]. Available from: [http://randd.defra.gov.uk/Document.aspx?Document=12287\\_WC1067\\_Appendix\\_5\\_TechnicalAdviceNoteUpdatedSept2014.docx](http://randd.defra.gov.uk/Document.aspx?Document=12287_WC1067_Appendix_5_TechnicalAdviceNoteUpdatedSept2014.docx)

to woodland or grassland areas where there is optimal invertebrate prey potential. Further details relating to GCN survey work are provided in a separate report, Annex 5-3<sup>15</sup>.

### **Invertebrates**

- 3.2.21 Habitats within the RLB and within a 50m buffer search area were assessed for their potential to support rare and/or notable invertebrate species and/or assemblages of species.

### **Other Species**

- 3.2.22 An assessment was made of the potential for the habitats within the RLB and a species specific buffer to support any other species considered to be of value for biodiversity conservation, including those that were identified as occurring within the local area by the desk study. Natterjack toads were considered within a 250m buffer to the RLB<sup>23</sup>. This species has specific habitat requirements including sand dune habitats with loose sandy soil. Sheltering habitats include sandy banks, old stone walls and piles of rock with animals sometimes found in brackish water or saltmarsh. Habitats within the study area including those within the RLB and 50m buffer to the RLB, have some suitability to support this species, therefore as part of the extended Phase 1 habitat survey any habitats or features with potential to support Natterjack toads during their breeding and terrestrial phases were recorded.

### **Invasive Species**

- 3.2.23 Any evidence of invasive species observed within the RLB and a 7m buffer such as Japanese knotweed, New Zealand pigmyweed, giant hogweed, water fern and Himalayan balsam, was noted and mapped.

### **National Vegetation Classification Surveys**

- 3.2.24 Where habitats of principal importance were recorded within the RLB or 50m buffer to the RLB further survey using the National Vegetation Classification (NVC) are to be considered further. Furthermore, any designated habitats that have the potential to be affected by development impacts (indirectly through airborne pollutants) are considered up to 200m from the RLB.

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<sup>23</sup> Data pertaining to Natterjack toads is CONFIDENTIAL; for best practice reasons this species is considered within a 250m buffer from the RLB. A third party will be undertaking surveys and will provide records of this species within the 250m to the RLB.



## 4. Results

### 4.1 Desk Study

#### Statutory Designated Sites

- 4.1.1 There are seven statutory designated sites within the RLB or the 2km study area<sup>24</sup>. Table 4.1 summarises their designations, details of their qualifying interest and their location with reference to the RLB.

Table 4.1 Internationally and Nationally Designated Statutory Nature Conservation Sites

Site	Designation	Ecological interest	Approximate distance (m) and direction from the RLB
<b>Thanet coast and Sandwich Bay</b>	Ramsar	<p><b>Grid Ref:</b> TR325 632 <b>Ha:</b> 2182</p> <p>The Thanet Coast and Sandwich Bay Ramsar site includes a wide variety of coastal habitats including areas of chalk cliff, rocky shore, shingle, sand and mudflats, saltmarsh and sand dunes. As well as its value for breeding and wintering birds, the site supports outstanding communities of terrestrial and marine plants species, a significant number of rare invertebrate species. The site supports a very large number of rare species of wetland invertebrates. A total of 15 RDB species associated with wetlands have been recorded. It also supports an internationally important wintering population of turnstone.</p>	Within the RLB <sup>25</sup>

<sup>24</sup> Figure 5.2 Statutory Sites of Nature Conservation, appended to the Volume 3, Chapter 5, Onshore Biodiversity, in the PEIR.

<sup>25</sup> Approximately 1.94ha of the Ramsar lies within the RLB.

Site	Designation	Ecological interest	Approximate distance (m) and direction from the RLB
<b>Thanet Coast and Sandwich Bay</b>	SPA	<p><b>Grid Ref:</b> TR323 646  <b>Ha:</b> 1881.2</p> <p>The Thanet Coast and Sandwich Bay SPA includes a wide variety of coastal habitats including areas of chalk cliff, rocky shore, shingle, sand and mudflats, saltmarsh and sand dunes.</p> <p>As well as its value for breeding and wintering birds, the site supports outstanding communities of terrestrial and marine plants species, a significant number of rare invertebrate species. The site supports, a nationally important breeding population of little tern and a nationally important wintering population of golden plover and an internationally important wintering population of turnstone.</p>	Within the RLB <sup>26</sup>

<sup>26</sup> Approximately 1.94ha of the SPA lies within the RLB.

Site	Designation	Ecological interest	Approximate distance (m) and direction from the RLB
<b>Sandwich Bay</b>	SAC	<p><b>Grid Ref:</b> TR354 604  <b>Ha:</b> 1136.6</p> <p>Sandwich Bay is a largely inactive dune system with a particularly extensive representation of fixed dune grassland, the only large area of this habitat in the extreme south-east of England. The vegetation of these dunes and their associated slacks is extremely species-rich. The site includes a number of rare and scarce species, such as fragrant evening-primrose, bedstraw broomrape and sand catchfly, as well as the UK's largest population of lizard orchid. The seaward edge at the northern end of the site displays a good sequence of embryonic shifting dune communities and there is a clear zonation within the extensive dune system, with strandline species on the seaward edge and sand-binding grasses inland. Lyme-grass is extremely sparse and sand couch is the dominant sand binding species. The shifting dune vegetation contains a good range of characteristic fore dune species including sea bindweed, sea spurge and sea-holly. A small area of dunes with creeping willow <i>Salix</i> is of interest as it is the only example found in the dry south-east of England and is representative of this habitat type in a near-continental climate.</p>	Within the RLB <sup>27</sup>

<sup>27</sup> Approximately 0.24 ha of Sandwich Bay SAC lies within the RLB.

Site	Designation	Ecological interest	Approximate distance (m) and direction from the RLB
Thanet Coast	SAC	<p><b>Grid Ref:</b> TR348 711 <b>Ha:</b> 2803.8</p> <p>The Thanet Coast is the longest continuous stretch of coastal chalk in the UK. The site contains subtidal chalk reefs that extend into the intertidal zone and form chalk cliffs. The subtidal reefs within the site are comparatively impoverished, owing to the harsh environmental conditions in the southern North Sea, but are an unusual feature because of the scarcity of hard substrates in the area. The reefs extend offshore in a series of steps dissected by gullies. Species present include an unusually rich intertidal algal flora, essentially of chalkboring algae, which may extend above high water mark into the splash zone in wave-exposed areas. The site contains the second most extensive representation of chalk caves in the UK and is situated on the extreme south-east coast of England. The caves support very specialised algal and lichen communities containing species such as <i>Pseudendoclonium submarinum</i> <i>Chrysotila lamellosa</i>, <i>Chrysotila stipitata</i>, <i>Chrysonema litorale</i> and <i>Thallochrysis litorale</i>, some of which were first described from Thanet.</p>	4km to the north east <sup>28</sup>

<sup>28</sup> Thanet SAC lies beyond the onshore survey area; but it continuous with Sandwich Bay SAC. Details are provided here for contextual data only.



Site	Designation	Ecological interest	Approximate distance (m) and direction from the RLB
<b>Sandwich Bay to Hacklinge Marshes</b>	SSSI	<p><b>Grid Ref:</b> TR353585 <b>Ha:</b> 1756.5</p> <p>This site contains the most important sand dune system and sandy coastal grassland in south east England and also includes a wide range of other habitats such as mudflats, saltmarsh, chalk cliffs, freshwater grazing marsh, scrub and woodland. Associated with the various constituent habitats of the site are outstanding assemblages of both terrestrial and marine plants with over 30 nationally rare and nationally scarce species, having been recorded. Invertebrates are also of interest with recent records including 19 nationally rare, and 149 nationally scarce species. These areas provide an important landfall for migrating birds and also support large wintering populations of waders, some of which regularly reach levels of national importance. The dunes and associated dune slacks and coastal grassland support a distinctive flora with species including crown garlic, viper's bugloss, sea holly and restharrow, whilst the nationally rare lizard orchid and bedstraw broomrape have their largest British colonies here.</p>	Within the RLB <sup>29</sup>

<sup>29</sup> Approximately 1.85ha of Sandwich Bay to Hacklinge Marshes SSSI lies within the RLB.

Site	Designation	Ecological interest	Approximate distance (m) and direction from the RLB
<b>Sandwich and Pegwell Bay<sup>30</sup></b>	NNR	<p><b>Grid Ref:</b> TR 352 630 <b>Ha:</b> 629</p> <p>The Trust's largest and one of its most important nature reserves, with the only ancient dune pasture in Kent. The reserve is made up of a complex mosaic of habitats: inter-tidal mudflats, saltmarsh, shingle beach, sand dunes, ancient dune pastures, chalk cliffs, wave cut platform and coastal scrubland.</p> <p>The NNR contains a complex mosaic of habitats including inter-tidal mudflats, saltmarsh, shingle beach, sand dunes, ancient dune pastures, chalk cliffs, wave cut platform and coastal scrubland. It supports the only ancient dune pasture in Kent. It is of international importance for its wader and wildfowl populations. 615ha of the NNR is managed as a KWTR.</p>	Within the RLB <sup>31</sup>
<b>Prince's Beach lands</b>	LNR	<p><b>Grid Ref:</b> TR 353 611 <b>Ha:</b> 5.6</p> <p>A complex mosaic of habitats of international importance for its bird population.</p>	1.38km south-east

### Non-statutory Designated Sites

- 4.1.2 There are four non-statutory designated sites: a KWTR, and three LWS one of which is a, Roadside Nature Reserve (RNR) that lie within the RLB or within the 2km study area<sup>32</sup>, Details of these sites are summarised in Table 4.2 below.

<sup>30</sup> For the purposes of this assessment, this encompasses the KWTR Sandwich and Pegwell Bay Reserve

<sup>31</sup> Approximately 14.2ha of Sandwich and Pegwell Bay NNR lies within the RLB.

<sup>32</sup> Figure 5.1.3: Non-statutory Sites of Nature Conservation, appended to the Onshore Biodiversity Chapter 5 in the PEIR.

Table 4.2 Non-Statutory Nature Conservation Sites

Site	Designation	Ecological interest	Approximate distance (m) and direction from the RLB
<b>Sandwich and Pegwell Bay</b>	KWTR	<b>Grid Ref:</b> TR 352 630 <b>Ha:</b> 615 As described above for the NNR.	Within the RLB <sup>33</sup>
<b>Roadside Nature Reserve A256 (Sandwich Road)</b>	LWS	<b>Grid Ref:</b> TR338 630 – 342 634 <b>Ha:</b> 1756.5 This flat verge is 450m long and lies on the east side of the road it is 8 – 10m wide, the soils are loamy and the plants reflect this. The plants include bee orchid, buck's horn-plantain, cow parsley, wild fennel, hedge bindweed, sea couch, Yorkshire fog and wild teasel. The verge has a ditch and is backed by a hedgerow with field maple, white poplar, hawthorn and blackthorn.	Within the RLB <sup>34</sup>

<sup>33</sup> Approximately 0.05ha of Sandwich and Pegwell Bay KWTR lies within the RLB.

<sup>34</sup> The entire area of the A256 RNR lies within the RLB.

Site	Designation	Ecological interest	Approximate distance (m) and direction from the RLB
<b>Woods and Grassland, Minster Marshes</b>	LWS	<p><b>Grid Ref:</b> TR314 639  <b>Ha:</b> 18.31</p> <p>This site is designated because it consists of a mosaic of habitats including rough grassland, reedbed, a pond, scrub and a small stand of broadleaved woodland, which provides a refuge for wildlife in the surrounding, intensively farmed arable landscape, and enables greater connectivity with nearby designated sites. Areas of rough grassland contain a wide range of common herbs and grasses, including tall fescue and cock's-foot with lady's bedstraw, stone parsley, and black knapweed. Finer turf with red fescue also occurs in parts, and large areas of common reed are present in the very damp areas. Scrubby areas close to the railway line with heavily silted ponds now becoming scrubbed up with willows <i>Salix</i> spp. Common marsh plants occur here, including fool's-water-cress, reed sweet-grass and yellow iris, in addition to pendulous sedge and false fox-sedge. A feature of this area is the growth of corticolous lichens and bryophytes on willows and elder near the water; these are generally not common in Thanet.</p>	465m west

Site	Designation	Ecological interest	Approximate distance (m) and direction from the RLB
Ash Level and South Richborough Pasture	LWS	<p><b>Grid Ref:</b> TR300 618 <b>Ha:</b> 1037.6</p> <p>A large complex of grazing marsh (much of which has been converted to agricultural use), including botanically species rich ditches and supporting species such as the shining ram's horn snail and wetland birds. It supports a range of notable plants, invertebrates, mammals, herpetofauna and a variety of bird life, including a good range of small passerine species and waterbirds such as mute swan and mallard. In addition, suitable habitat may support breeding marsh harrier and barn owl.</p>	Immediately to the west

### Priority Habitats

4.1.3 The following national and/ or local priority habitats known to occur in or within 2km of the RLB:

- ▶ Ancient Woodland;
- ▶ Lowland mixed deciduous woodland;
- ▶ Traditional orchard;
- ▶ Lowland calcareous grassland;
- ▶ Semi-improved grazing marsh pasture;
- ▶ Semi-improved lowland dry acid grassland;
- ▶ Arable Field Margins;
- ▶ Mudflats and sandflats;
- ▶ *Zostera* spp;
- ▶ *Spartina* swards;
- ▶ Atlantic salt meadows; and
- ▶ *Elytrigia atherica* upper saltmarsh.

## Water Bodies

- 4.1.4 With reference to OS 1:10,000 scale maps and aerial mapping, and site visits, 172 water bodies (42 ponds, 126 ditches and four sections of river) were identified as requiring a screening visit to assess for their suitability to support GCN and water vole. All water bodies within a 500m buffer of the RLB that were considered for assessment, are illustrated in the accompanying GCN and Water Vole and Otter Survey reports<sup>35</sup>.

## 4.2 Protected or Otherwise Notable Species

- 4.2.1 KMBRC provided a number of records for legally protected species (Box 2) within a 2km buffer from the RLB, and these are summarised below. In line with best practice, Badger records are CONFIDENTIAL and this information should not be made available in the public domain; such records are located in CONFIDENTIAL Appendix D.
- 4.2.2 The desk study also provided a number of records of notable species. Notable species are defined as those which are designated but not protected, primarily Species of Principal Importance (formally UK BAP), or those that are of conservation concern (see Box 1, Section 2). Detail on protected species legislation is provided in Appendix C.
- 4.2.3 Where more detailed studies have been undertaken for protected/notable species (Phase 2 investigations) the relevant desk study results have been documented within those separate reports (for example, all GCN records will be documented and interpreted within the detailed GCN report (Annex 5-3<sup>15</sup>). No further discussion of their protected species potential is therefore provided here.

## Bats

- 4.2.4 KMBRC provided records for bats within and up to a 5km buffer from the RLB, and these are summarised below in Table 4.3, with records of bat roosts shown in Table 4.4.

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<sup>35</sup> Figure 5.3.1, Appendix B: Amec Foster Wheeler (2017) Thanet Offshore Windfarm Extension: Annex 5-3, Great Crested Newt Survey Report, Amec Foster Wheeler, London, and Figure 5.2.1, Appendix B: Amec Foster Wheeler (2017) Thanet Offshore Windfarm Extension: Annex 5-2, Water Vole and Otter Survey Report, Amec Foster Wheeler, London.

Table 4.3 Summary of Bat Records within and up to 5km from the RLB

Species	Status	No: of records	Date range of records	Grid reference	Distance (km) and direction of the closest record to the RLB
<b>Common pipistrelle</b>	ECH_IV, Bonn_II, Bern_II, WCA5	147	2007-2016	TR325603	1.63 south-west
<b>Soprano pipistrelle</b>	ECH_IV, Bonn_II, Bern_II, WCA5	3572	2008-2016	TR338597	1.96 south
<b>Nathusius pipistrelle</b>	ECH_IV, Bonn_II, Bern_II, WCA5	14	2016	TR353575	4.46 south
<b>Common/Soprano pipistrelle</b>	ECH_IV, Bonn_II, Bern_II, WCA5	13	2012-2016	TR367643	2.51 east
<b>Pipistrellus sp.</b>	ECH_IV, Bonn_II, Bern_II, WCA5	7 4	2009-2015	TR354574	1.76 south
<b>Noctule</b>	ECH_IV, Bonn_II, Bern_II, WCA5	2	2013	TR301592	4.11 south-west
<b>Whiskered</b>	ECH_IV, Bonn_II, Bern_II, WCA5	1	2016	TR353575	4.46 south east
<b>Daubenton</b>	ECH_IV, Bonn_II, Bern_II, WCA5	2	2012-2013	TR301592	3.14 south

Species	Status	No: of records	Date range of records	Grid reference	Distance (km) and direction of the closest record to the RLB
<b>Natterers</b>	ECH_IV, Bonn_II, Bern_II, WCA5	17	2009-2016	TR334581	3.53 south
<b>Brown long-eared bat</b>	ECH_IV, Bonn_II, Bern_II, WCA5	20	2010-2015	TR310643	2.80 northwest
<b>Horseshoe bat</b>	ECH_II, Bonn_II, Bern_II, WCA5, CRoW	2	2008	TR324587	3.11 south
<b>Serotine</b>	ECH_II, Bonn_II, Bern_II, WCA5, CRoW	2	2012-2015	TR338598	1.86 south east
<b>Myotis species</b>	ECH_II, Bonn_II, Bern_II, WCA5, CRoW	1	2006	TR324587	3.11 south west
<b>Bat species</b>	ECH_II, Bonn_II, Bern_II, WCA5, CRoW	3	2007-2014	TR328580	2.8 south west

### Other Mammal Records

4.2.5 KMBRC provided records for species data in and up to 2km from the RLB, and these are summarised below in Table 4.4.



