

**NSN Link Ltd**  
**Ecological Assessment of the Cambois and East Sleekburn Area**

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## 1.0 INTRODUCTION

- 1.1 TEP was commissioned to undertake an ecological survey and appraisal of the Cambois and East Sleekburn area in Northumberland for the NSN Link. The project would enable the two way transfer of electricity via subsea cables between the UK and Norway and this study considers the ecological implications of the UK terrestrial elements of the development to mean low water.
- 1.2 The UK onshore elements of the project, for which planning permission is being sought, comprise a converter station on land close to the former Blyth Power Station at East Sleekburn; underground High Voltage Direct Current (HVDC) cables between mean low water at Cambois Bay and the converter station; and underground High Voltage Alternating Current (HVAC) cables from the converter station to the existing National Grid Blyth Substation.
- 1.3 This report has the following objectives
- to describe the existing vegetation and give an overview of the habitats present;
  - to identify whether there are any features of conservation value such as legally protected species or habitats of biodiversity importance; and
  - to advise of further surveys or mitigation requirements that might be needed prior to development of the site.
- 1.4 TEP has prepared a separate ornithological assessment of the area, focussing on the potential effects on the Northumberland Coast SSSI and the Northumbria Coast SPA/Ramsar Site.
- 1.5 A Great Crested Newt Survey and a Bat Activity Survey were carried out in spring/summer by E3 Ecology (under sub-contract to TEP). These are appended to this report.

## **2.0 EXTENT OF SURVEY AREA**

- 2.1 The survey area covered all potential landfall sites, HVDC and HVAC cable route options and the site of the converter station together with an appropriate buffer area. The extent of the survey area, which lies between Blyth and Wansbeck Estuaries to the east of the A189 dual carriageway road, is indicated on Figure 1 (G2336.082b).
- 2.2 The landfall area is to the south of the River Wansbeck at Cambois. The intertidal area is designated SSSI (Northumberland Shore Site of Special Scientific Interest SSSI) and there is access to the beach in this area via a concrete slipway. The beach area is backed by low cliffs.
- 2.3 The HVDC cable route is dominated by arable land inland of the landfall, with small areas of semi-improved neutral grassland, plantation woodland and tall ruderal vegetation. The cable route then largely follows an existing track between an industrial development and an old coal stocking yard and crosses a ditch into an arable field where the converter station is due to be constructed.
- 2.4 The proposed converter station site is an arable field, bordered by a band of mixed plantation woodland and a defunct species poor hedgerow.
- 2.5 The route for the HVAC cable from the new converter station to Blyth substation crosses through an area of semi-improved neutral grassland with scattered scrub, hedgerows, a network of ditches and a number of largely ephemeral waterbodies.

### 3.0 METHODS

#### Desktop Study

- 3.1 Information regarding historic species records and protected sites within a 2km buffer of the site boundary was requested/gathered from the sources listed in Table 1. This search area was extended to 5km in respect of bird records from the RSPB.

**Table 1: Ecological information and consultations**

CONSULTEE/SOURCE OF INFORMATION	NATURE OF INFORMATION
Natural England – Nature on the Map	Scoping
DEFRA Magic Map	Statutory protected sites
Environmental Records Information Service (ERIC)	Protected sites and species within 2km
Northumberland Wildlife Trust (Steve Lowe)	Protected species records
Northumberland County Council Ecologist (Colin Marlee)	Scope of surveys and background information
Royal Society for the Protection of Birds (RSPB)	Bird records within 5km
Northumberland Bat Group	Bat records within 2km
Northumberland Badger Group	Badger records within 2km
S.41 NERC Act (2006)	Habitats and Species of Principal Importance for the Conservation of Biodiversity
Northumberland Biodiversity Action Plan	Species of Local Importance

- 3.2 In addition to the above, a number of existing ecological reports prepared by White Young Green in 2007 (in relation to the former Blyth Power Station) and Northumberland Wildlife Trust in 2006 (in relation to the development of the southern sub-station), were also reviewed as part of the desktop survey to provide additional background detail of the likely features of ecological value within the survey area.

#### Extended Phase 1 Habitat Survey

- 3.3 The Phase 1 habitat survey was undertaken by TEP ecologist Linda Swankie (CEnv, MCIEEM) in June 2013. The survey was carried out in accordance with the Phase 1 habitat assessment methods (JNCC 2010) and Guidelines for Preliminary Ecological Appraisal (IEEM 2012). It provides an overview of key habitats and identifies any features of ecological value, as well as the presence, or potential presence, of any protected or notable species.