Table 4.4 Summary of Mammal Records within and up to 2km from the RLB

Species	Legislation and conservation status	No. of records	Date range of records	Grid Reference	Distance (km) and direction of the closest record to the RLB
<b>Water vole</b>	WCA5 <sup>36</sup> ,	1	2005 <sup>37</sup>	TR332620	Within RLB
<b>Water vole</b>	WCA5	2	2011	TR336634	0.5 west
<b>Water vole</b>	WCA5	1	2010	TR325635	1203 north west
<b>Water vole</b>	WCA5	1	2010	TR337604	1254 south
<b>Water vole</b>	WCA5	1	2010	TR357 632	1293 north east
<b>Water vole</b>	WCA5	1	2011	TR317616	1406 south west
<b>Water vole</b>	WCA5	1	2011	TR317616	1406 south west
<b>Water vole</b>	WCA5	1	2009	TR319613	1414 west
<b>Water vole</b>	WCA5	1	2008	TR319634	1527 south east
<b>Water vole</b>	WCA5	1	2012	TR313621	1647 west
<b>Water vole</b>	WCA5	1	2012	TR329600	1737 north west
<b>Water vole</b>	WCA5	1	2012	TR330599	1760 south west
<b>Water vole</b>	WCA5	1	2012	TR3333598	1787 south

<sup>36</sup> WCA5: Schedule 5 of The Wildlife and Countryside Act 1981 (as amended). Schedule 5 lists animals, other than birds, which are variously protected. [Online]. Available from: <http://jncc.defra.gov.uk/page-1377>

<sup>37</sup> This record is older than 10 years, however it is provided for land within the RRLB, so is provided here for contextual data only.

Species	Legislation and conservation status	No. of records	Date range of records	Grid Reference	Distance (km) and direction of the closest record to the RLB
Water vole	WCA5	2	2012	TR329600	1875 south west
Water vole	WCA5	1	2012	TR330600	1876 south west
Water vole	WCA5	1	2012	TR332597	1916 south
Water vole	WCA5	1	2012	TR327599	1931 south west
Water vole	WCA5	2	2012	TR328598	2004 south west
Otter	CITES <sup>38</sup> , ECH_II	1	2016	TR327589	2.8 south-west <sup>39</sup>
Eurasian beaver	N/A in the UK	1	2014	TR360640	1.75 north-east

### Birds

4.2.6 Data for bird species within a 1km buffer of the onshore AoI are presented in the accompanying Bird Survey Report<sup>9,40</sup>

### Reptiles

4.2.7 The details of the reptile data in and up to 2km from the RLB are displayed in Table 4.5 below.

<sup>38</sup> Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES): This convention lists all species threatened with extinction which are or may be affected by trade. Trade in specimens of these species are subject to strict regulations in order to not endanger further their survival. [Online]. Available from: <https://www.cites.org/eng/disc/text.php#II>

<sup>39</sup> This record was more than 2km from the RLB but is provided here for contextual purposes only.

<sup>40</sup> The locations of some Schedule 1 bird species are confidential, and are presented in a CONFIDENTIAL Appendix to Annex 5-4.

Table 4.5 Summary of Reptile Records within and up to 2km from the RLB

Species	Status	No. of records	Date range of records	Grid reference	Distance (km) and direction of the closest record to the RLB
Viviparous lizard	WCA5	5	2009-2015	TR340620	0.13 south east
Viviparous lizard	WCA5	1	2012	TR350615	0.15 south east
Viviparous lizard	WCA5	2	2011	TR352643	0.22 north east
Viviparous lizard	WCA5	1	2009	TR354651	0.23 north west

### Amphibians

4.2.8 The desktop study from KMBRC provided no records of GCN within and up to a 2km buffer from the RLB. One record of GCN is located 2.3km to the north east of the RLB. A further two historical records of GCN (over 25 years old) made in Minster, beyond a 2km buffer of the RLB were provided. Details of these records and for those of widespread amphibians shown in Table 4.6 below are provided for contextual purposes only.

Table 4.6 Summary of Amphibian Records within and up to 2km from the RLB

Species	Status <sup>41</sup>	No: of records	Date range of records	Grid Reference	Distance (km) of the nearest record to the RLB
GCN	ECH_II, Bern_II, WCA5, CRoW	1	2009	TR364644	2.3 north east
GCN	ECH_II, Bern_II, WCA5, CRoW	1	1992	TR306 641	2.5 north west

Species	Status <sup>41</sup>	No: of records	Date range of records	Grid Reference	Distance (km) of the nearest record to the RLB
<b>GCN</b>	ECH_II, Bern_II, WCA5, CRoW	1	1981-1990	TR36C	Within the same 10km square as the site – to the south west
<b>Smooth newt</b>	Bern_III, WCA5(p)	1	2012	TR340628	0.1 west

### Invertebrates

4.2.9 Invertebrate data in and up to 2km from the RLB, are summarised below in Table 4.7.

Table 4.7 Summary of Invertebrate Records in and up to 2km from the RLB

Species	Status <sup>42</sup>	No. of records	Date range of records	Grid reference	Distance (m) of the closest record to the RLB
<b>Agate Knot-horn</b>	Notable _A <sup>43</sup>	1	2010	TR344635	118
<b><i>Asiraca clavicornis</i></b>	Notable-B <sup>44</sup>	1	2010	TR350641	293
<b>Bee wolf</b>	Kent RDB2, RedList_GB_Pre94-R	2	2009	TR3564	248

<sup>42</sup> A to E for Vulnerable (see Section V), and it is therefore considered to be facing a high risk of extinction in the wild. Bern\_II: Taxa that are common and/or widespread, but considered to be Rare or Threatened in the European Community. These taxa are listed in Annex I of the Birds Directive and/or Appendix II of the Bern Convention and/or Annexes II,III and V of the Habitats Directive.

<sup>43</sup> Notable-A: Nationally Notable Taxa which do not fall within RDB categories but which are none-the-less uncommon in Great Britain and thought to occur in 30 or fewer 10km squares of the National Grid or, for less well-recorded groups, within seven or fewer vice-counties. Superseded by Nationally Scarce, and therefore no longer in use.

<sup>44</sup> Notable-B: Nationally Notable Taxa which do not fall within RDB categories but which are none-the-less uncommon in Great Britain and thought to occur in between 31 and 100 10km squares of the National Grid or, for less-well recorded groups between eight and twenty vice-counties. Superseded by Nationally Scarce, and therefore no longer in use.

<b>Species</b>	<b>Status<sup>42</sup></b>	<b>No. of records</b>	<b>Date range of records</b>	<b>Grid reference</b>	<b>Distance (m) of the closest record to the RLB</b>
<b>Black mining bee</b>	Notable B	2	2007	TR3564	248
<b>Black-headed Mining bee</b>	Notable B	1	2007	TR3564	248
<b>Blunthorn nomad bee</b>	Kent RDB2, RedList_GB_Pre94-R <sup>45</sup>	1	2009	TR3564	248
<b>Bordered ermel</b>	Notable-A	1	2007	TR343634	102
<b>Bright wave</b>	Notable _A	27	2011	TR351641	378
<b>Bulrush veneer</b>	Notable _A	2	2010	TR344635	117
<b>Comfrey ermel</b>	Notable-A	1	2011	TR344635	117
<b>Small heath</b>	Notable -B	13	2012	TR 22 62	63 -135 m
<b>Dotted bee-fly</b>	Notable _A	1	2010	TR350641	293
<b>Four-banded flower bee</b>	Kent RDB2, RedList_GB_Pre94-R	1	2007	TR3564	248
<b>Four-banded weevil-wasp</b>	Kent RDB2, RedList_GB_Pre94-R	2	2009	TR3564	248
<b>Giant water-veneer</b>	Notable _A	5	2010	TR344635	117
<b>Gorse knot-horn</b>	Notable _A	2	2007-2009	TR343634	101
<b>Ground lackey</b>	Notable _A	5	2011	TR344635	117

<sup>45</sup> RedList\_GB\_Pre94-R: Taxa with small populations that are not at present Endangered or Vulnerable, but are at risk. (In GB, this was interpreted as species which exist in fifteen or fewer 10km squares). Superseded by new IUCN categories in 1994, but still applicable to lists that have not been reviewed since 1994. A taxon is Vulnerable when the best available evidence indicates that it meets any of the criteria.

<b>Species</b>	<b>Status<sup>42</sup></b>	<b>No. of records</b>	<b>Date range of records</b>	<b>Grid reference</b>	<b>Distance (m) of the closest record to the RLB</b>
<b><i>Haliphus (Liaphlus) variegatus</i></b>	Kent RDB2, RedList_GB_post2001-VU	1	2011	TR32966203	117m
<b><i>Hedychrum niemelai</i> subsp. <i>Niemelai</i></b>	Kent RDB2, RedList_GB_Pre94-R	1	2015	TR351641	378
<b>Hoary knot-horn</b>	Notable _A	1	2007	TR343634	101
<b>Hollyhock seed moth</b>	Notable -A	1	2011	TR344635	117
<b>Jersey Tiger</b>	Bern_II	1	2008	TR362642	200
<b>Kent bent-wing</b>	Kent RDB2, RedList_GB_post2001-VU	1	2011	TR344635	101
<b>Long-legged Tabby</b>	Notable _A	1	2010	TR344635	117
<b>Marbled yellow pearl</b>	Notable _A	2	2011	TR344635	117
<b>Orange-horned nomad bee</b>	Kent RDB2, RedList_GB_Pre94-R	1	2009	TR3564	248
<b>Painted neb</b>	Notable -A	1	2011	TR344635	117
<b>Painted nomad bee</b>	Kent RDB2, RedList_GB_Pre94-R	1	2009	TR3564	248
<b>Pantaloan bee</b>	Notable B	1	2007	TR3564	248
<b>Pigmy footman</b>	Notable _A	5	2011	TR344635	117
<b>Pine-blossom knot-horn</b>	Notable _A	1	2007	TR344634	101

<b>Species</b>	<b>Status<sup>42</sup></b>	<b>No. of records</b>	<b>Date range of records</b>	<b>Grid reference</b>	<b>Distance (m) of the closest record to the RLB</b>
<b>Plain mini-miner</b>	Notable B	4	2009	TR3564	248
<b>Rest harrow</b>	Notable _A	1	2010	TR344635	117
<b>Rosy-striped knot-horn</b>	Kent RDBX, RedList_GB_Pre94-R	8	2009-2011	TR344635	117
<b>Salt-marsh grass-veneer</b>	Notable _A	2	2010	TR344635	117
<b>Saltmarsh knot-horn</b>	Notable _A	1	2009	TR344635	117
<b>Sharp-collared furrow bee</b>	Notable B	1	2007	TR3564	248
<b>Silver-edged knot-horn</b>	Kent RDBX, RedList_GB_Pre94-R	1	2010	TR344635	117
<b>Silvery leafcutter bee</b>	Notable B	1	2007	TR3564	248
<b>Small heath</b>	Notable-A	6	2012	TR3463	Within the same 10km square as the RLB
<b>Sub-angled wave</b>	Notable _A	1	2011	TR344635	117
<b>Trimmer's mining bee</b>	Notable _A	1	2009	TR3564	248
<b>Twin-spot honey</b>	Notable-B	2	2010	TR344635	117
<b>Wainscot neb</b>	Notable –A	3	2007-2010	TR344635	101-117
<b>Waste grass-veneer</b>	Notable _A	2	2010	TR344635	117

Species	Status <sup>42</sup>	No. of records	Date range of records	Grid reference	Distance (m) of the closest record to the RLB
<b>Willow knot-horn</b>	Notable-B	4	2010-2011	TR344635	68

Kent RDB3 = Kent Red Data Book: KRDB1 - species that have been recorded in 1-2 tetrads only; KRDB2 - species that have been recorded in 3-5 tetrads or, if more than this, where the species is considered to be undergoing a significant decline; KRDB3 - species that have been recorded in 6-10 tetrads; KRDBK - species known to be rare in Kent, but where insufficient information is available to enable any further division

### Vascular Plants

4.2.10 The details of notable/rare vascular plant data within and up to 2km from the RLB, are summarised below in; three of which were recorded within the RLB are shown in Table 4.8 below.

Table 4.8 Summary of Vascular Plant Records within and up to 2km from the RLB

Species	Status	No. of records	Date range of records	Grid reference	Distance (km) of the closest record to the RLB
<b>Bee orchid</b>	CITES	3	2009-2012	TR340632	Within RLB
<b>Common sea – lavender</b>		2	2013	TR340630	Within RLB
<b>Common Spotted-orchid</b>	CITES	2	2009-2013	TR341631	Within RLB
<b>Common twayblade</b>	CITES	1	2013	TR330620	<0.5, west
<b>Deptford pink</b>	WCA8, CRoW	3	2010-2015	TR350610	1.48 northwest



Species	Status	No. of records	Date range of records	Grid reference	Distance (km) of the closest record to the RLB
<b>Dittander</b>	Kent RDB2, NS-excludes, RedList_GB_post2001- EN, RedList_GB_post2001- VU	1	2013	TR3463	Within the same 10km square as the RLB
<b>Divided sedge</b>	Kent RDB1	2	2011-2014	TR340610	0.73 southeast
<b>Fragrant orchid</b>	CITES	1	2009	TR341631	Within RLB
<b>Frogbit</b>	RedList	1	2014	TR310620	1.95 west
<b>Long-bracted Sedge</b>	Kent RDB2, RedList_GB_post2001- NT	1	2013	TR340630	Within RLB
<b>Lizard Orchid</b>	Kent RDB3, CITES	1	2009	TR344630	<0.5 west
<b>Marsh orchid</b>	CITES	1	2013	TR341631	<0.5 east
<b>Pyramidal orchid</b>	CITES	3	2013	TR330620	<0.5, west
<b>Sea buckthorn</b>	RedList_GB_post2001- NT	1	2013	TR3463	Within the same 10km square as the RLB
<b>Sea-holly</b>	RedList_GB_post2001- VU	1	2013	TR3463	Within the same 10km square as the RLB
<b>Sharp rush</b>	Kent RDB1	11	2011-2015	TR340620	<0.5 west
<b>Southern marsh-orchid</b>	CITES	4	2009-2013	TR330620	<0.5, east

**Key:** Red List = The IUCN Red List of Threatened Species<sup>46</sup>; Kent RDB3 = Kent Red Data Book: KRDB1 - species that have been recorded in 1-2 tetrads only;

<sup>46</sup> The IUCN red list provides taxonomic, conservation status and distribution information on taxa that have been globally evaluated using the IUCN Red List Categories and Criteria. This system is designed to determine the relative

KRDB2 - species that have been recorded in 3-5 tetrads or, if more than this, where the species is considered to be undergoing a significant decline; KRDB3 - species that have been recorded in 6-10 tetrads; KRDBK - species known to be rare in Kent, but where insufficient information is available to enable any further division.

### Invasive Species

4.2.11 The details of invasive species data in and up to 2km from the RLB, are summarised below in Table 4.9.

Table 4.9 Invasive Non-native Species in and up to 2km from the RLB

Species	Status	No. of records	Date range of records	Grid reference	Distance (km) of the closest record to the RLB
<b><i>Invertebrates</i></b>					
Harlequin ladybird	n/a	1	2012	TR3561	1.76 west
Horse-chestnut leaf-miner	n/a	9	2008-2011	TR344635	<0.5 west
<b><i>Mammals</i></b>					
American mink	WCA9i	1	2012	TR33816181	<0.5 west
<b><i>Plants</i></b>					
Wireweed	WCA9ii	1	2007	TR36516401	1.75 south-west

## 4.3 Field Survey

4.3.1 Figures 5.1.1a- 5.1.1g, Appendix A details the dominant habitats recorded by extended Phase 1 habitat survey undertaken on the RLB and up to a 200m buffer (dust sensitive receptors), with locations of potential features of nature conservation interest and species of principal importance indicated by TN, presented in Table 4.11, Appendix E. Species lists are presented in Tables 4.12 and 4.13 Appendix F.

risk of extinction, and the main purpose of the IUCN Red List is to catalogue and highlight those taxa that are facing a higher risk of global extinction - those listed as Critically Endangered, Endangered and Vulnerable. [Online] Available from: <http://www.iucnredlist.org/apps/redlist/search>;

## Overview of Habitats

- 4.3.2 The habitats that exist within the RLB and the 200m buffer comprise a diverse mosaic of light industrial, urban and rural land uses, supporting a range of habitats that are typical to Kent and to the south east of England. These comprise semi-improved neutral grassland, scattered and dense scrub, scattered tree and small stands of broadleaved woodland; amenity grassland, improved grassland, tall ruderal vegetation and tall herb were recorded in discrete areas. Extensive areas of saltmarsh exist beyond the RLB to the east, with brackish lagoons. To the west are large areas of improved grassland, and networks of drainage ditches, with ponds, and arable land. All scientific names of species described below are provided in Table 4.12, Appendix F.

### Saltmarsh

- 4.3.3 The saltmarsh area located ~50 m to the east of the RLB (at the closest point) was not accessed for survey due to the potential presence of ground nesting birds during the survey period. Consequently, observations were made from the access paths which ran directly adjacent to the saltmarsh (~1m to the west). Species comprised dominant sea purslane and common cord-grass, with abundant common sea lavender; in the fringes closest to the paths, occasional sea beet and marram grass were recorded.

### Semi-improved Neutral Grassland

- 4.3.4 Extensive areas of semi-improved neutral grassland were recorded within and immediately beyond the RLB throughout Pegwell Bay NNR.
- 4.3.5 Dominant species in this habitat were false oat-grass, perennial rye-grass, red fescue, common bent and Yorkshire fog, false oat-grass, soft brome, with locally dominant common nettle, rosebay willowherb, wild fennel, Alexanders and hogweed in uncut margins. Abundant sainfoin, meadow vetchling, white clover, and great willowherb, frequent dandelion, teasel, cow parsley, common mallow, cock's foot, bristly ox-tongue, creeping thistle, ribwort plantain and broad-leaved plantain. Occasional species included meadow foxtail, Timothy, white dead-nettle, creeping thistle, broad-leaved dock, creeping cinquefoil, and spotted medick; rare mouse ear, hawkbit, red dead-nettle, and common ragwort. Sea couch and marram grass were increasingly recorded towards the eastern and southern limits of the NNR, with small clumps of pyramidal orchid recorded in grassy margins of the grassland (TN17). Highland cattle were recorded within the margins of scrubby grassland (TN18).

### Improved Grassland

- 4.3.6 A strip of improved grassland was recorded with the NNR along the western side of the footpath, beyond the Nemo Link works area, coinciding with the north western tip of the RLB. The sward was dominated by grasses including perennial rye-grass, Italian rye-grass, and Yorkshire fog, abundant false oat-grass and frequent red fescue. Herbs comprised dominant ribwort plantain, white clover, and broadleaved dock. Saplings of blackthorn and hawthorn and young bramble were abundant throughout. Beyond the RLB extensive areas of improved grassland were recorded to the west and north-west beyond the single carriageway section

of the A256 (Sandwich Road) in Stonelees Golf Centre and St Augustine's Golf Course. These grassland areas were typically frequently maintained by mowing, and were of a low species diversity, dominated by rye-grasses, red fescue and common bent. In fields to the west and north of the RLB solar panels have been erected above improved grassland, with sheep grazing for part of the year (TN20).

### **Amenity Grassland**

- 4.3.7 This habitat type was recorded within the RLB in the NNR and the Baypoint Club. Species comprised dominant by perennial rye grass and red fescue, with occasional cock's foot, ribwort plantain and daisy.

### **Dense/Continuous and Scattered Scrub**

- 4.3.8 This habitat type was recorded within the RLB on the margins of woodland stands and grassland and immediately beyond the RLB along ditches forming the boundary to the Sandwich Road. Dense scrub was typically dominated by mature hawthorn and goat willow, with abundant dogwood, frequent suckering blackthorn and bramble, occasional dog rose and ash saplings. Within the southern limit of the NNR, occasional sea buckthorn was recorded within scrub lines, adjacent to cattle grazed grassland (TN15).

### **Tall Ruderal Vegetation and Tall Herb**

- 4.3.9 These habitat types were recorded in the margins of grassland and scrub within the RLB where disturbance had taken place, or nutrient enrichment was recorded. Species comprised dominant rosebay willowherb, wild fennel, abundant goat's rue and creeping cinquefoil, with occasional charlock and mugwort.

### **Hedgerows: Species-poor, Intact**

- 4.3.10 No hedgerows were recorded within the RLB or the 50m. Section of species-poor, intact hedgerows were recorded from 201 m to the north west of the RLB along both sides of Ebbsfleet Lane. These were a uniform 3m high by 2m wide, dominated by hawthorn, with frequent elder and occasional young pedunculate oaks and ash trees, and a sparse ground flora dominated by cleavers and herb-Robert. These hedgerows did not have sufficient qualifying features to qualify as 'Important Hedgerows' under a hedgerow assessment.

### **Broadleaved Semi-natural Woodland**

- 4.3.11 No veteran trees were recorded within the RLB or the 50m buffer. Semi-natural broad-leaved woodland habitats occurred within the RLB and 50m buffer in two small stands (TN3 and TN16). The canopy was dominated by ash with occasional pedunculate oak. The shrub layer was largely absent from the centre of the stands, with abundant field maple, hawthorn and occasional elder around the margins. The ground flora was sparse, dominated by hogweed and Alexanders with frequent cleavers, occasional ivy, cow parsley, rare bugle. The working area for the Nemo Link project has resulted in clearance of the western strip (TN11) of the northern-most these stands of woodland (TN3).

- 4.3.12 A non-native element was recorded within both stands, containing white poplar which was locally abundant as both a young tree and saplings.

### **Plantation Woodland, Broadleaved**

- 4.3.13 This habitat type was recorded beyond the RLB but within the 50m buffer in the southern extent of Stonelees Golf Centre. Canopy species comprised dominant alder, with occasional rowan, hazel, field maple and sycamore, and rare pedunculate oak. The shrub layer was dominated by sycamore saplings and bramble. The ground flora was limited to locally dominant ivy, locally abundant common nettle and cleavers, frequent hogweed, rough meadow-grass, with occasional Yorkshire fog. Pendulous sedge, elder saplings, lords - and - ladies and hedge mustard occasionally were present. Garden waste and brash were recorded throughout the stand (TN30). Several wooden bird boxes had been erected onto trees (TN29).

### **Scattered Trees**

- 4.3.14 Within and immediately adjacent to the RLB within the NNR, poplar saplings formed a significant component of the scrub, with abundant plum, and rare tamarisk. To the south within the grounds of the Baypoint Club, even-aged Lombardy poplars dominated the scattered trees, located within the RLB where the route sweeps east and south (TN28).
- 4.3.15 To the west within the Stonelees Golf Centre, scattered trees were recorded throughout, typically young and middle-aged specimens, dominated by white poplar, with abundant alder, frequent silver birch and occasional Scots pine.

### **Ditches and Water Bodies**

- 4.3.16 The eastern of two sections of drainage ditch lies ~5m to the west of the RLB (TN1). This ditch was 1–2m wide, at least 2m deep, slow flowing, and filled with sediment.
- 4.3.17 Two drainage ditches lay immediately to the west of the RLB, running parallel with Sandwich Road. These were shallow, less than 1m wide, heavily shaded by the dense scrub and scattered tree line, and dry for the main part. Little aquatic or marginal vegetation was recorded within the channel, due to the dense shade.
- 4.3.18 Beyond the RLB an extensive network of drainage ditches ran to the west of Sandwich Road (within Stonelees Golf Centre and St. Augustine's Golf Course) and beyond the Richborough Energy Park area to the south west of the RLB. Ditches within the golf courses were typically narrow, being 1-2 m wide, with common reed dominating small sections, and occasional reedmace. Vegetation surrounding the ditches was dominated by closely cropped improved grassland.
- 4.3.19 No standing water bodies were recorded within the RLB although numerous shallow depressions in tussocky grassland were present (TN13), but at the time of the walkover surveys the majority were dry, and supported no aquatic or marginal vegetation. After heavy rainfall some depressions held water temporarily only.
- 4.3.20 Beyond the RLB ~50m to the east, a pond was recorded (TN14). Marginal species comprised dominant common reed with abundant reedmace and

occasional lesser pond-sedge. Further water bodies including ponds and ditches that were recorded beyond the 50m buffer to the RLB are illustrated in Annex 5.3, the Great Crested Newt and Annex 5-2, the Water Vole and Otter Survey reports<sup>35</sup>.

### **Buildings and Hardstanding**

- 4.3.21 No buildings have been recorded within the RLB to date. It has not yet been possible to access the land within the Richborough Port area in the southern limit of the RLB. Views taken from the western verge beyond this land and from aerial photographs, indicate the presence of several built structures, albeit predominantly temporary, and prefabricated units.
- 4.3.22 Within the NNR, adjacent to the car park, a small, single-storey, brick, pitched roof toilet block (TN12) was situated 8m to the west of the RLB. Within 60m of the RLB in the grounds of the Baypoint Club a complex of interconnected buildings, and freestanding units was recorded to have features with potential to support bat roosts (TN8, TN23, TN24, TN25, and TN26). Bat droppings were recorded at two locations (TN8 and TN23).
- 4.3.23 Beyond the RLB a range of industrial structures were recorded within the biogas plant located 70m to the west of the RLB at TN2, TN4, TN5, and TN7. Within Richborough Energy Park a large number of structures were present, however it was not possible to gain adequate access to the majority at the time of the walkover survey. One building located within the RLB, ~ 5m to the east of the access track was recorded to have limited features of bat roosting potential (TN33).

### **UK List Priority Habitats**

- 4.3.24 The following UK List priority habitats are present within and immediately adjacent to the RLB:
- ▶ Lowland mixed deciduous woodland – the stands recorded within the RLB are very small, and have a strong non-native component. Trees were not mature, and the ground flora was not representative of long-standing woodland presence;
  - ▶ Coastal and floodplain grazing marsh – these habitats were recorded within the NNR Reserve within and immediately adjacent to the RLB and within the land to the west of REP, immediately to the west of the RLB;
  - ▶ Saltmarsh – recorded extensively beyond the RLB in the NNR.

### **Invasive Species**

- 4.3.25 Three stands of Japanese knotweed were recorded within the RLB on a roadside verge (TN19). New Zealand pigmyweed was recorded within drainage ditches to the west of the RLB beyond the Great Stour (TN9 and TN10), ~162m and ~193m to the west of the RLB respectively.

## 4.4 Protected Species Potential

- 4.4.1 Following an initial desk study exercise and combined with the findings of the early walkover surveys undertaken, more detailed survey work was deemed necessary for a number of ecological receptors.
- 4.4.2 Habitats within the RLB and respective species' specific buffers were deemed to have the potential to support the following protected or otherwise notable species:
- ▶ Badgers;
  - ▶ Bats;
  - ▶ Birds;
  - ▶ Otter;
  - ▶ Water voles;
  - ▶ Reptiles;
  - ▶ Great crested newts; and
  - ▶ Invertebrates.

### Badgers

- 4.4.3 Information regarding badgers is CONFIDENTIAL, and located within Appendix D.

### Bats

- 4.4.4 Within the grounds of the Baypoint Club (within 60m of the RLB) a complex of interconnected buildings, and freestanding units (TN8, TN23, TN24, TN25, TN26) were recorded to have features with potential to support bat roosts. Bat droppings were recorded at two locations (TN8 and TN23). In the NNR, adjacent to the car park, a small toilet block was recorded 3m to the west of the RLB (TN12). This single storey brick structure had a slate tiled and pitched roof with uPVC soffit boxes, all of which appeared to be in a good condition. Within the RLB at Richborough Energy Park limited features of bat roosting potential were recorded on some facades (TN33).
- 4.4.5 Throughout the RLB scrub and tree lines connecting to small pockets of woodland habitat, creating good commuting routes for bats, with ideal unlit foraging habitat throughout. Approximately 25m to the west of the RLB, semi-mature and mature trees (TN35), and residential properties (TN36) lie adjacent to Ebbsfleet Lane; with further commercial structures along the dual carriageway section of the A256 (within 100m of the RLB, to the west) and the land ~100m to the west of the RLB (TN1); features with the potential to support roosting bats may be present here.

### Birds

- 4.4.6 The habitats within and immediately adjacent to the RLB provide nesting and foraging habitat for a range of widespread and uncommon bird species, including ground nesting, wintering and coastal species. A turtle dove was heard singing within the scrub beyond the RLB in the southern part of the NNR, approximately 150m to the west of the RLB (TN15).

### Water Vole and Otter

- 4.4.7 No features with potential to support water vole or otter exist within the RLB. Beyond the RLB, ~40m to the west and north west (beyond Sandwich Road) a network of drainage ditches with the potential to support water voles extend north and north west. The sections of the River Stour (immediately to the east of the RLB) and Great Stour (immediately to the west of the RLB) have potential to support otter.

### Reptile

- 4.4.8 The habitats within and immediately adjacent to the RLB comprise tussocky grassland, tall herb, scattered and dense scrub a mosaic of high suitability to support widespread foraging, commuting, breeding and hibernating reptile species. Thirty five metres to the west of the RLB and beyond the A256, an area of tussocky semi-improved neutral grassland, south facing slopes, spoil heaps, scattered scrub and tall herb provide excellent reptile habitat (TN21) with some suitable habitat continuing via a drainage ditch north (TN22). An adult viviparous lizard was recorded along the verge of the A256 (TN34) ~ within the RLB.

A juvenile slow worm was recorded within REP (REP) (TN32) ~ 35m west of the RLB, with sloughed skin recorded nearby. Further spoil/substrate heaps recorded within REP (TN 31) provide extensive suitable basking, foraging and commuting habitat for widespread reptiles.

### Natterjack Toad

- 4.4.9 Within the semi-improved neutral grassland areas, shallow depressions were recorded (TN13), with potential to support natterjack toad during the breeding phase, with surrounding scattered and dense scrub, small woodland stands and scattered tree providing terrestrial habitat.

### Great Crested Newt

No water bodies exist within the RLB. However, to the east, a pond was recorded (TN14), which has potential to support GCN. The majority of water bodies recorded within a 500m buffer of the RLB were found to be unsuitable to support GCN (please refer to Annex 5-3<sup>15</sup>). The habitats within the RLB and immediately surrounding provide highly suitable terrestrial and hibernation habitat for GCN and widespread amphibian species.

### Invertebrates

- 4.4.10 The habitats within and immediately adjacent to the RLB provide breeding, wintering and foraging habitat for a range of widespread and uncommon invertebrate species, including aquatic and coastal species.

### Invasive Species

- 4.4.11 Japanese knotweed was recorded in three small stands within a roadside verge, ~110m to the north of the RLB (TN59).





4.4.12 New Zealand pigmyweed was recorded in two drainage ditches (TN12 and TN13) over 100m to the west of the RLB.

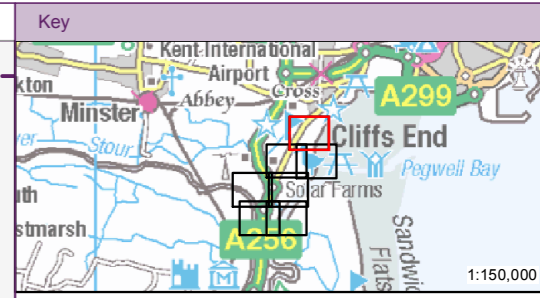
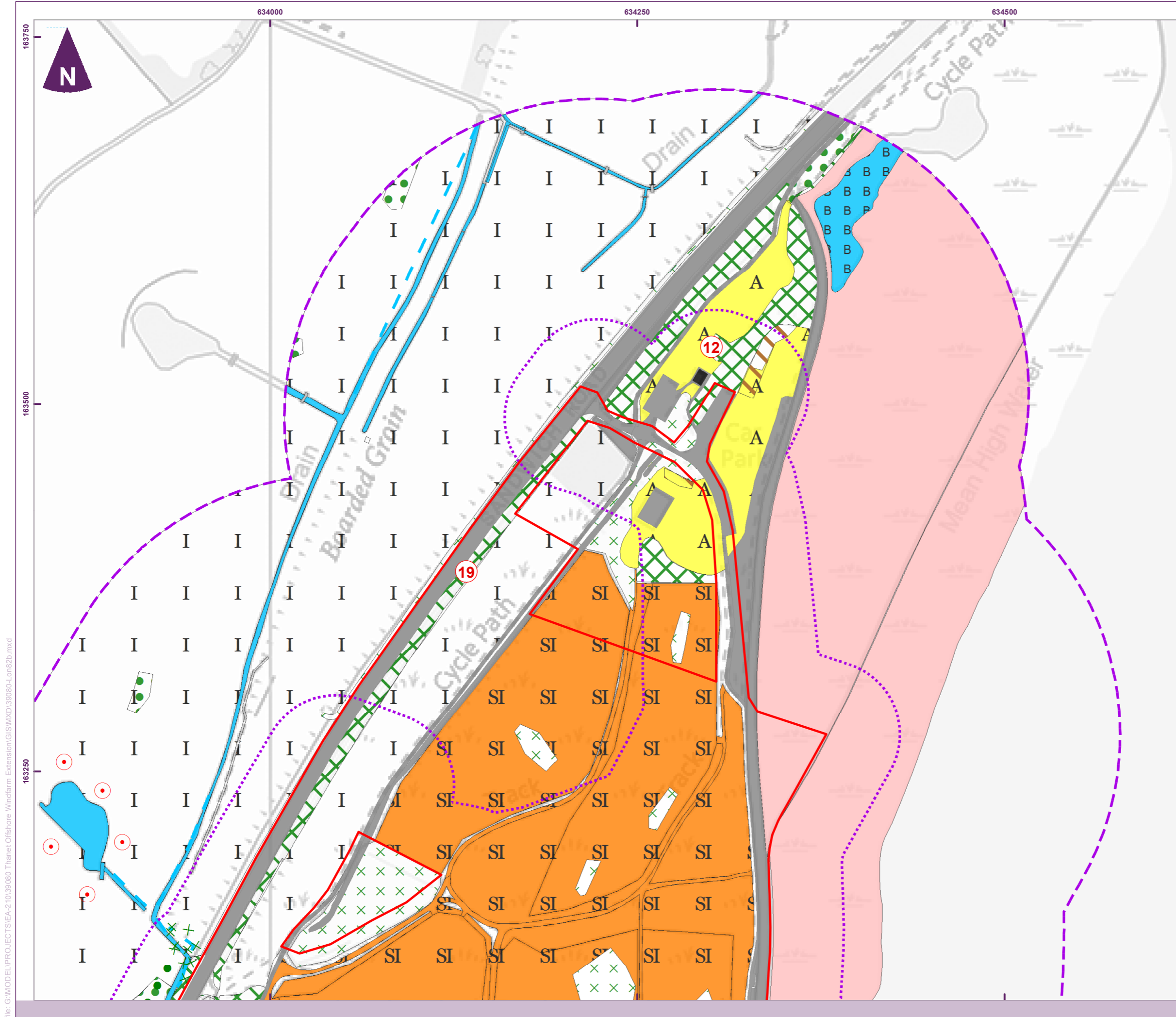