### **Bat Surveys**

- 3.4 In conjunction with the phase 1 habitat survey, a ground based appraisal of trees and buildings was carried out to assess their potential for roosting bats. There was a single building within the survey area which was subject to an initial external appraisal. This involved a thorough search of the exterior, using close focussing binoculars as an aid, to search for any evidence of bats, such as droppings. Any potential access points for bats were also identified, such as loose or missing roof tiles or gaps at gable ends or under the eaves which could provide access into an internal space, such as a loft or cavity wall. The building was graded in accordance with the Bat Conservation Trust (BCT) Bat Surveys: Good Practice Guidelines (2012). A similar ground based check was made of any trees on site to search for features such as cracks, holes, splits or loose bark which could provide roosting opportunities for bats.
- 3.5 E3 Ecology carried out a bat activity survey in June 2013, following a transect-based method. This is reported at Appendix 3.

### **Other Mammals**

- 3.6 A number of ditches and waterbodies are present within the survey area and these were surveyed, as far as possible, for any signs of water vole and/or otter. Standard methodology as set out in the Water Vole Conservation Handbook (2011) was followed, and ditches were assessed for their suitability to support water voles. A search was made for any evidence of water voles, such as burrows, latrines or feeding remains. Searches for evidence of the presence of otter was also undertaken at the same time, including signs of potential holts, spraints, footprints, couches, slides and/or haul out places in accordance with Chanin (2003).
- 3.7 Searches for any signs indicating the presence of badger were also undertaken during the phase 1 habitat survey. This was carried out in accordance with recommended guidelines (Harris et al 1989; Macdonald et al 1998) and included searching for any signs of badger activity such as setts, faeces and latrines, footprints, hairs, foraging or diggings signs and well-defined trails.

### **Amphibians**

- 3.8 E3 Ecology carried out an amphibian survey in spring 2013, following methods set out in the Great Crested Newt Mitigation Guidelines (English Nature, 2001). This is reported at Appendix 4.

### **Limitations**

- 3.9 There were limitations to the water vole and badger surveys due to dense stands of scrub restricting access to some areas of the site, particularly along Cow Gut and the western boundary of the survey area adjacent to the main A189 road.

## 4.0 RESULTS

### Desktop Study

4.1 Detailed desktop survey information is presented at Appendix 1. It should be noted that the ERIC records are not comprehensive and an absence of records does not indicate the absence of protected species from the search area.

### Designated Sites (Statutory)

4.2 The following statutory sites listed below in Table 2 were identified within 2km of the site boundary during the desk-top survey. The location of the sites is indicated on Figure 2 (G2336.157a).

**Table 2: Statutory Sites**

Site Name and Designation	Distance from Site	Reasons for Designation	Potential for Impacts
Northumbria Coast Special Protection Area (SPA)/Ramsar Site	1km from northern section 2km from southern section	Populations of international importance during breeding season of little tern. Populations of international importance during wintering period of purple sandpiper and turnstone	No direct habitat connections. No direct impacts on site, but potential for indirect impacts on designated bird species during construction
Northumberland Shore Site of Special Scientific Interest SSSI	Adjacent	Important for its wintering shore birds. In particular international numbers of purple sandpiper and turnstone and national numbers of sanderling, golden plover, ringed plover and redshank. Also arctic and little tern breed on the shore in the summer and the inter-tidal zone is used all year for feeding by nationally important numbers of eider	This designation covers coastal habitats up to the mean high water mark. The submarine cables fall to land in the Northumberland Shore SSSI. Effects on winter birds are considered in TEP Report Ref 2336.050
Cresswell and Newbiggin Shores SSSI	>400m to the north-east	Geological. Important for Westphalian and Quaternary studies	No habitat connections. No potential for impacts.
Castle Island Local Nature Reserve LNR	>1km to north-west	Woodland	No direct habitat connections. No potential for impacts.
Bedlington Country Park LNR	2km to the south-west	Woodland with wild flowers and red squirrels	No habitat connections as lies upstream from works area. No potential for impacts.
Paddock Wood LNR	>1,5 km to the north	Woodland	No habitat connections. No potential for impacts.
Ha'penny Woods LNR/LWS	2km to the south-west	Woodland, wild flowers, birds and mammals	No habitat connections as lies upstream from works area. No potential for impacts

*Designated Sites (Non-Statutory)*

**Table 3: Non-Statutory Sites**

Site Name and Designation	Distance from Site	Reasons for Designation	Potential for Impacts
Wansbeck Estuary Local Wildlife Site LWS	Approx. 300m to the north	Coastal Habitats and birds	Connected to cable route by woodland and arable farmland. However, no impacts anticipated due to temporary nature of works and distance to LWS.
Sleekburn Fen LWS	2km to the west	Wetland Habitats	No habitat connections. No potential for impacts
Blyth and Sleekburn Estuary LWS	Adjacent to southern survey boundary	Mudflats, saltmarsh, estuary, wintering birds	Could be affected by accidental spillages

*Protected and Principal Species Records*

4.3 Data provided from the consultees listed in Table 1 above, and gained from a review of previous survey reports from the area, shows that a number of protected and “principal importance”<sup>1</sup> species have been recorded within the 2km search area. These include:

- Common pipistrelle and noctule bats;
- Otter;
- Red squirrel;
- Badger;
- Hedgehog;
- Great crested newts;
- Common toad;
- Slow worm;
- Common lizard;
- European eel; and
- Wall, grayling, dark green fritillary and dingy skipper butterflies.