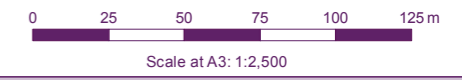
# Appendix A Figures

Figure 5.1.1a-g: Extended Phase 1 Habitat plan



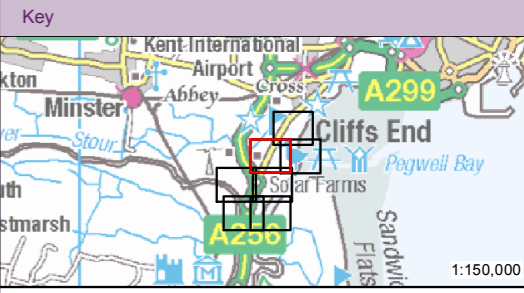
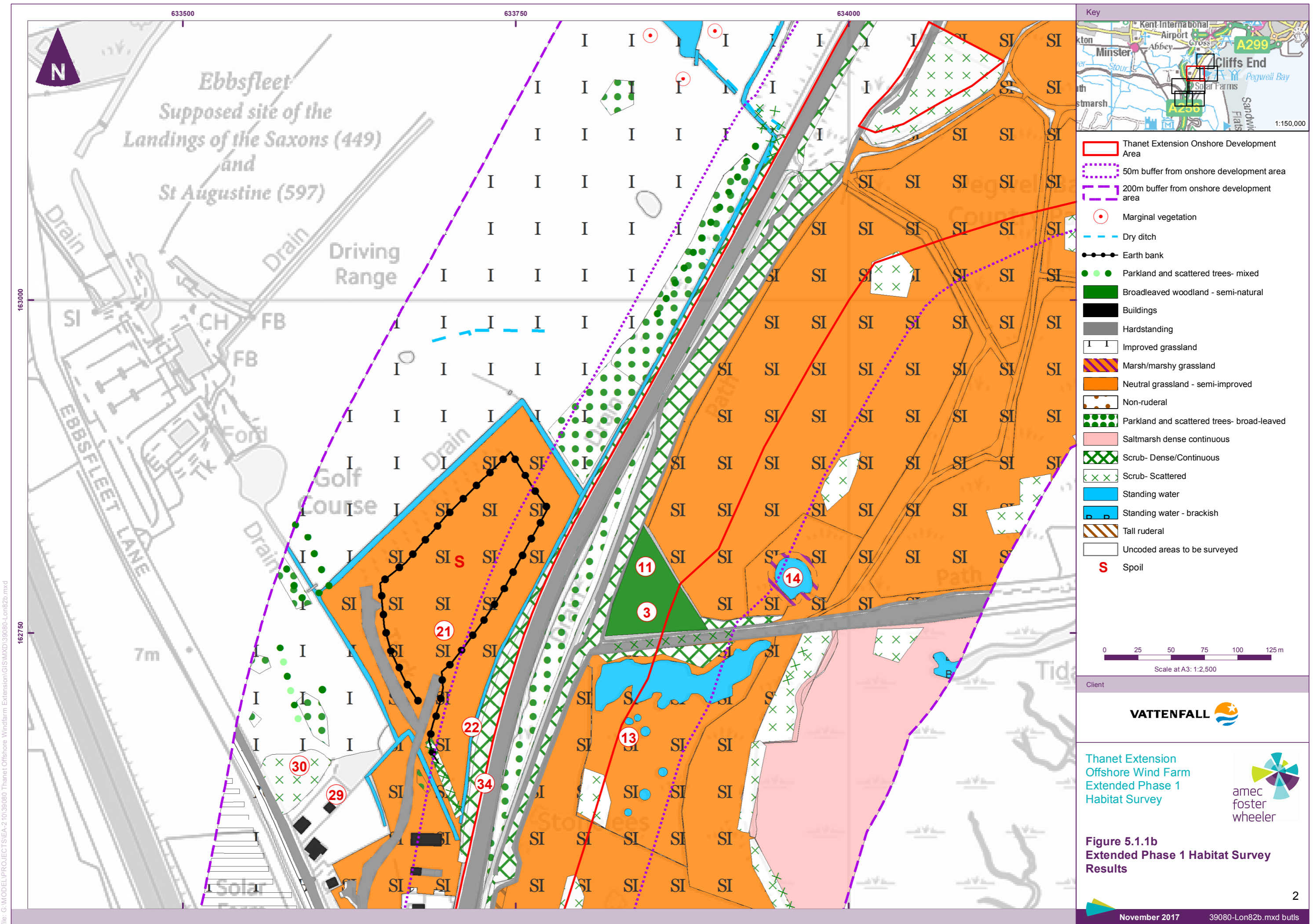


- Key**
- Thanet Extension Onshore Development Area
  - 50m buffer from onshore development area
  - 200m buffer from onshore development area
  - Marginal vegetation
  - Dry ditch
  - A Amenity grassland
  - Buildings
  - Hardstanding
  - Improved grassland
  - SI Neutral grassland - semi-improved
  - Parkland and scattered trees- broad-leaved
  - Saltmarsh dense continuous
  - Scrub- Dense/Continuous
  - Scrub- Scattered
  - Standing water
  - Standing water - brackish
  - Tall ruderal

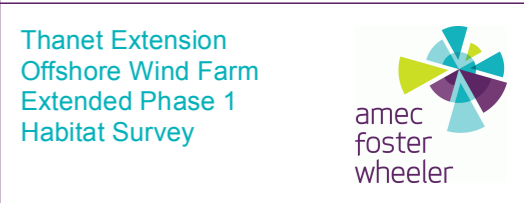
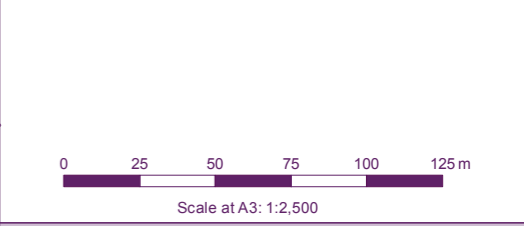


**Figure 5.1.1a**  
**Extended Phase 1 Habitat Survey Results**

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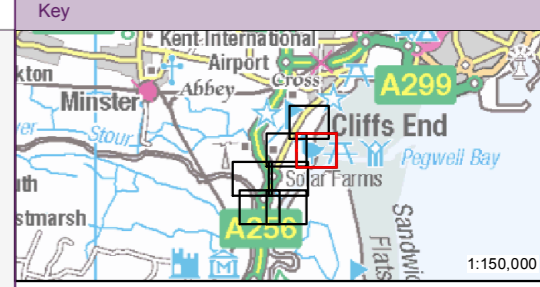
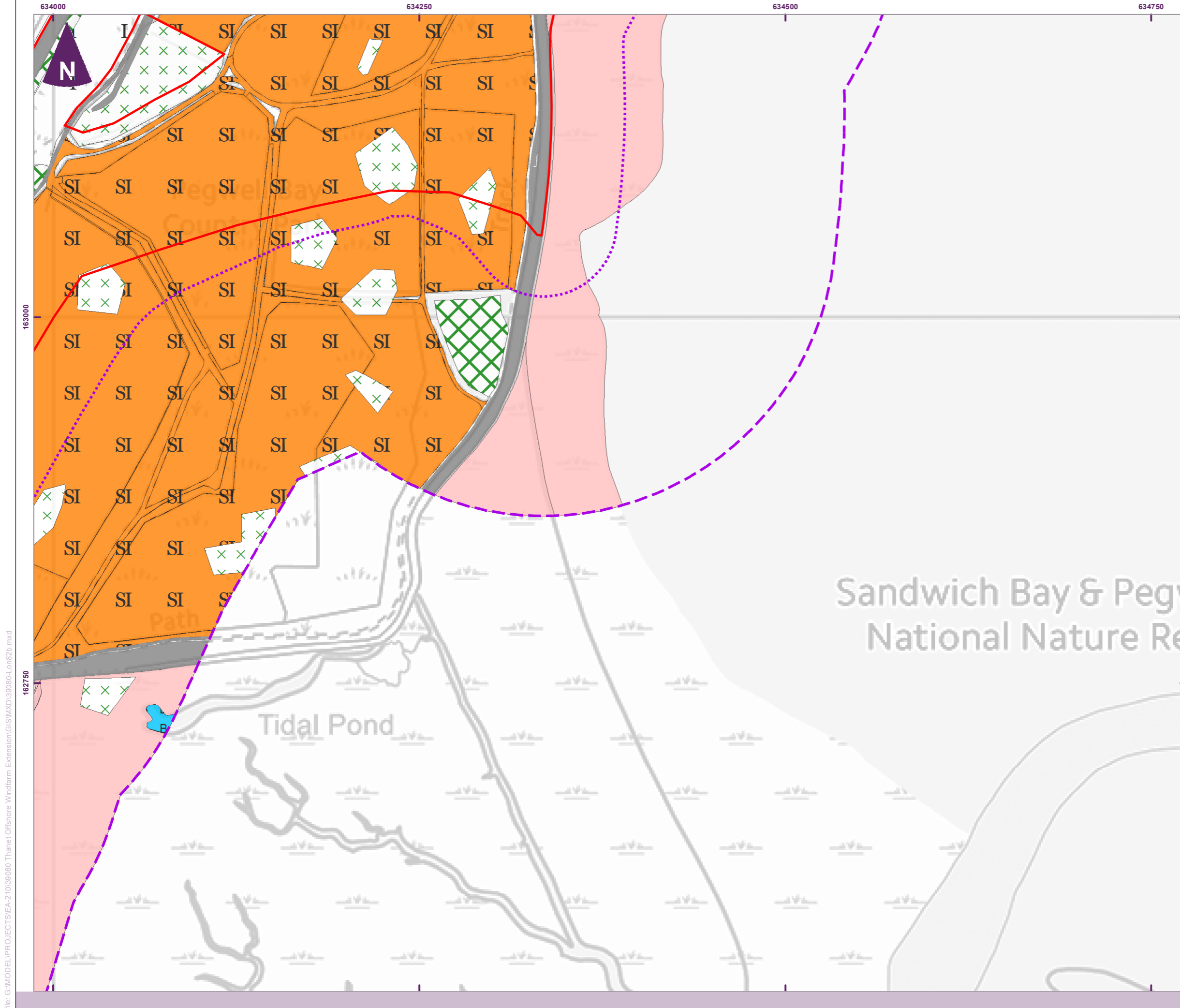


- Key**
- Thanet Extension Onshore Development Area
  - 50m buffer from onshore development area
  - 200m buffer from onshore development area
  - Marginal vegetation
  - Dry ditch
  - Earth bank
  - Parkland and scattered trees- mixed
  - Broadleaved woodland - semi-natural
  - Buildings
  - Hardstanding
  - Improved grassland
  - Marsh/marshy grassland
  - Neutral grassland - semi-improved
  - Non-ruderal
  - Parkland and scattered trees- broad-leaved
  - Saltmarsh dense continuous
  - Scrub- Dense/Continuous
  - Scrub- Scattered
  - Standing water
  - Standing water - brackish
  - Tall ruderal
  - Uncoded areas to be surveyed
  - S Spoil



**Figure 5.1.1b**  
**Extended Phase 1 Habitat Survey**  
**Results**

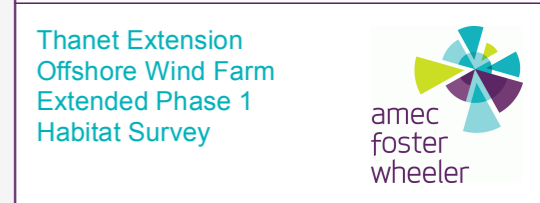
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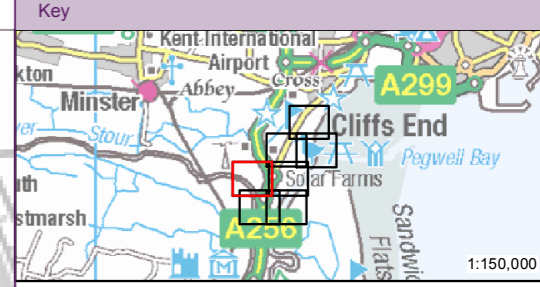
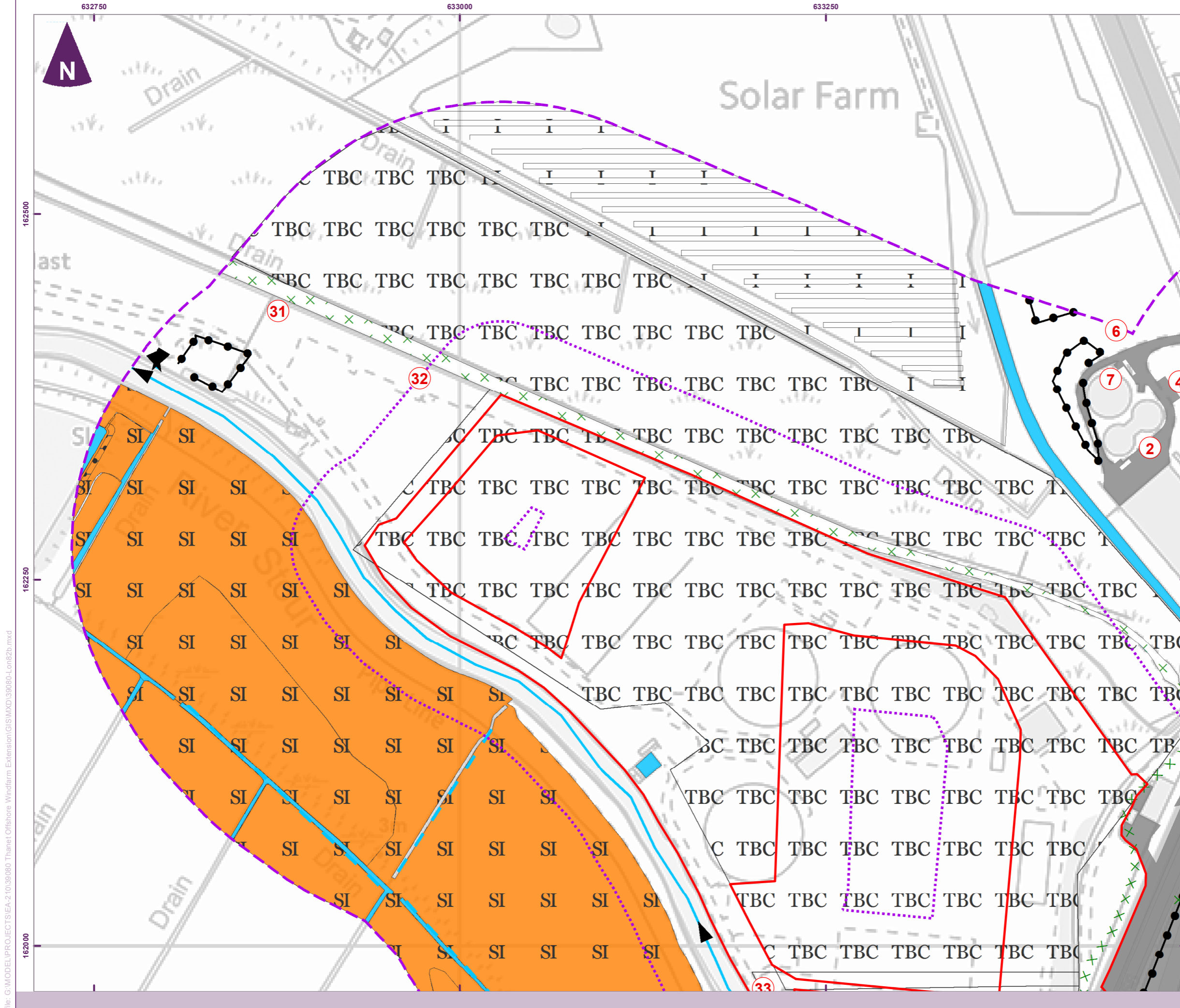
**Key**