4.4 Although there are numerous records of red squirrel within the search area, the vast majority of these are to the west of the main road or south of Blyth River, although there is one record in the north-east of the old coal stocking yard. However, this area will not be affected by the development proposals and there is very limited habitat suitable for red squirrel within the site. This species is therefore not considered further in this assessment.

**Habitat Survey**

4.5 Detailed target notes from the survey are provided at Appendix 2. A habitat map of the site is presented in Figures 3-6 (G2336.114-117).

4.6 The habitats present within the three sectors of the survey area are indicated by a ‘X’ in Table 4 below. Summary descriptions are provided of those habitats associated with each of the three sectors of the development proposals.

<sup>1</sup> Under Section 41 of the Natural Environment and Rural Communities Act, 2006, many species and habitats are regarded as being of principal importance for biodiversity. These were formerly referred to as UKBAP priority species.



**Table 4. Habitats Within Survey Area**

Habitat	Landfall and HVDC Cable Route	Converter Station	HVAC Cable Route
Semi-improved neutral grassland	X		X
Species-poor semi-improved grassland	X		X
Arable Land	X	X	X
Dense and scattered scrub	X		X
Mixed plantation woodland	X	X	
Semi-natural broadleaf woodland	X		
Tall ruderal vegetation	X		
Hedgerows	X	X	X
Non-native shrubs	X		
Amenity grassland	X		
Hard standing	X		
Buildings	X		X
Planted trees	X		X
Standing water (Ponds)	X		X
Dry and wet ditches	X		X
Bare ground	X		X
Dune Grassland	X		
Ephemeral/short perennial			X
Marshy grassland			X
Swamp			X

Landfall and HVDC Cable Route (Phase 1 Figures 3 and 4 (G2336.116 and G2336.115))

- 4.7 The north-eastern area adjacent to the coast is dominated by semi-improved neutral grassland. The section to the south of the car park is tall and rank and dominated by false oat grass *Arrhenatherum elatius* with occasional Yorkshire fog *Holcus lanatus* and white clover *Trifolium repens*. This area is largely dominated by grasses but does support a number of broadleaf herb species including common cat's-ear *Hypochoeris radicata*, creeping cinquefoil *Potentilla reptans* and bird's-foot trefoil *Lotus corniculatus* (TN1). There is a short, mown section adjacent to the road.
- 4.8 The area to the north contains similar species to the south but includes frequent common restharrow *Ononis repens* and yellow oat-grass *Trisetum flavescens* and is taller and more diverse towards the cliff edge. Towards the road, the area is heavily grazed and trampled by horses and few flowers were visible at the time of the survey, although yellow rattle *Rhinanthus minor* and bird's-foot trefoil were abundant in taller patches of vegetation and sea-milkwort *Glaux maritima* was also present. The northern section close to the houses appeared less diverse but had abundant crested dog's-tail *Cynosurus cristatus*, ribwort plantain *Plantago lanceolata* and bird's-foot trefoil (TN3).
- 4.9 A further area of semi-improved neutral grassland is located within a small field on the western side of the road opposite TN3 above, which was dominated by Yorkshire fog with cock's-foot *Dactylis glomerata*, common vetch *Vicia sativa* and hairy tare *Vicia hirsuta*, patches of scattered scrub and tall ruderal vegetation, including a large patch of rosebay willowherb *Chamerion angustifolium*. An orchid spike was also noted in this area but was not yet in flower at the time of the survey.
- 4.10 There were two areas of species-poor semi-improved grassland in the centre of the arable land largely dominated by grasses such as Yorkshire fog and false-oat grass,

but also patches of tufted hair-grass *Deschampsia cespitosa*, curled dock *Rumex crispus* and a horsetail species *Equisetum* sp. Other species indicative of nutrient enrichment included white clover, creeping thistle *Cirsium arvense* and creeping buttercup *Ranunculus repens*.

- 4.11 There is a dense area of ornamental shrub planting in the north-east. This includes sea buckthorn *Hippophae rhamnoides*, Swedish whitebeam *Sorbus intermedia*, field maple *Acer campestre* and a number of evergreen species but is dominated by Japanese rose *Rosa rugosa*, which is listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) as a non-native invasive species. There is also a patch of Japanese rose adjacent to the house at the north-eastern corner of the survey area (TN2).
- 4.12 The majority of the northern area is dominated by arable crops, with margins of tall ruderal vegetation dominated by false oat grass, rosebay willowherb or nettles *Urtica dioica* with hogweed *Heracleum sphondylium* and a horsetail species also present. There is one defunct hawthorn *Crataegus monogyna* hedgerow running north to south, with one small single storey, flat roof, brick building adjacent to the east, which has negligible potential for roosting bats. There are also three low lying, damp areas dominated by marsh foxtail *Alopecurus pratensis*, with some yellow flag iris *Iris pseudacorus* and spike rushes *Eleocharis* sp. also present in the north-east field.
- 4.13 Adjacent to the road junction is another area of non-native planted shrubs which includes a cotoneaster species which may be one of those listed on Schedule 9 (TN2).
- 4.14 There are blocks of mixed scrub and plantation woodland around the boundary of the arable fields in the north of the site. These contain a mix of species including beech *Fagus sylvatica*, rowan *Sorbus aucuparia*, oak species *Quercus* sp., ash *Fraxinus excelsior*, sycamore *Acer pseudoplatanus*, willows *Salix* sp, silver birch *Betula pendula*, cherry *Prunus* sp., field maple and evergreen species.
- 4.15 On the southern side of Wembley Gardens there is another cotoneaster shrub (TN2) planted on the amenity grass verge at the northern end of the industrial development. There is also a nature reserve area created at the north-western corner. This area supports a diversity of habitats and species including a large pond with abundant marginal and emergent vegetation, diverse areas of semi-improved neutral grassland and scrub and planted trees around the boundary (TN4).
- 4.16 The industrial development to the south of TN4 is dominated by buildings and areas of hard standing, with patches of tall ruderal vegetation. There is a large patch of species poor semi-improved grassland in the western area, which supports a mix of species, with tall grassland dominated by cock's-foot and red fescue *Festuca rubra* on a bund and scattered scrub with patches of false oat-grass, willowherbs, ragwort *Senecio jacobaea* and Yorkshire fog, with tufted vetch *Vicia cracca* and bird's-foot trefoil in shorter areas.
- 4.17 There is a large field used for motorcycle scrambling (TN5) which contains a mosaic of habitats, with areas of bare ground, numerous heavily vegetated mounds, a small area of semi-improved neutral grassland in the north-eastern corner, a number of mainly shallow waterbodies, ditches along the eastern, southern and western boundaries with scrub, woodland and a hedgerow. One small piece of Japanese knotweed *Fallopia japonica* was recorded in the north-west corner of this field, which

is listed on Schedule 9 of the WCA. All other species recorded are common and widespread. The waterbodies are described in further detail in a separate Great Crested Newt Survey report (E3 Ecology 2013). A wall *Lassiomata megera* butterfly was noted in this field, which is a S.41 species.

- 4.18 A ditch, known as Cow Gut, forms the southern boundary of the motorcycle scrambling field. This ditch has very steep banks with dense hawthorn and bramble *Rubus fruticosus* agg. scrub along both banks making the ditch very shaded. There was a noticeable chemical smell along sections of the ditch but, due to the dense scrub, it was very difficult to clearly see the bottom, but it looked virtually dry in the south-east corner of the scrambling field. Himalayan balsam *Impatiens glandulifera*, another Schedule 9 species, is also present at the western end of Cow Gut with dense stands of rosebay willowherb.
- 4.19 The southern bank of Cow Gut is covered with a dense stand of tall ruderal vegetation dominated by great willowherb *Epilobium hirsutum* and false oat-grass with scattered scrub. A lot of bee species were noted along the track adjacent to Cow Gut, as well as numerous other invertebrate species including large skipper butterflies, damselflies, a lacewing and numerous micro moths (TN6).
- 4.20 The ditch along the eastern boundary of the scrambling field is approximately 2-3m wide with a concrete culvert at the northern end and is slow flowing. The banks are overgrown with tall ruderal vegetation including cock's-foot, Yorkshire fog, false oat-grass and great willowherb. There are some patches of a spike rush in the water, as well as a small patch of yellow flag iris, floating sweet-grass *Glyceria fluitans* and broadleaved pondweed *Potamogeton natans* at the southern end. The ditch becomes more shaded at the southern end, with some scattered bramble on the western bank. The eastern bank has a dense, hawthorn hedgerow along the entire length. The ditch is apparently regularly dredged out to maintain its barrier effect to local youths. The water at the southern end of the ditch appeared milky looking and it is understood that there is an outfall into this ditch from a nearby chemical factory upstream. Anecdotal evidence suggests that European eels are present in the ditch (S.41 species) (TN7).
- 4.21 The ditch along the western boundary of the scrambling field is similarly overgrown with rosebay willowherb, hawthorn and bramble, restricting access for survey. It is shaded by a block of mixed plantation on the western side as well as some alder *Alnus glutinosa* scrub. Several large frog tadpoles were noted in a small pool of open water at the northern end (TN8).
- 4.22 There is a large block of mixed plantation woodland around the boundaries of the arable fields. This is dense and impenetrable at the western boundary adjacent to the road, so it was not possible to fully access this area. The accessible areas include a mix of alder, silver birch, hawthorn, oak species, ash, field maple and rowan, with tall ruderal vegetation beneath, including at least two species of orchid which occur quite frequently in more open areas (TN9).
- Converter Station Site (Phase 1 Figure 4 (G2336.115))
- 4.23 The central area of the site, where the converter station will be constructed, is dominated by arable crops, although there are two defunct hawthorn hedgerows, with some elder *Sambucus nigra* and a cherry species *Prunus* sp. The eastern hedgerow, which contains one ash tree, will require removal for the proposals. There is one small patch of ephemeral/short perennial vegetation, where the two defunct hedgerows meet, which supports wild pansies *Viola tricolor*, scentless