- Thanet Extension Onshore Development Area
- 50m buffer from onshore development area
- 200m buffer from onshore development area
- Hardstanding
- Improved grassland
- Neutral grassland - semi-improved
- Saltmarsh dense continuous
- Scrub- Dense/Continuous
- Scrub- Scattered
- Standing water - brackish

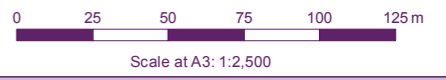
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- Key**
- Thanet Extension Onshore Development Area
  - 50m buffer from onshore development area
  - 200m buffer from onshore development area
  - Running water
  - Dry ditch
  - Earth bank
  - Hardstanding
  - Earth bank
  - Improved grassland
  - Neutral grassland - semi-improved
  - Scrub - Scattered
  - Standing water
  - Uncoded areas to be surveyed



Client

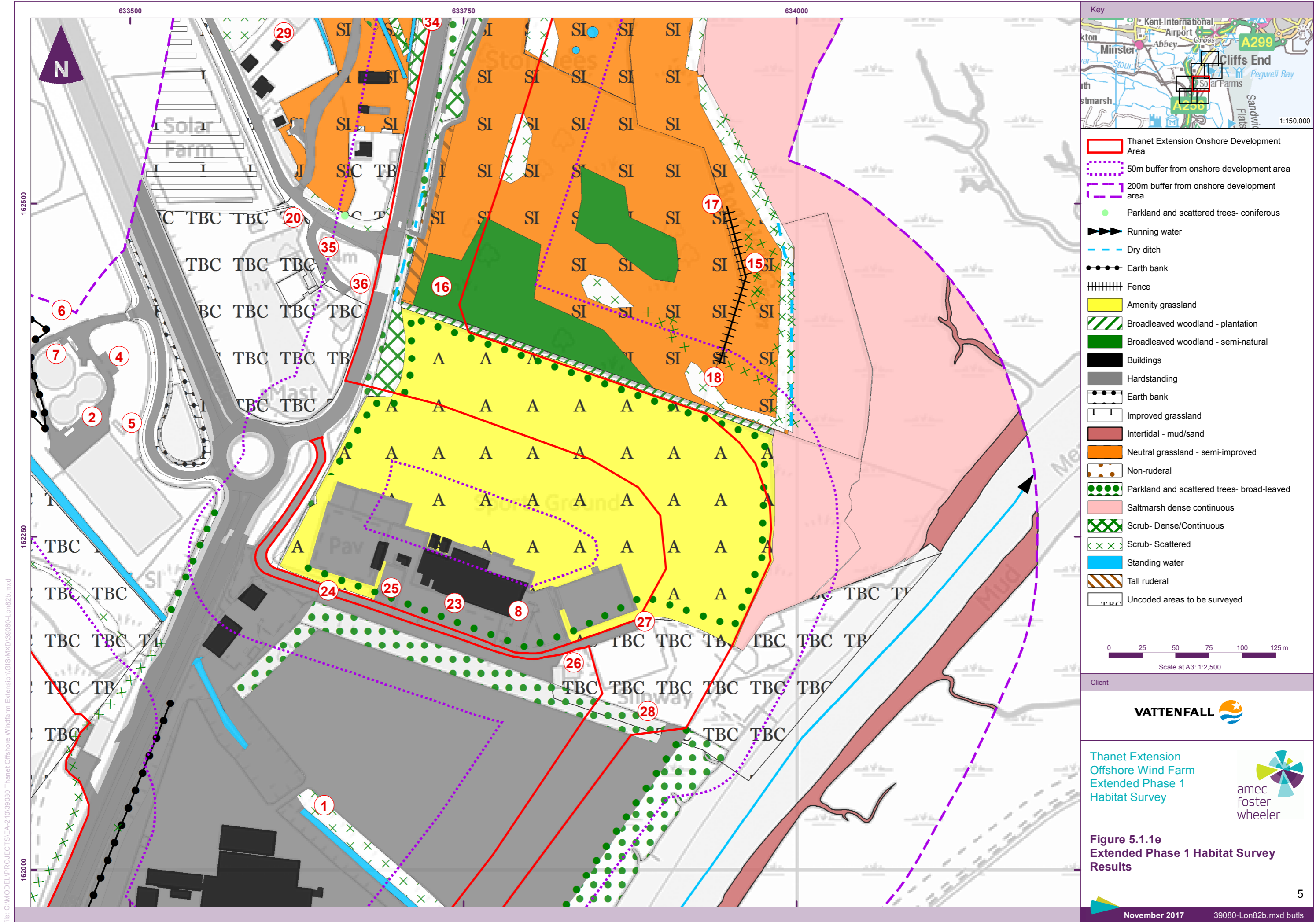
**VATTENFALL**

Thanet Extension  
Offshore Wind Farm  
Extended Phase 1  
Habitat Survey

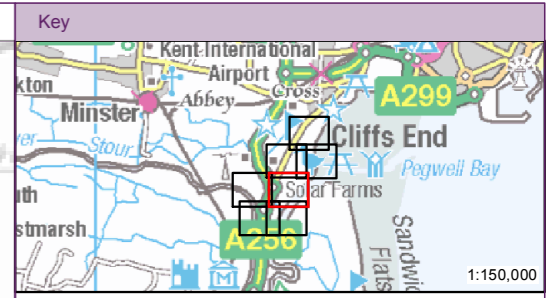
**Figure 5.1.1d**  
Extended Phase 1 Habitat Survey  
Results

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**Key**

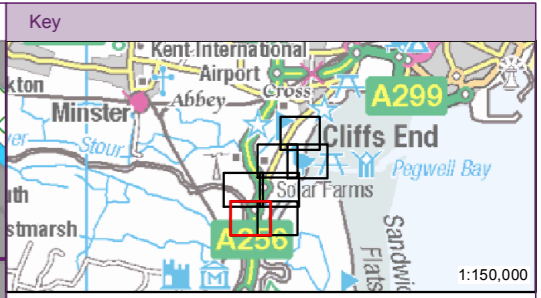
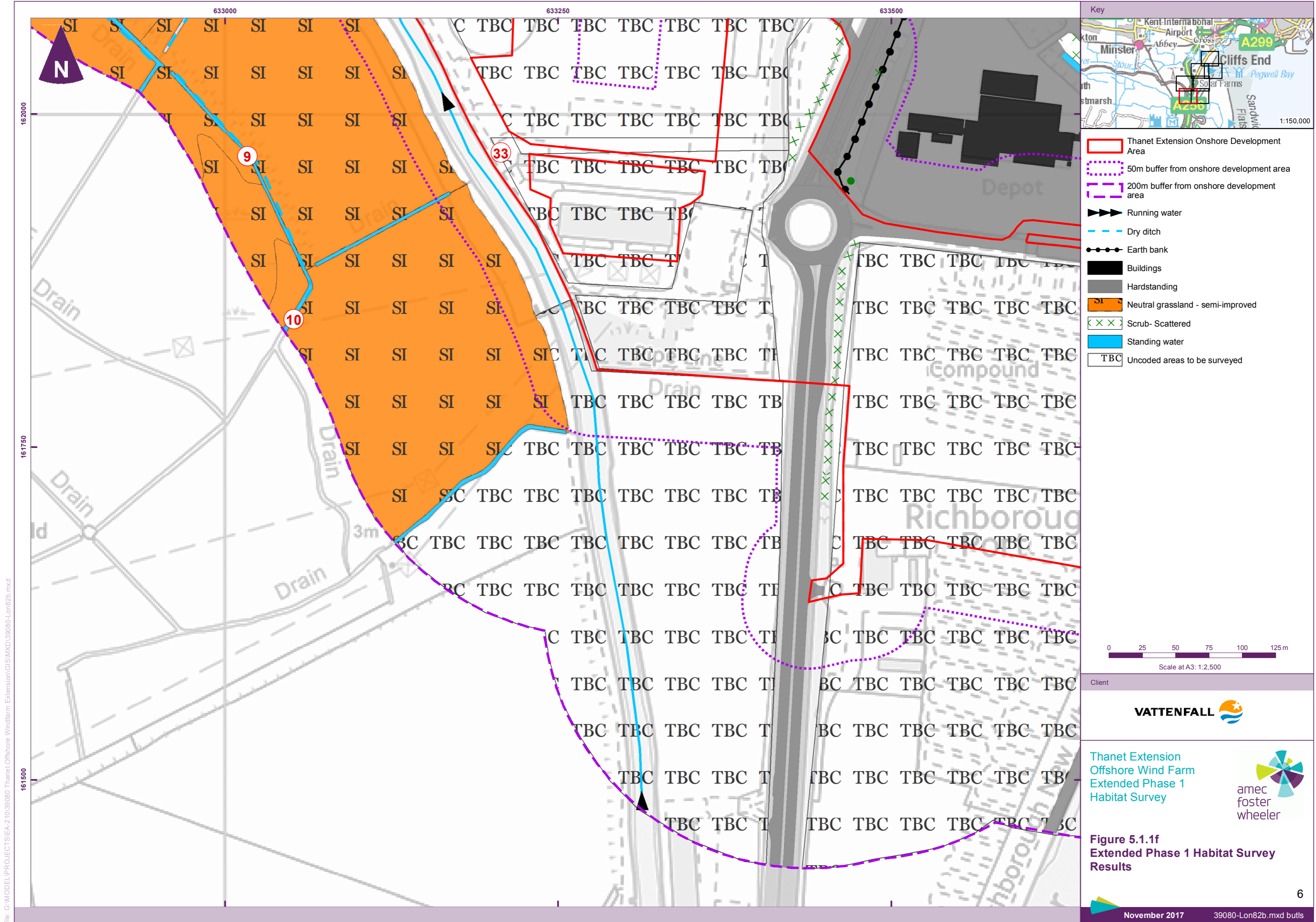
- Thanet Extension Onshore Development Area
- 50m buffer from onshore development area
- 200m buffer from onshore development area
- Parkland and scattered trees- coniferous
- ▶▶▶ Running water
- - - Dry ditch
- Earth bank
- ||||| Fence
- Amenity grassland
- Broadleaved woodland - plantation
- Broadleaved woodland - semi-natural
- Buildings
- Hardstanding
- Earth bank
- Improved grassland
- Intertidal - mud/sand
- Neutral grassland - semi-improved
- Non-ruderal
- Parkland and scattered trees- broad-leaved
- Saltmarsh dense continuous
- Scrub- Dense/Continuous
- Scrub- Scattered
- Standing water
- Tall ruderal
- Uncoded areas to be surveyed

0 25 50 75 100 125 m  
Scale at A3: 1:2,500

Client

**VATTENFALL**

Thanet Extension  
Offshore Wind Farm  
Extended Phase 1  
Habitat Survey



- Key**
- Thanet Extension Onshore Development Area
  - 50m buffer from onshore development area
  - 200m buffer from onshore development area
  - Running water
  - Dry ditch
  - Earth bank
  - Buildings
  - Hardstanding
  - Neutral grassland - semi-improved
  - Scrub - Scattered
  - Standing water
  - TBC
- Uncoded areas to be surveyed

Client

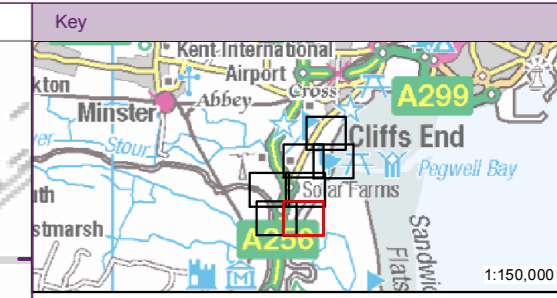
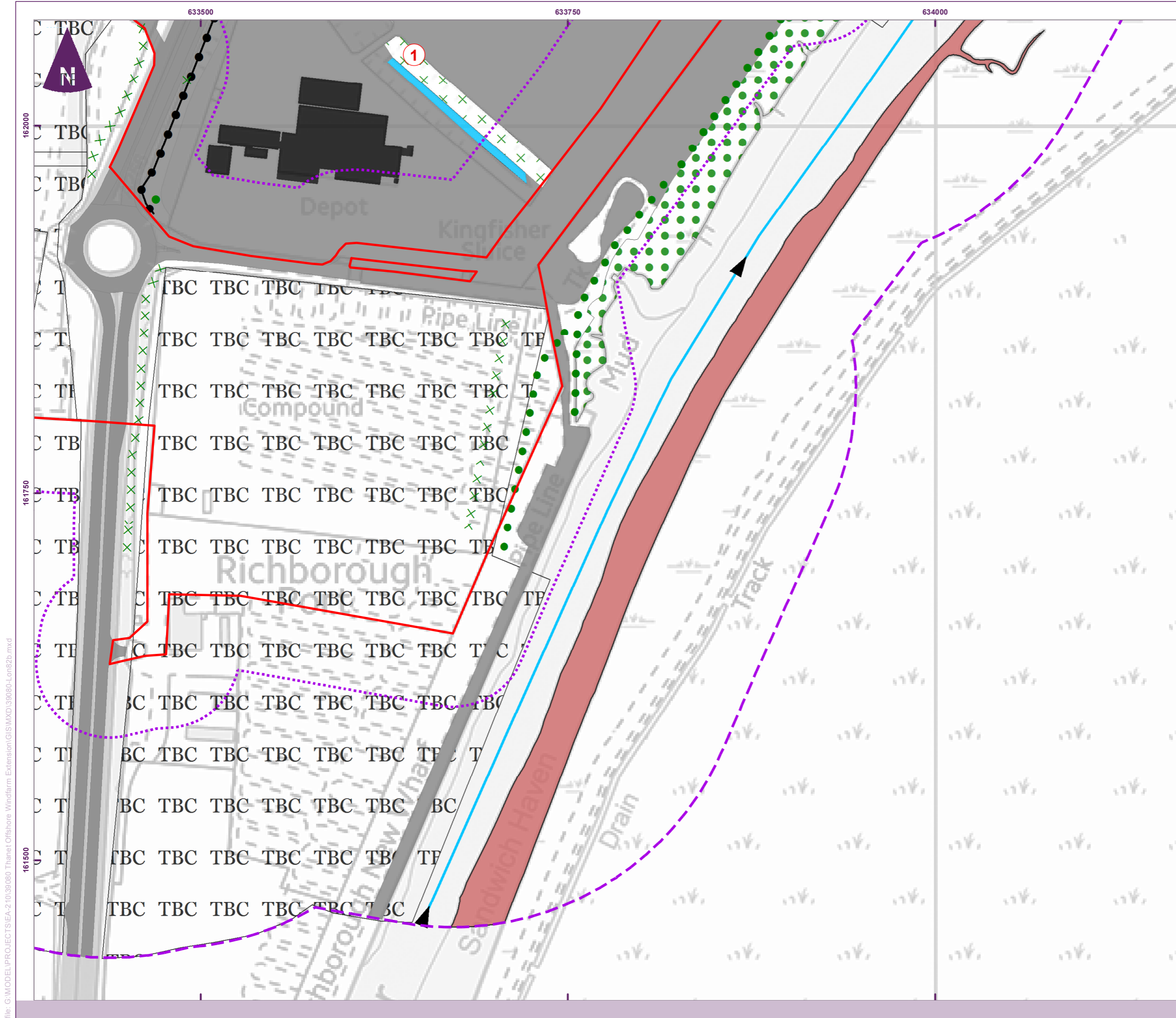
**VATTENFALL**

Thalet Extension  
Offshore Wind Farm  
Extended Phase 1  
Habitat Survey

amec  
foster  
wheeler

**Figure 5.1.1f**  
Extended Phase 1 Habitat Survey  
Results

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**Key**

- Thanet Extension Onshore Development Area
- 50m buffer from onshore development area
- 200m buffer from onshore development area
- Running water
- Earth bank
- Buildings
- Hardstanding
- Intertidal - mud/sand
- Parkland and scattered trees- broad-leaved
- Scrub- Scattered
- Standing water
- TBC Uncoded areas to be surveyed