mayweed *Tripleurospermum inodorum* and Russian comfrey *Symphytum x uplandicum*. Running from this toward the west is a narrow band of tall ruderal vegetation with false oat-grass, nettles, soft brome *Bromus hordeaceus* and hairy brome *Bromus ramosus*. There are blocks of plantation woodland along the southern and eastern boundaries of the arable field, which comprise a similar mix of species to those in other areas of plantation woodland in the site, and a small patch of species poor semi-improved grassland in the south where the access route will be created. Adjacent to this is an area of new planting which is largely dominated by guelder rose *Viburnum opulus*, with a hawthorn hedgerow adjacent to Brock Lane.

HVAC Cable Route (Phase 1 Figure 5 (G2336.114))

- 4.24 The southern sector of the site is dominated by semi-improved neutral grassland, some of which is quite diverse. The area to the south of the roundabout (TN10) is largely dominated by grasses, rather than broadleaf herbs, but does include meadow vetchling *Lathyrus pratensis*, creeping cinquefoil and a number of vetch species *Vicia* sp.. There is planted ash and spruce trees, as well as apple *Malus* sp., but where there is a gap in the planting this is dominated by tall ruderal species such as hogweed, false oat-grass and nettle. A hawthorn hedgerow forms the southern boundary with the field.
- 4.25 There is a large block of rank semi-improved neutral grassland in the south, with abundant Yorkshire fog, meadow foxtail *Alopecurus pratensis* and false oat-grass which is grazed by horses. Within this is an area of old hardstanding which is beginning to break up and become colonised by a number of species which includes frequent rosebay willowherb and yellow rattle, with kidney vetch *Anthyllis vulneraria*, together with a number of orchids, bird's-foot trefoil and common knapweed *Centaurea nigra*. There is scrub along the edges of the hardstanding dominated by Swedish whitebeam (TN11).
- 4.26 Another block of semi-improved neutral grassland covers two fields, with a dry ditch dividing the two. This contains similar species, but appears more diverse adjacent to the ditch and to the east where there are a number of orchids, angelica *Angelica sylvestris*, rough chervil *Chaerophyllum temulum*, clustered dock *Rumex conglomeratus* and large patches of common sedge *Carex nigra* and glaucous sedge *Carex flacca* (TN12).
- 4.27 There is an area of standing water at the southern end of a dry ditch with a large patch of hard rush *Juncus inflexus* with marsh marigold *Caltha palustris*, greater spearwort *Ranunculus lingua* and some duckweed *Lemna* sp. It is surrounded by scrub on all sides, except for the northern side, which includes gorse *Ulex europaeus*, hawthorn, bramble and a rose species *Rosa* sp. The surrounding grassland is similar to the other southern fields but includes crested dog's tail, more abundant creeping thistle and red clover *Trifolium pratense*. Scattered scrub dominated by Swedish whitebeam and hawthorn is present adjacent to the river. Skipper butterflies were relatively abundant in this area (TN13).
- 4.28 There is a marshy area dominated by rushes and sedges with abundant mosses, as well as orchids and bird's-foot trefoil. Yellow rattle is present on both sides of the track and there is a large patch of viper's bugloss *Echium vulgare* adjacent to one of the pylons to the south of the track, with some tufted hair grass, red fescue and biting stonecrop *Sedum acre*. There were numerous bees foraging in this area (TN14). There is another area of marshy grassland adjacent to the river which is dominated by sedges with yellow rattle, bird's-foot trefoil, mouse-ear hawkweed *Pilosella* sp. and Yorkshire fog. The surrounding grassland has patches of tufted

- hair-grass, meadow vetchling, cock's-foot, tall fescue *Festuca arundinacea* and horsetails. There are several small ponds in this area which have a dense covering of bulrush and are either totally or almost dry. Scattered scrub includes Swedish whitebeam, dog rose *Rosa canina* agg. and rowan (TN15). E3 Ecology recorded the invasive New Zealand pigmyweed *Crassula helmsii* in one pond.
- 4.29 There are two old bird hides along the Sleekburn Estuary which are constructed from concrete with a corrugated flat roof and wooden boards along the top. They are both totally open and do not provide any opportunities for bats.
- 4.30 An area of hardstanding has become colonised with ephemeral/short perennial vegetation dominated by kidney vetch and various hawkweeds *Hieracium* sp. and hawk's-beards *Crepis* sp. common cat's-ear, a stonecrop species, black medick *Medicago lupulina*, groundsel *Senecio vulgaris*, willowherbs and occasional orchids (TN16).
- 4.31 There is a small brick built building on the south of Brock Lane, opposite the small residential area, which has a pitched, tiled roof with some slipped tiles. There are several holes on the east-facing and west-facing aspects of the building, as well as a hole into the roof area. The soffit boxes appeared well sealed. There was no access to the interior of this building (TN17).
- 4.32 There is an area of dune grassland in the very south-east of the survey area, which is a S.41 priority habitat (Figure 6 G2336.117). This area is dominated by marram grass *Ammophila arenaria* with Lyme-grass *Elymus arenarius*. There is also abundant red fescue, frequent common cat's-ear and common restharrow, with occasional yellow oat grass, hoary ragwort *Senecio erucifolius* and the odd plant of sand sedge *Carex arenaria*, jointed rush *Juncus articulatus*, rough hawkbit *Leontodon hispidus* and goat's-beard *Tragopogon pratensis* (TN18). The dune grassland to the north of the car park is restricted to a band adjacent to the sand line, and Lyme-grass and common restharrow are less frequent in the northern section. Numerous common blue butterflies were foraging in this area.
- 4.33 Between the dune grassland and the houses is an area of semi-improved grassland with a large track, and tall ruderal vegetation with dense bramble scrub behind the houses. There were numerous birds feeding and singing in this area. On the western side of the small bridge which leads to the car parking area is an area of willow scrub which also contains Japanese rose (TN2).

## Fauna

### Bats

- 4.34 ERIC provided two records of common pipistrelle bats within the consultation area, but neither of these are within the converter station site, nor along any of the potential cable routes. Northumberland Bat Group also provided records of common pipistrelle bats, but these were all to the north of the River Wansbeck. Surveys carried out by White Young Green in 2007 confirmed low numbers of common pipistrelle bats commuting and foraging within the survey area. The majority of activity was along the river at the southern boundary of the site and there were a few registrations along the hedgerow running north to south just to the west of the sub-station. There were no bats recorded in the location of the proposed converter station, nor along Cow Gut, but there were a few records along the plantation woodland adjacent to the western boundary. Common pipistrelle and

noctule bats were also recorded during surveys by Northumberland Wildlife Trust in 2006 to the south of the site and a dead noctule bat was found in the southern area by the existing sub-station in March 2007 by Entec, although it was thought that this was unlikely to be roosting in the area.

- 4.35 There is only one building within the survey area which has potential for roosting bats, but this is some distance away from any of the working areas and will not be affected by any of the proposals for the site. There are no trees within the survey boundary which have any potential to support roosting bats but the grassland areas, particularly in the south, and the hedgerows, scrub and trees provide suitable foraging and/or commuting habitat.
- 4.36 E3 Ecology carried out a bat activity survey, reported at Appendix 3, during which the above bat species were encountered, but its conclusions were that the species encountered are relatively widespread and the number of contacts were average.

#### Otter

- 4.37 ERIC provided a record of otter on the River Wansbeck to the north of the survey area, and surveys by White Young Green between July 2007 and June 2008 recorded evidence of this species around the ponds within the southern area of the site adjacent to the tributary of the River Blyth. Signs were also recorded further to the west on the northern banks of the River.
- 4.38 No evidence of otter was recorded during the phase 1 habitat survey, although this species is considered likely to range along the river systems and tributaries to the north and south of the survey area. There are no habitats within the northern cable route nor the location of the converter station suitable for otter, although the rank grassland and ponds in the southern area of the site could provide daytime refuge.

#### Amphibians

- 4.39 There are historic records of great crested newts in a single pond from surveys undertaken by Northumberland Wildlife Trust in 2006, with one male and one female recorded. However, this pond lies more than 500m to the east of the proposed HVDC cable route, where it passes through the industrial development, and no great crested newts were recorded during subsequent surveys of this area by White Young Green in 2007. The only records of great crested newts that ERIC provided are to the west of the main A189 road so there are no suitable habitat connections between these areas and the converter site or cable routes.
- 4.40 The waterbodies within the site could potentially be suitable for breeding amphibians, although the majority of these appear highly ephemeral, and those present in the motorcycle scrambling field are subject to high levels of disturbance as they are regularly dredged. The pond within the nature reserve (TN4) within the survey area appears to be of good quality, as are some of the waterbodies in the southern section of the site. The rough grassland areas, particularly in the south of the site, would also provide good quality foraging and refuge habitat.
- 4.41 E3 Ecology carried out a GCN survey in spring 2013 (see Appendix 4). No GCN were recorded, although small numbers of common toad, common frog and smooth newt were recorded.
- 4.42 Common toad is a S.41 species of principal importance for the conservation of biodiversity, so impacts on this species must be taken into consideration for planning purposes.