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Scale at A3: 1:2,500

Client

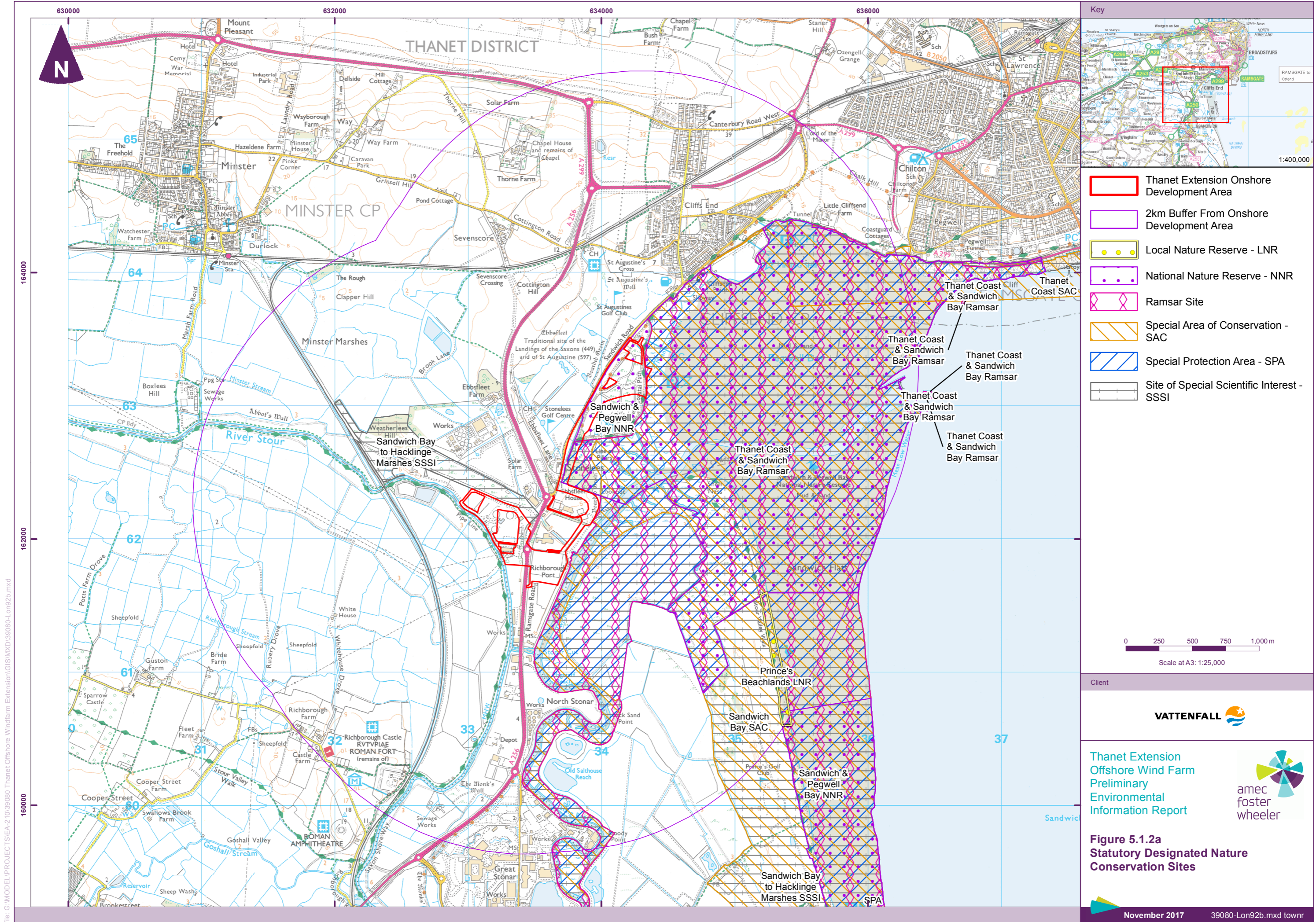
**VATTENFALL**

Thanet Extension Offshore Wind Farm Extended Phase 1 Habitat Survey

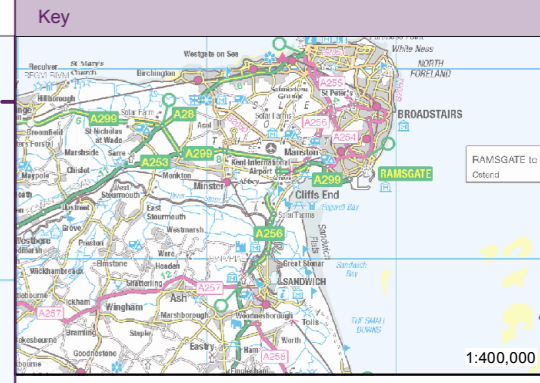
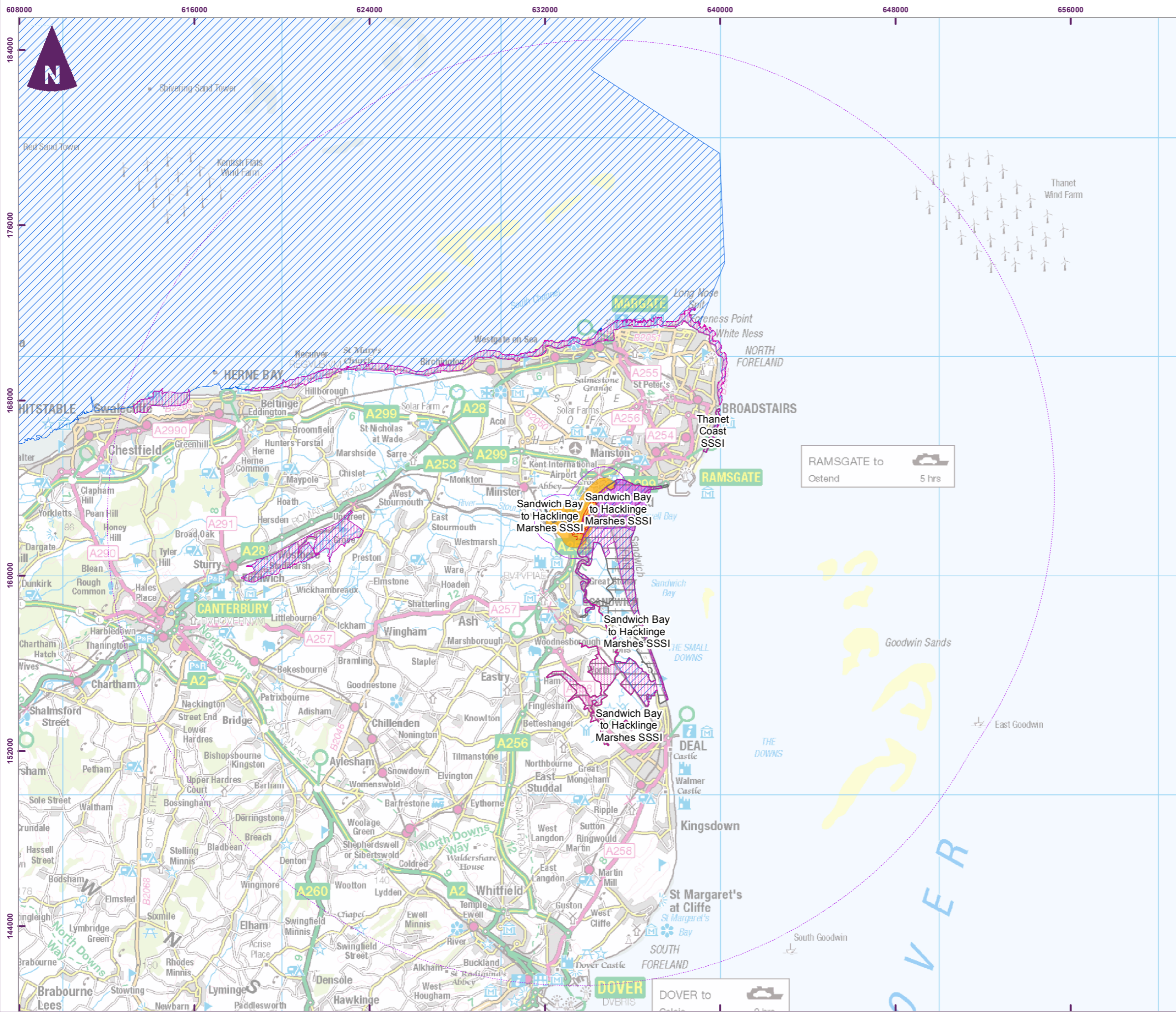
**Figure 5.1.1g**  
Extended Phase 1 Habitat Survey Results

November 2017 39080-Lon82b.mxd butls

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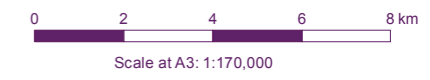


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- Thanet Extension Onshore Development Area
- The Ornithological Study Area
- 20km Search Area
- Onshore Area Of Interest
- Intertidal Area Of Interest
- Site of Special Scientific Interest - SSSI
- Ramsar Site
- Special Protection Area (SPA)

RAMSGATE to Ostend 5 hrs



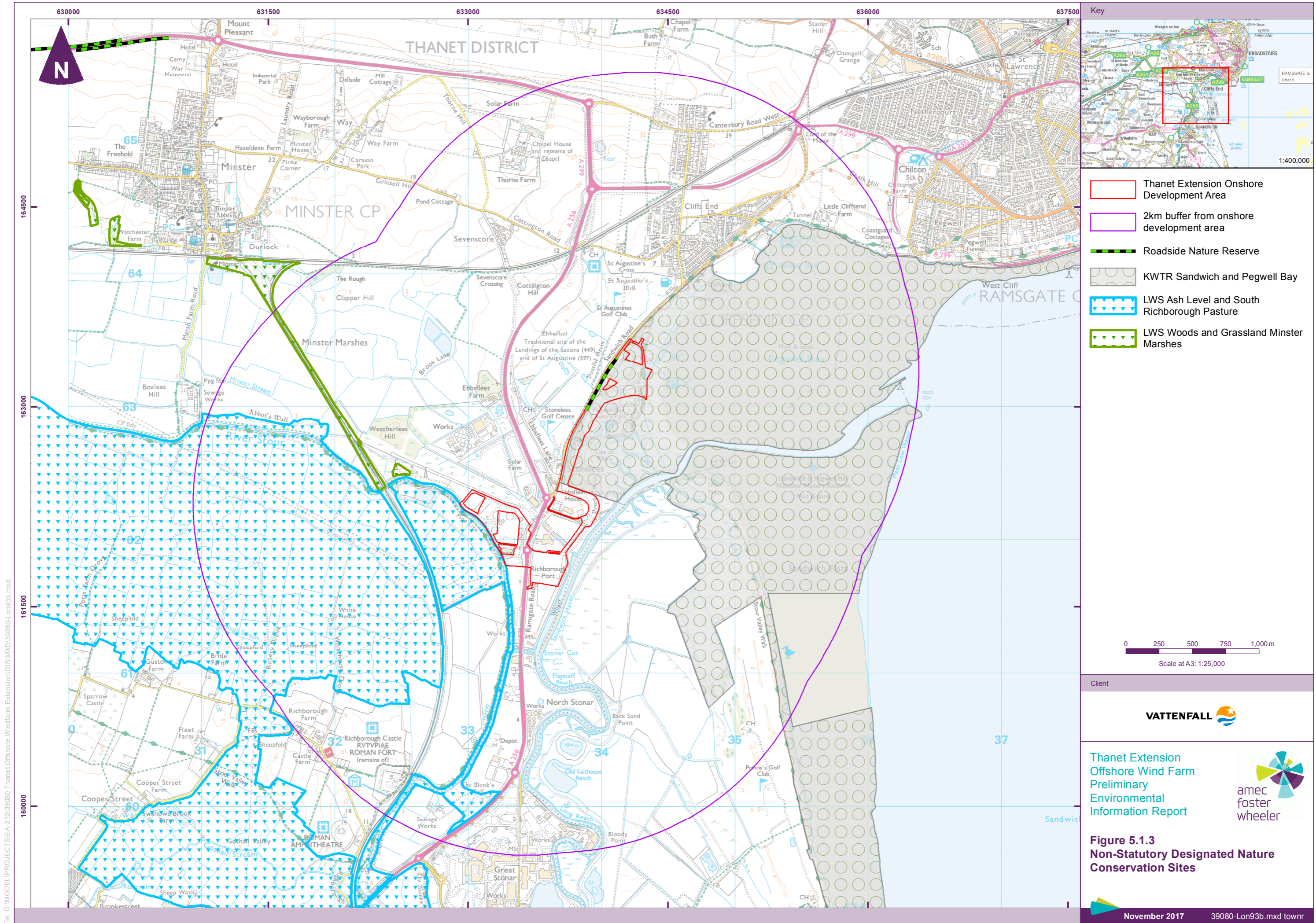
Client

**VATTENFALL**

Thanet Extension Offshore Wind Farm Preliminary Environmental Information Report

**Figure 5.1.2b**  
**Statutory Nature Conservation Sites of Ornithological Importance within 20km of the Study Area**

file: G:\MODEL\PROJECTS\SEA-2\10\39080 Thanet Offshore Windfarm Extension\GIS\MXD\39080-Lon134.mxd



- Key**
- Thanet Extension Onshore Development Area
  - 2km buffer from onshore development area
  - Roadside Nature Reserve
  - KWTR Sandwich and Pegwell Bay
  - LWS Ash Level and South Richborough Pasture
  - LWS Woods and Grassland Minster Marshes

0 250 500 750 1,000 m  
Scale at A3: 1:25,000

Client

**VATTENFALL**

Thanet Extension Offshore Wind Farm Preliminary Environmental Information Report

**Figure 5.13**  
Non-Statutory Designated Nature Conservation Sites

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# Appendix B

## Definition of Designated Sites





Table 4.2a Definition of Designated Sites

Name	Abbreviation	Description
<b>Statutory Sites</b>		
<b>Ramsar</b>	Ramsar	Ramsar sites are wetlands of international importance designated under the Ramsar Convention.
<b>Special Protection Area</b>	SPA	The European Community meets its obligations for bird species under the <a href="#">Bonn Convention</a> by means of the <a href="#">Council Directive 79/409/EEC on the conservation of wild birds</a> (the 'Birds Directive'). The Directive provides a framework for the conservation and management of, and human interactions with, wild birds in Europe. The main provisions of the Directive include the identification and classification of Special Protection Areas for rare or vulnerable species listed in Annex I of the Directive, as well as for all regularly occurring migratory species, paying particular attention to the protection of wetlands of international importance (Article 4). Together with Special Areas of Conservation (SACs) designated under the Habitats Directive, SPAs form a network of pan-European protected areas known as Natura 2000.
<b>Special Area of Conservation</b>	SAC	In 1992 the European Community adopted <a href="#">Council Directive 92/43/EEC on the Conservation of natural habitats and of wild fauna and flora</a> (EC Habitats Directive). In the UK the Directive has been transposed into national laws by means of the <a href="#">Conservation (Natural Habitats, &amp; c.) Regulations 1994</a> (as amended). The provisions of the Directive require Member States to introduce a range of measures including the protection of habitats and species listed in the Annexes. Each Member State is required to prepare and propose a national list of Sites for evaluation in order to form a European network of Sites of Community Importance (SCIs).

Name	Abbreviation	Description
<b>Site of Special Scientific Interest</b>	SSSI	<p>Once adopted, these are designated by Member States as Special Areas of Conservation (SACs), and along with Special Protection Areas (SPAs) classified under the EC Birds Directive, form a network of protected areas known as Natura 2000.</p> <p>These Sites include the best examples of our natural heritage, wildlife habitats, geological features and landforms. Sites that are internationally important are also designated as SACs and SPAs. The national suites of sites providing statutory protection for flora, fauna, or geological or physiographical features are designated as Sites of Special Scientific Interest (SSSIs).</p>
<b>National Nature Reserve</b>	NNR	<p>National Nature Reserves (NNRs) are a selection of the very best parts of England's <a href="#">Sites of Special Scientific Interest</a>. It is this underlying designation which gives NNRs their strong legal protection. The majority also have European nature conservation designations. Natural England is the body empowered to declare NNRs in England and manages about two thirds of England's NNRs, whilst the remaining third are managed by organisations approved by Natural England; for example, National Trust, the Forestry Commission, RSPB, many Wildlife Trusts and Local Authorities.</p>
<b>Local Nature Reserve</b>	LNR	<p>LNRs are of local, but not necessarily national, importance. LNRs are almost always owned by local authorities, who often pass the management of the LNR onto county Wildlife Trusts or other local environmental bodies. LNRs also often have good public access and facilities.</p>
<b>Non-Statutory Sites</b>		

Name	Abbreviation	Description
<b>Local Wildlife Site</b>	LWS	<p>A non-statutory site with significant value to wildlife as judged by strict criteria agreed with the local Wildlife Trust and the relevant local authority. LWSs are designated by the Trust but confirmed through the Local Development Plan. Some LWs are designated as Roadside Nature Reserves (RNR) by the Road Verge Project (a partnership between Kent County Council, Kent Highways and Kent Wildlife Trust). These have been identified as containing scarce or threatened habitats or species, and act as important wildlife corridors.</p>
<b>Biodiversity Opportunity Areas</b>	BOAs	<p>BOAs indicate where the delivery of Kent Biodiversity Strategy targets should be focused in order to secure the maximum biodiversity benefits; where the greatest gains can be made from habitat enhancement, restoration and recreation, as these areas offer the best opportunities for establishing large habitat areas and/or networks of wildlife habitats. BOA statement documents provide guidance on the conservation priorities which should be adopted in each area.</p>





# Appendix C Legislation



## Birds

With certain exceptions<sup>47</sup>, all wild birds, their nests and eggs are protected by section 1 of the Wildlife and Countryside Act 1981 (as amended). Therefore, it is an offence, inter alia, to:

- ▶ Intentionally kill, injure or take any wild bird;
- ▶ Intentionally take, damage or destroy the nest of any wild bird while it is in use or being built; or
- ▶ Intentionally take or destroy the egg of any wild bird.

These offences do not apply to hunting of birds listed in Schedule 2 of the Act subject to various controls.