#### Water vole

- 4.43 No records of water vole were provided by ERIC within the 2km consultation area and no definitive signs of water vole have been recorded during previous surveys in the area. However, Cow Gut was considered potentially suitable for this species during historic surveys, and some feeding remains were recorded around one of the ponds in the southern area of the site, although these were not confirmed as water vole.
- 4.44 The ditch along the eastern boundary of the motorcycle scrambling field (TN7) was searched for signs of water vole. It was only possible to search along the western bank, due to dense scrub on the eastern side, and it was not possible to survey from within the watercourse due to deep water. However, if burrows or latrines were present, they would have been visible during the search. Although this ditch appeared potentially suitable for water vole, the water was very milky looking, suggesting pollution, and there is an outfall from a chemical factory upstream. In addition, the northern end of the ditch is composed of concrete blocks and it is not possible for water voles to access the ditch from the north.
- 4.45 It was not possible to effectively search Cow Gut for signs of water vole due to the dense scrub along both banks, so the possibility of water voles being present on this ditch cannot be entirely ruled out. However, the ditch does not represent good quality water vole habitat due to the shallow water and dense scrub.
- 4.46 No evidence of water voles was found on any of the ponds or ditches in the southern area of the site and these are considered largely unsuitable as they were all virtually dry and very overgrown. The pond within the nature reserve (TN4) appears the most suitable for this species, but is not connected to any other watercourses within the area.

#### Badger

- 4.47 There are habitats within the survey boundary that are suitable for badgers, but no evidence of badger was found during the phase 1 habitat survey in July 2013. There were however limitations to this survey due to dense scrub preventing access to a number of areas.

#### Reptiles

- 4.48 ERIC provided one record of a slow-worm along the River Blyth to the west, but this is more than 2km from any proposed works and there are no direct habitat connections between this area and the development site. White Young Green recorded a common lizard in the grassland area to the south-east of the existing sub-station in 2007, as well as two records along the coast in the dune grassland.
- 4.49 Although the site of the proposed converter station is not suitable for reptiles, there are some areas along the proposed cable routes and within the landfall area which do support habitats suitable for common species of reptile, such as grass snake and common lizard, although there are no records of grass snake in this area. The motorbike scrambling field contains a mosaic of habitats, with bare areas of ground for basking and tall ruderal vegetation and scrub along the boundaries, with wet and dry ditches. However, the high levels of regular disturbance in this area are likely to make it unsuitable for reptiles. The southern area of the site with its tall grassland, areas of hardstanding, ponds and ditches appears to be good quality habitat for reptiles.

Birds

- 4.50 Northumberland Coast SPA/Ramsar site lies approximately 1km at its closest point from the potential landfall sites, and the Northumbria Coast SSSI covers the beach between mean high water and mean low water at the coast at Cambois. These sites are designated for a number of wintering and breeding bird populations and the development site contains suitable habitat for breeding and wintering birds. Wintering and breeding bird surveys have been undertaken during 2012 and 2013 and the results of these, together with the desktop records, are provided in a separate report (Ref: TEP 2336.050).

S.41 species

- 4.51 ERIC provided a number of records of wall and grayling butterflies within the search area, as well as a dingy skipper, all S.41 species and considered of high conservation concern, and the habitats within the site appear suitable to support these three species. Wall butterflies were noted during the phase 1 habitat survey in June 2013 and numerous invertebrates were noted, particularly along the southern side of Cow Gut. The converter station site itself is not considered valuable for invertebrates, but the habitats along the cable routes could support a diverse invertebrate community.
- 4.52 ERIC also provided one record of a European eel, although this was to the south-west of the survey area, and the ditch along the eastern boundary of the motorcycle scrambling field is reported to contain European eel (pers.comm). ERIC also provided two records of a hedgehog, although both of these were to the north of the River Wansbeck.



## 5.0 CONCLUSIONS AND RECOMMENDATIONS

### Site designations

- 5.1 TEP's separate ornithological assessment has considered the potential effects on Northumbria Coast SPA/Ramsar site and Northumberland Coast SSSI. It predicts that disturbance impacts on designated bird species during construction at the landfall area are minimal and can be managed to avoid adverse impacts.
- 5.2 Sleekburn Estuary, which forms part of the Blyth and Sleekburn Estuary LWS, lies adjacent to the southern boundary of the site so there is the potential for impacts on this watercourse via spillage of chemicals and/or run off during construction works. This will be avoided with the implementation of standard Environment Agency protocols for site waste management and pollution prevention. No other designated sites are likely to be affected by any of the development proposals.