Bird species listed on Schedule 1 of the Act receive further protection, thus for these species it is also an offence to:

- ▶ Intentionally or recklessly disturb any bird while it is nest building, or is at a nest containing eggs or young; or
- ▶ Intentionally or recklessly disturb the dependent young of any such bird.

For golden eagle, white-tailed eagle and osprey, it is also an offence to:

- ▶ Take, damage or destroy the nest of these species (this applies at any time, not only when the nest is in use or being built).

## Bats (*Rhinolophidae* and *Vespertilionidae*)

All British bat species are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (as amended). They are afforded full protection under Section 9(4) of the Act and Regulation 41 of the Regulations. These make it an offence, inter alia, to:

- ▶ Deliberately capture, injure or kill a bat;
- ▶ Deliberately disturb a bat (this applies anywhere, not just at its roost), in particular in such a way as to be likely to:
  - ▶ Impair their ability to survive, breed or reproduce, or rear or nurture their young;
  - ▶ Impair their ability to hibernate or migrate;
  - ▶ Affect significantly the local distribution or abundance of that bat species;
- ▶ Damage or destroy a breeding site or resting place of any bat;
- ▶ Intentionally or recklessly disturb a bat while it is occupying a structure or place that it uses for shelter or protection; or
- ▶ Intentionally or recklessly obstruct access to any place that a bat uses for shelter or protection (this is taken to mean all bat roosts whether bats are present or not).

In addition, five British bat species are listed on Annex II of the Habitats Directive. These are:

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<sup>47</sup> Some species, such as game birds, are exempt in certain circumstances.

- ▶ Greater horseshoe bat (*Rhinolophus ferrumequinum*);
- ▶ Lesser horseshoe bat (*Rhinolophus hipposideros*);
- ▶ Bechstein's bat (*Myotis bechsteinii*);
- ▶ Barbastelle (*Barbastella barbastellus*); and
- ▶ Greater mouse-eared bat (*Myotis myotis*).

In certain circumstances where these species are found the Directive requires the designation of Special Areas of Conservation (SACs) by EC member states to ensure that their populations are maintained at a favourable conservation status. Outside SACs, the level of legal protection that these species receive is the same as for other bat species.

### European Otter

This species are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (as amended). They are afforded full protection under Section 9(4) of the Act and Regulation 41 of the Regulations. These make it an offence, inter alia, to:

- ▶ Deliberately capture, injure or kill any such animal;
- ▶ Deliberately disturb any such animal, in particular in such a way as to be likely to:
  - ▶ Impair their ability to survive, breed or reproduce, or rear or nurture their young;
  - ▶ Impair their ability to hibernate or migrate;
  - ▶ Affect significantly the local distribution or abundance of that species;
- ▶ Damage or destroy a breeding site or resting place of any such animal;
- ▶ Intentionally or recklessly disturb any of these animals while it is occupying a structure or place that it uses for shelter or protection; or
- ▶ Intentionally or recklessly obstruct access to any place that any of these animals uses for shelter or protection.

### Water Vole

The water vole is listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and is afforded limited protection under Section 9 of this Act. This makes it an offence, inter alia, to:

- ▶ Intentionally kill, injure, or take (handle) a water vole;
- ▶ Intentionally or recklessly disturb water voles while they are using such a structure or place; or
- ▶ Intentionally or recklessly damage or destroy or obstruct access to any structure or place which water voles use for shelter or protection.



## Reptiles

The four widespread<sup>48</sup> species of reptile that are native to Britain, namely common or viviparous lizard, slow worm, adder and grass snake are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and are afforded limited protection under Section 9 of this Act. This makes it an offence, inter alia, to:

- ▶ Intentionally kill or injure any of these species.

## Great Crested Newt and Natterjack Toad

The great crested newt and natterjack toad are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and Schedule 2 of the Conservation of Habitats and Species Regulations 2010 (as amended). It is afforded protection under Section 9(4) of the Act and Regulation 41 of the Regulations. These make it an offence, inter alia, to:

- ▶ Deliberately capture, injure or kill any such newt/toad;
- ▶ Deliberately disturb any such newt/toad, in particular in such a way as to be likely to:
  - ▶ Impair their ability to survive, breed or reproduce, or rear or nurture their young;
  - ▶ Impair their ability to hibernate or migrate;
  - ▶ Affect significantly the local distribution or abundance of that species;
- ▶ Deliberately take or destroy the eggs of such a newt/toad;
- ▶ Damage or destroy a breeding site or resting place of any such newt/toad;
- ▶ Intentionally or recklessly disturb any such newt/toad while it is occupying a structure or place that it uses for shelter or protection; or
- ▶ Intentionally or recklessly obstruct access to any place that any such newt/toad uses for shelter or protection.

This relates to both the aquatic and terrestrial habitat they occupy. The legislation applies to all life stages of these species.

## Fish

The fish listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and afforded full protection under Section 9 of this Act are:

- ▶ Sturgeon (*Acipenser sturio*);
- ▶ Burbot (*Lota lota*);
- ▶ Vendace (*Coregonus alba*);
- ▶ Gwyniad or white fish (*Coregonus lavaretus*);
- ▶ Giant goby (*Cobitis cobitis*);

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<sup>48</sup> The other native species of British reptile (sand lizard and smooth snake) receive a higher level of protection in England and Wales under the Conservation of Habitats and Species Regulations 2010 and the Wildlife and Countryside Act 1981 (as amended). However, the distribution of these species is restricted to only a very few sites. All marine turtles (Cheloniidae and Dermochelyidae) are also protected.

- ▶ Couch's goby (*Gobius couchii*); and
- ▶ Basking shark (*Cetorhinus maximus*).

The sturgeon is also listed in Schedule 2 of the Conservation of Habitats and Species Regulations 2010.

These make it an offence, inter alia, to:

- ▶ Intentionally kill, injure or take one of these fish (deliberately capture, injure or kill in the case of sturgeon);
- ▶ Intentionally or recklessly damage, destroy or obstruct the access to any structure or place that one of these fish (except sturgeon) uses for shelter or protection; or
- ▶ Intentionally or recklessly disturb one of these fish (except sturgeon) while it is occupying a structure or place that it uses for shelter or protection;
- ▶ Deliberately disturb any sturgeon, in particular in such a way as to be likely to:
  - ▶ Impair their ability to survive, breed or reproduce, or rear or nurture their young;
  - ▶ Impair their ability to hibernate or migrate;
  - ▶ Affect significantly the local distribution or abundance of that species;
- ▶ Deliberately take or destroy the eggs of a sturgeon; or
- ▶ Damage or destroy a breeding site or resting place of a sturgeon.

Section 9(4A) of the Act also makes it an offence intentionally or recklessly to disturb a basking shark (wherever it is).

The other fish listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and afforded limited protection under Section 9 of this Act are:

- ▶ Allis shad (*Alosa alosa*);
- ▶ Twaite shad (*Alosa fallax*)<sup>§</sup>.

This makes it an offence, inter alia, to:

- ▶ Intentionally kill, injure, or take any of these species (except twaite shad); or
- ▶ Intentionally or recklessly damage or destroy any structure or place that one of these fish uses for shelter or protection.

## Insects

The insects listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and afforded full protection under Section 9 of this Act are:

- ▶ Rainbow leaf beetle (*Chrysolina cerealis*), lesser silver water beetle (*Hydrochara craboides*) and violet click beetle (*Limoniscus violaceus*);
- ▶ Mire pill beetle (*Curimopsis nigrita*)\*;
- ▶ Beetles *Graphoderus zonatus*, *Hypebaeus flavipes* and *Parcymus aeneus*;
- ▶ Large copper (*Lycaena dispar*), heath fritillary (*Mellicta athalia*), marsh fritillary (*Eurodryas aurinia*) and swallowtail (*Papilio machaon*) butterflies;

- ▶ Field (*Gryllus campestris*) and mole (*Gryllotalpa gryllotalpa*) crickets;
- ▶ New Forest cicada (*Cicadetta montana*);
- ▶ Southern damselfly (*Coenagrion mercuriale*) and Norfolk aeshna dragonfly (*Aeshna isosceles*);
- ▶ Wart-biter grasshopper (*Decticus verrucivorus*); and
- ▶ Barberry carpet (*Pareulype berberata*), black veined (*Siona lineata*), Essex emerald (*Thetida smaragdaria*), fiery clearwing (*Bembecia chrysidiformis*), Fisher's estuarine (*Gortyna borelii*), New Forest Burnet (*Zygaena viciae*), reddish buff (*Acosmetia caliginosa*) and Sussex emerald (*Thalera fimbrialis*) moths.

This makes it an offence, inter alia, to:

- ▶ Intentionally kill, injure, or take (handle) any of these species (\* except the mire pill beetle);
- ▶ Intentionally or recklessly damage, destroy or obstruct access to any place that any of these species uses for shelter or protection; or
- ▶ Intentionally or recklessly disturb any of these species while it is occupying a structure or place that it uses for shelter or protection.

### Other Terrestrial and Freshwater Invertebrates

In addition to crayfish, insects and spiders, the following terrestrial and freshwater invertebrates are listed in Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) and afforded full protection under Section 9 of this Act:

- ▶ The medicinal leech (*Hirudo medicinalis*);
- ▶ A fairy shrimp (*Chirocephalus diaphanus*);
- ▶ The tadpole shrimp or apus (*Triops cancriformis*);
- ▶ The freshwater pearl mussel (*Margaritifera margaritifera*);
- ▶ The glutinous (*Myxas glutinosa*), sandbowl (*Catinella arenaria*) and Roman (*Helix pomatia*) snails.

This makes it an offence, inter alia, to:

- ▶ Intentionally kill, injure, or take (handle) any of these species;
- ▶ Intentionally or recklessly damage, destroy or obstruct access to any structure or place that any of these species uses for shelter or protection; or
- ▶ Intentionally or recklessly disturb any of these species while it is occupying a structure or place that it uses for shelter or protection.

### Badger

The Protection of Badgers Act 1992 makes it an offence to:

- ▶ Wilfully kill, injure or take a badger;
- ▶ Attempt to kill, injure or take a badger; or
- ▶ Cruelly ill-treat a badger.

It is also an offence to interfere with a badger set by:



- ▶ Damaging a badger sett or any part of it;
- ▶ Destroying a badger sett;
- ▶ Obstructing access to, or any entrance of, a badger sett;
- ▶ Disturbing a badger when it is occupying a badger sett; or
- ▶ Intending to do any of those things or being reckless as to whether his actions would have any of those consequences.

### **All Wild Mammals (Including Rabbits and Foxes)**

- ▶ Under the Wild Mammals (Protection) Act 1996 it is an offence intentionally to cause unnecessary suffering to any wild mammal.



# Appendix D

## **CONFIDENTIAL** Badger Records

CONFIDENTIAL



CONFIDENTIAL



CONFIDENTIAL



# Appendix E

## Target Notes





Table 4.11 Target Notes

Target note	Description
<b>TN1</b>	Culverted section of drainage ditch. Vegetation on western bank dominated by tussocky improved grassland and tall herb. Eastern bank comprised hawthorn dominated dense scrub.
<b>TN 2</b>	Round metal structure-biogas plant. Negligible bat roosting potential.
<b>TN 3</b>	Young broadleaved woodland stand, dominated by white poplar, with abundant field maple, occasional ash and sparse shrub layer dominated by hawthorn and occasional elder. The ground flora was largely absent comprising occasional cleaver, herb-Robert and hogweed.
<b>TN 4</b>	Round metal structure-biogas plant. Negligible bat roosting potential.
<b>TN 5</b>	Double wooden slate and concrete sided single storey shed within biogas plant. Open north facing facade. Asbestos roof. New metal shed. No gaps. Negligible bat roosting potential.
<b>TN 6</b>	Mowed improved grassland, scattered tall ruderal vegetation and shallow earth bank adjacent to drainage ditch. Solar farm to the north.
<b>TN 7</b>	Corrugated metal shed. No gaps. Negligible bat roosting potential.
<b>TN 8</b>	<p><u>Baypoint Club – complex of interconnected buildings: east</u></p> <p>Bat droppings recorded on SE wall.</p> <p>Potential access/egress points for roosting bat: gap between metal sheet on upper section and wall. Second gap to the left noted. Hole in wall into cavity. Hole and gap in soffit. Gap between soffit and wall, and wooden boarding. Large hole in soffit above doorway on the northern edge, with a second hole on the southern facade. Gaps all along soffit board and between metal corrugated sheeting. Gap in gable end – south facing facade</p>
<b>TN 9</b>	<p><u>REP Land</u></p> <p>Invasive plant species: New Zealand pigmyweed recorded within drainage ditch ~162m to the west of the RLB. Heavily cattle poached.</p>
<b>TN 10</b>	<p><u>REP Land</u></p> <p>Invasive plant species: New Zealand pigmyweed recorded within drainage ditch ~193m to the west of the RLB. Heavily cattle poached.</p>
<b>TN 11</b>	The western aspect of this small broadleaved woodland stand was recently cleared as part of the Nemo Link works area – which runs alongside the access track adjacent.

Target note	Description
<b>TN 12</b>	Small toilet block with pitched and tiled roof. Soffit boxes –uPVC, uPVC window frames. Skylight on roof. Some features with bat roosting potential
<b>TN 13</b>	Temporary pools within semi-improved neutral grassland – no aquatic vegetation recorded here, predominantly shallow depressions, seasonally wet only. Some suitability to support breeding Natterjack toad, with dense and scattered scrub and small woodland stands within 100m providing some suitable terrestrial habitat.
<b>TN 14</b>	Pond surrounded by common reed and reedmace. Fencing prevented access. Extensive tussocky grassland to the north west and north east, with a small stand of woodland to the west; saltmarsh and further grassland – cattle grazed to the south east and south west respectively.
<b>TN 15</b>	Scattered and dense scrub dominated by hawthorn with occasional sea buckthorn. Turtle dove heard singing in this vicinity.
<b>TN16</b>	Broadleaved woodland stand in southern limit of the NNR surrounded by semi-improved neutral grassland, dense and scattered scrub.
<b>TN 17</b>	Small colony of pyramidal orchids adjacent to open paths in dense scrub and scattered tree. Approximately 20 plants recorded.
<b>TN 18</b>	Highland cattle within short grazed grassland- conservation grazing. Short stumps of dogwood throughout semi-improved neutral grassland.
<b>TN 19</b>	Invasive species Japanese knotweed – three small stands recorded within roadside verge, ~ 110m to the north of the RLB.
<b>TN 20</b>	Solar farm- solar panels over improved grassland- with sheep grazing
<b>TN 21</b>	Mosaic of tussocky grassland, spoil heaps, drainage ditches and tall herb – excellent reptile habitat
<b>TN 22</b>	Drainage ditch running south-north adjacent to Sandwich Road surrounded by dense scrub and scattered young trees. Occasional flowing water, with many dry congested sections.
<b>TN 23</b>	<u>Baypoint Club – complex of interconnected buildings: west</u> Bat dropping. Large. Potential rest spot. Possible serotine. Beetle casings. Potential access/egress points for roosting bat: hole in soffit above reception. Broken roof tiles, gap in wooden board. Wooden slates in clock face apex. Broken grill to soffit and gap between guttering and wall. Gaps in brickwork above window leading to cavity. Hole in wall. Gap in soffit.

Target note	Description
<b>TN 24</b>	<u>Baypoint Club – features of bat roosting potential:</u> Single storey house. Garden dominated by introduced shrub.
<b>TN 25</b>	<u>Baypoint Club – features of bat roosting potential:</u> Wooden single storey hut. Nursery. Small hole with cables on eastern wall.
<b>TN26</b>	<u>Baypoint Club – features of bat roosting potential:</u> Potential access/egress points for roosting bat: Two open sheds, with potentially asbestos/chrysotile panelled roof, and a wooden hut. Multiple holes that enter shed. Shed partly boarded creating cavities. Wooden single storey hut. Nursery. Small hole with cables on eastern wall. Pebble dashed shed contained a flammable liquid with lifted metal roof.
<b>TN 27</b>	Baypoint Club – potential reptile sheltering and hibernation habitat: Compost piles
<b>TN 28</b>	<u>Baypoint Club – features of bat roosting potential:</u> Row of mature Lombardy poplar planted along eastern boundary of the Baypoint club; potential bat roosting features including woodpecker holes. Good foraging and commuting potential to the east along the unlit corridor of the River Stour, and mudflats.
<b>TN 29</b>	Bird boxes erected on trees within plantation woodland.
<b>TN 30</b>	Brash and garden waste pile within plantation woodland – limited reptile hibernacula potential
<b>TN 31</b>	Large spoil/substrate heaps with colonising tall ruderal vegetation dominated by common nettle with frequent common mallow, Yorkshire fog, and occasional Alexanders. Small excavations and mammal paths noted within spoil heaps - likely to be rabbit. Tree line to the north dominated by goat willow and Lombardy poplar with dense hawthorn scrub and occasional common reed, frequent ivy and hawthorn saplings.
<b>TN 32</b>	Probable fox earth, 2 entrance, paths around in tall ruderal vegetation. Juvenile slow worm recorded.
<b>TN 33</b>	Brick building within Richborough Energy Park – soffit, and plywood panelling over windows. Low bat roosting potential
<b>TN 34</b>	Viviparous lizard recorded in scrub adjacent to Sandwich Road
<b>TN 35</b>	Stand of scattered trees within amenity grassland. Species included sycamore, pedunculate oak, typically 10-15m.
<b>TN 36</b>	Residential properties within 50m buffer to the RLB – not accessed.





# Appendix F Species List



Table 4.12 Plant Species Recorded during Site Surveys

Common/ English Name	Scientific Name	DAFOR <sup>49</sup>
<b><i>Plant species recorded during the Site survey</i></b>		
Alexanders	<i>Smyrniolum olusatrum</i>	F
Alder	<i>Alnus glutinosa</i>	O
Annual meadow grass	<i>Poa annua</i>	O
Ash	<i>Fraxinus excelsior</i>	D
Black horehound	<i>Ballota nigra</i>	R
Blackthorn	<i>Prunus spinosa</i>	F
Bramble	<i>Rubus fruticosus</i> agg.	D
Bristly ox-tongue	<i>Helminthotheca echioides</i>	F
Broadleaved dock	<i>Rumex obtusifolius</i>	F
Charlock	<i>Sinapis arvensis</i>	R
Cleavers	<i>Gallium aparine</i>	A
Cocks foot	<i>Dactylis glomerata</i>	O
Common bent	<i>Agrostis capillaris</i>	A
Common chickweed	<i>Stellaria media</i>	F
Common cord-grass	<i>Spartina anglica</i>	O
Common figwort	<i>Scrophularia nodosa</i>	O
Common hogweed	<i>Heracleum sphondylium</i>	F
Common mallow	<i>Malva sylvestris</i>	R
Common nettle	<i>Urtica dioica</i>	D

<sup>49</sup> For each recognisable habitat type a list of vascular plant species was made; for every plant species recorded an estimate was made of their relative abundance within the habitat using the DAFOR scale as follows:

D: Dominant (forming at least three quarters of the habitats' species composition);

A: Abundant (very common),

F: Frequent (found in several places in the habitat; more than a few individuals; between an eighth and a quarter of the habitat),

O: Occasional (occurring in less than one eighth of the habitat, or very common in one area of the habitat only),

R: Rare (species that occur as a few individuals).

Locally Dominant/Abundant species are denoted by 'LD', or 'LA'.





<b>Common/ English Name</b>	<b>Scientific Name</b>	<b>DAFOR<sup>49</sup></b>
Common sea-lavender	<i>Limonium vulgare</i>	A
Common teasel	<i>Dipsacus fullonum</i>	R
Compact rush	<i>Juncus conglomeratus</i>	R
Cow parsley	<i>Anthriscus sylvestris</i>	A
Creeping bent	<i>Agrostis stolonifera</i>	O
Creeping buttercup	<i>Ranunculus repens</i>	F
Creeping thistle	<i>Cirsium arvense</i>	F
Crested dogs tail	<i>Cynosurus cristatus</i>	O
Cuckooflower /Lady's smock	<i>Cardamine pratensis</i>	R
Cut-leaved crane's-bill	<i>Geranium dissectum</i>	O
Dandelion	<i>Taraxacum officinale</i> agg.	O
Dogwood	<i>Cornus sanguinea</i>	F
Duckweed	<i>Lemna</i> sp.	LD
Elder	<i>Sambucus nigra</i>	F
English elm	<i>Ulmus procera</i>	O
False oat-grass	<i>Arrhenatherum elatius</i>	D
Field bindweed	<i>Convolvulus arvensis</i>	F
Field maple	<i>Acer campestre</i>	A
Garlic mustard	<i>Alliaria petiolata</i>	R
Goat willow	<i>Salix caprea</i>	A
Greater celandine	<i>Chelidonium majus</i>	LA
Great willowherb	<i>Epilobium hirsutum</i>	D
Greater bird's-foot-trefoil	<i>Lotus pedunculatus</i>	R
Greater plantain	<i>Plantago major</i>	R
Greater stitchwort	<i>Stellaria holostea</i>	O
Grey willow	<i>Salix cinerea</i>	R



<b>Common/ English Name</b>	<b>Scientific Name</b>	<b>DAFOR<sup>49</sup></b>
Ground-ivy	<i>Glechoma hederata</i>	A
Hairy bittercress	<i>Cardamine hirsuta</i>	R
Hard rush	<i>Juncus inflexus</i>	F
Hawthorn	<i>Crataegus monogyna</i>	D
Hazel	<i>Corylus avellana</i>	R
Hedge bedstraw	<i>Galium mollugo</i>	O
Hedge woundwort	<i>Stachys sylvatica</i>	R
Herb Robert	<i>Geranium robertianum</i>	F
Honeysuckle	<i>Lonicera periclymenum</i>	R
Italian rye-grass	<i>Lolium italicum</i>	A
Ivy	<i>Hedera helix</i>	O-LD
Jasmine	<i>Jasminum</i> sp.	R
Japanese knotweed	<i>Fallopia japonica</i>	LA
Lesser celandine	<i>Ficaria verna</i>	O
Lesser pond-sedge	<i>Carex acutiformis</i>	R
Lombardy poplar	<i>Populus nigra italica</i>	A
Lord's-and-ladies	<i>Arum maculatum</i>	O
Marram grass	<i>Ammophila arenaria</i>	O
Meadow buttercup	<i>Ranunculus acris</i>	O
Meadow fescue	<i>Schedonorus pratensis</i>	O
New Zealand pigmyweed	<i>Crassula helmsii</i>	LD
Pedunculate oak	<i>Quercus robur</i>	O
Perennial rye-grass	<i>Lolium perenne</i>	D
Perforate St. John's wort	<i>Hypericum perforata</i>	O
Plum species	<i>Prunus</i> spp.	F
Prickly lettuce	<i>Lactuca serriola</i>	R



<b>Common/ English Name</b>	<b>Scientific Name</b>	<b>DAFOR<sup>49</sup></b>
<b>Privet</b>	<i>Ligustrum ovalifolium</i>	R
<b>Ragwort</b>	<i>Senecio jacobea</i>	R
<b>Red dead-nettle</b>	<i>Lamium purpureum</i>	R
<b>Red fescue</b>	<i>Festuca rubra</i>	A
<b>Reedmace</b>	<i>Typha latifolia</i>	A
<b>Ribwort plantain</b>	<i>Plantago lanceolata</i>	A
<b>Rosebay willowherb</b>	<i>Epilobium angustifolium</i>	D
<b>Rough meadow-grass</b>	<i>Poa trivialis</i>	O
<b>Salicornia</b>	<i>Salicornia sp.</i>	O
<b>Sainfoin</b>	<i>Onobrychis viciifolia</i>	A
<b>Salsify</b>	<i>Tragopogon spp.</i>	R
<b>Sea beet</b>	<i>Beta vulgaris subsp. maritima</i>	O
<b>Sea couch</b>	<i>Agropyron atherica</i>	LD
<b>Sea purslane</b>	<i>Halimione portulacoides</i>	LD
<b>Scots pine</b>	<i>Pinus sylvestris</i>	O
<b>Silver birch</b>	<i>Betula pendula</i>	O
<b>Smooth meadow-grass</b>	<i>Poa pratensis</i>	F
<b>Soft brome</b>	<i>Bromus hordeaceus</i>	D
<b>Soft rush</b>	<i>Juncus effusus</i>	F
<b>Sycamore</b>	<i>Acer pseudoplatanus</i>	O
<b>Tamarisk</b>	<i>Tamarix sp.</i>	R
<b>Water mint</b>	<i>Mentha aquatica</i>	R
<b>Weeping willow</b>	<i>Salix x chrysocoma</i>	R
<b>Wild fennel</b>	<i>Foeniculum vulgare</i>	F
<b>White clover</b>	<i>Trifolium repens</i>	A
<b>White poplar</b>	<i>Populus alba</i>	F

Common/ English Name	Scientific Name	DAFOR <sup>49</sup>
Wood avens	<i>Geum urbanum</i>	A
Wood false – brome	<i>Brachypodium sylvaticum</i>	D
Yorkshire fog	<i>Holcus lanatus</i>	F

Table 4.13 Species Described in this Report

Common/ English Name	Scientific Name
<b>Fauna</b>	
Adder	<i>Vipera berus</i>
Agate knot-horn	<i>Nyctegretis lineana</i>
American mink	<i>Neovison vison</i>
<b><i>Asiraca clavicornis</i></b>	<i>Asiraca clavicornis</i>
Barn owl	<i>Tyto alba</i>
Bee wolf	<i>Philanthus triangulum</i>
Black mining bee	<i>Andrena (Plastandrena) pilipes</i>
Black-headed mining bee	<i>Andrena (Cnemidandrena) nigriceps</i>
Blunthorn nomad bee	<i>Nomada flavopicta</i>
Bordered ermel	<i>Ethmia bipunctella</i>
Bright wave	<i>Idaea ochrata subsp. cantiata</i>
Brown long - eared bat	<i>Plecotus auritus</i>
Bulrush Veneer	<i>Calamotropha paludella</i>
Comfrey ermel	<i>Ethmia quadrillella</i>
Common lizard	<i>Zootoca vivipara</i>
Common pipistrelle	<i>Pipistrellus pipistrellus</i>
Daubenton's bat	<i>Myotis daubentonii</i>
Small heath	<i>Coenonympha pamphilus</i>
Dotted bee-fly	<i>Bombylius discolor</i>

<b>Common/ English Name</b>	<b>Scientific Name</b>
<b>Eurasian beaver</b>	<i>Castor fiber</i>
<b>Four-banded flower bee</b>	<i>Anthophora (Dasymegilla) quadrimaculata</i>
<b>Four-banded weevil-wasp</b>	<i>Cerceris quadricincta</i>
<b>Giant water-veneer</b>	<i>Schoenobius gigantella</i>
<b>Golden plover</b>	<i>Pluvialis apricaria</i>
<b>Gorse knot-horn</b>	<i>Pempelia genistella</i>
<b>Grass snake</b>	<i>Natrix natrix</i>
<b>Ground lackey</b>	<i>Malacosoma castrensis</i>
<b><i>Haliphus (Liaphlus) variegatus</i></b>	<i>Haliphus (Liaphlus) variegatus</i>
<b>Harlequin ladybird</b>	<i>Harmonia axyridis</i>
<b><i>Hedychrum niemelai</i> subsp. <i>niemelai</i></b>	<i>Hedychrum niemelai</i> subsp. <i>niemelai</i>
<b>Hoary knot-horn</b>	<i>Gymnancyla canella</i>
<b>Hollyhock seed moth</b>	<i>Pexicopia malvella</i>
<b>Horse-chestnut leaf-miner</b>	<i>Cameraria ohridella</i>
<b>Horseshoe bat</b>	<i>Rhinolophus</i> sp.
<b>Kent bent-wing</b>	<i>Phyllocnistis xenia</i>
<b>Long-legged tabby</b>	<i>Synaphe punctalis</i>
<b>Mallard</b>	<i>Anas platyrhynchos</i>
<b>Marbled yellow pearl</b>	<i>Evergestis extimalis</i>
<b>Marsh harrier</b>	<i>Circus aeruginosus</i>
<b>Mute swan</b>	<i>Cygnus olor</i>
<b>Nathusius pipistrelle bat</b>	<i>Pipistrellus nathusii</i>
<b>Natterer's bat</b>	<i>Myotis nattereri</i> .
<b>Natterjack toad</b>	<i>Epidalea calamita</i>
<b>Noctule bat</b>	<i>Nyctalus noctula</i>
<b>Orange-horned nomad bee</b>	<i>Nomada fulvicornis</i>

<b>Common/ English Name</b>	<b>Scientific Name</b>
<b>Otter</b>	<i>Lutra lutra</i>
<b>Painted neb</b>	<i>Eulamprotes wilkella</i>
<b>Painted nomad bee</b>	<i>Nomada fucata</i>
<b>Pantaloan bee</b>	<i>Dasypoda hirtipes</i>
<b>Pigmy footman</b>	<i>Eilema pygmaeola subsp. pygmaeola</i>
<b>Pine-blossom knot-horn</b>	<i>Vitula biviella</i>
<b>Pipistrellus species</b>	<i>Pipistrellus sp.</i>
<b>Plain mini-miner</b>	<i>Andrena (Micrandrena) minutuloides</i>
<b>Rest harrow</b>	<i>Aplasta ononaria</i>
<b>Rosy-striped knot-horn</b>	<i>Oncocera semirubella</i>
<b>Salt-marsh grass-veneer</b>	<i>Pediasia aridella</i>
<b>Saltmarsh knot-horn</b>	<i>Ancylosis oblitella</i>
<b>Sharp-collared furrow bee</b>	<i>Lasioglossum (Evylaeus) malachurum</i>
<b>Shining ram's horn snail</b>	<i>Segmentina nitida</i>
<b>Silver-edged knot-horn</b>	<i>Pima boisduvaliella</i>
<b>Silvery leafcutter bee</b>	<i>Megachile (Eutricharaea) leachella</i>
<b>Slow worm</b>	<i>Anguis fragilis</i>
<b>Smooth newt</b>	<i>Lissotriton vulgaris</i>
<b>Soprano pipistrelle bat</b>	<i>Pipistrellus pygmaeus</i>
<b>Sub-angled wave</b>	<i>Scopula nigropunctata</i>
<b>Trimmer's mining bee</b>	<i>Andrena (Hoplandrena) trimmerana</i>
<b>Turnstone</b>	<i>Arenaria interpres</i>
<b>Turtle dove</b>	<i>Streptopelia turtur</i>
<b>Twin-spot honey</b>	<i>Aphomia zelleri</i>
<b>Viviparous lizard</b>	<i>Zootoca vivipara</i>
<b>Wainscot neb</b>	<i>Monochroa palustrellus</i>

<b>Common/ English Name</b>	<b>Scientific Name</b>
<b>Waste grass-veneer</b>	<i>Pediasia contaminella</i>
<b>Water vole</b>	<i>Arvicola amphibius</i>
<b>Whiskered bat</b>	<i>Myotis mystacinus</i>
<b>Willow knot-horn</b>	<i>Sciota adelphella</i>
<b>Flora</b>	
<b>Bedstraw broomrape</b>	<i>Orobanche caryophyllacea</i>
<b>Bee orchid</b>	<i>Ophrys apifera</i>
<b>Black knapweed</b>	<i>Centaurea nigra</i>
<b>Buck's horn-plantain</b>	<i>Plantago coronopus</i>
<b><i>Chrysotila lamellosa</i></b>	<i>Chrysotila lamellosa</i> ,
<b><i>Chrysotila stipitata</i></b>	<i>Chrysotila stipitata</i> ,
<b>Common spotted-orchid</b>	<i>Dactylorhiza fuchsii</i>
<b>Common twayblade</b>	<i>Neottia ovata</i>
<b>Creeping willow</b>	<i>Salix repens</i>
<b>Crown garlic</b>	<i>Allium vineale</i>
<b>Deptford pink</b>	<i>Dianthus armeria</i>
<b>Divided sedge</b>	<i>Carex divisa</i>
<b>False fox-sedge</b>	<i>Carex otrubae</i>
<b>Fool's-water-cress</b>	<i>Apium nodiflorum</i>
<b>Fragrant evening-primrose</b>	<i>Oenothera caespitosa</i> .
<b>Fragrant orchid</b>	<i>Gymnadenia conopsea</i>
<b>Frogbit</b>	<i>Hydrocharis morsus-ranae</i>
<b>Giant hogweed</b>	<i>Heracleum mantegazzianum</i>
<b>Himalayan balsam</b>	<i>Impatiens glandulifera</i>
<b>Lady's bedstraw</b>	<i>Galium verum</i>
<b>Lizard orchid</b>	<i>Himantoglossum hircinum</i>



<b>Common/ English Name</b>	<b>Scientific Name</b>
<b>Lyme-grass</b>	<i>Leymus arenarius</i>
<b>Marsh orchid</b>	<i>Dactylorhiza</i> sp.
<b>Pendulous sedge</b>	<i>Carex pendula</i>
<b><i>Pseudendoclonium submarinum</i></b>	<i>Pseudendoclonium submarinum</i>
<b>Reed sweet-grass</b>	<i>Glyceria maxima</i>
<b>Sand catchfly</b>	<i>Silene conica</i>
<b>Sea bindweed</b>	<i>Calystegia soldanella</i> )
<b>Sea spurge</b>	<i>Euphorbia paralias</i>
<b>Sea-holly</b>	<i>Eryngium maritimum</i>
<b>Sharp rush</b>	<i>Juncus acutus</i>
<b>Southern marsh-orchid</b>	<i>Dactylorhiza praetermissa</i>
<b>Spartina species</b>	<i>Spartina</i> spp.
<b>Stone parsley</b>	<i>Sison amomum</i>
<b>Tall fescue</b>	<i>Festuca arundinacea</i>
<b><i>Thallochrysis litorale</i></b>	<i>Thallochrysis litorale</i> ,
<b>Viper's bugloss</b>	<i>Echium vulgare</i>
<b>Water fern</b>	<i>Azolla filiculoides</i>
<b>Wireweed</b>	<i>Sargassum muticum</i>
<b>Yellow iris</b>	<i>Iris pseudacorus</i>
<b><i>Zostera</i> species</b>	<i>Zostera</i> spp.