### Habitats

- 5.3 There are a number of habitats of principal importance for the conservation of biodiversity (S41 NERC Act 2006) recorded within the site. These include sand dunes and hedgerows which are priority habitats at the UK level, while ponds, sand dunes, trees and hedgerows are priority habitats in the Northumberland BAP. Although there are a small number of diverse areas of semi-improved grasslands, none of these appear to qualify as a priority habitat according to the criteria at the UK or Northumberland levels.
- 5.4 The dune habitat in the south of the survey area is the most valuable, but will not be affected by the landfall at Cambois slipway.
- 5.5 One hedgerow will be lost for the development of the converter station, but this is species-poor and defunct, although also contains one ash tree. Loss of this hedgerow should be minimised as far as possible, but any loss must be compensated for by replacement planting elsewhere on site. It may be possible to use the sections of removed hedgerow to plant up the gaps in retained hedgerows within the arable area. There will be some loss of hedgerows for the construction of the cable routes, but these losses will likely be reinstated or compensated for on completion of the works, although no tree planting will be possible within a permanent 7m easement over the cables.
- 5.6 One ephemeral pond may be lost to the development, depending on the cable route selected. This is indicated as Pond 7 in the great crested newt survey report at Appendix 4. However, this pond was dry throughout all amphibian surveys in 2013 and no amphibians were recorded in this area. Measures should be taken to avoid any impacts on retained ponds or watercourses. This could include diversion of surface water run-off and the use of sustainable urban drainage schemes (SUDS), including permeable surfacing. During construction works, machinery and materials should be stored away from these areas to prevent accidental spillages. As a precautionary measure drip trays should be placed underneath construction machinery overnight to capture any oil spillages that may occur.
- 5.7 There will be a small loss of plantation woodland for the construction of the converter station, but this will be minimised as much as possible and a corridor of existing plantation will be retained to ensure no fragmentation of habitats. The plantation woodland to be lost is semi-mature but does provide nesting, foraging and refuge habitat for a variety of common and widespread wildlife.

### Invasive Species

- 5.8 A number of non-native invasive species have been recorded along the cable routes, mostly in the north. The most abundant is Japanese rose and a cotoneaster species (TN2), as well as Himalayan balsam along Cow Gut, but there was also a small amount of Japanese knotweed recorded in the north-west corner of the motorcycle scrambling field (TN5) and one pond in the south is reported as having New Zealand pigmyweed. Neither the Japanese knotweed nor the pond with the New Zealand pigmyweed, nor any habitats within 7m, will be disturbed by the proposals.
- 5.9 A Construction-stage ecological management plan is required to ensure that, any of these species likely to be disturbed by any of the works, either temporary or permanent, will be prevented from spreading through the implementation of precautionary methods of working.

### Bats

- 5.10 As some hedgerows will be removed, or partially removed, for the installation of the cable routes and construction of the converter station, there is the potential for impacts on foraging and commuting bats from the development. The main area for potential impacts is associated with the HVAC cable route which will connect the new converter station to the existing substation. It is also likely that sections of linear scrub will need to be removed along Cow Gut for the northern cable route. These losses will be temporary and the habitats will be largely reinstated following completion of the development, therefore significant impacts on bats is considered highly unlikely if the length of hedgerow to be affected by any works is minimised as far as possible.
- 5.11 It is important to minimise light spillage onto hedgerows and other linear features, as well as along the river along the southern boundary, where the majority of bat activity was recorded.

### Otter

- 5.12 The only potential area for otter to be affected by the development proposals is in relation to the southern HVAC cable route. However, this is considered unlikely as all the ditches in this area were dry, as were the majority of ponds during the survey. There are no potential holt sites likely to be affected by the development proposals, but there could be indirect impacts on otter if any pollution were allowed to enter either of the rivers to the north and south of the works area, or possible temporary disturbance of otter during installation of the southern cable route if the grassland is used as a daytime refuge or couch, although there was no evidence of this during the survey. A pre-construction check for otter in this southern area of the site is recommended as a precautionary measure to avoid any potential for impacts on this species.

### Amphibians

- 5.13 There are no ponds supporting great crested newts, so no Natural England licence is required. Access routes for the construction-phase which are within 25m of any ponds, including ephemeral waterbodies, should consider appropriate mitigation measures to minimise risk to common toads.

#### Water vole

- 5.14 As there were limitations to the water vole survey, particularly along Cow Gut which will require crossing for the HVDC cable route, this will require further survey for the presence of water vole, particularly for any burrows at potential crossing points. Due to the dense scrub along this ditch, it is recommended that this survey should be carried out early in the year before the dense scrub develops. A search for burrows could potentially be carried out in conjunction with the badger survey, although this is outside the main activity period for water voles. However, if no potential burrows are present there should be no requirement for further survey. If potential burrows are located, it may be necessary to resurvey the ditch at a time when water voles are more active to search for evidence of latrines or feeding signs. These surveys should ideally be undertaken between March and September.

#### Badger

- 5.15 There were limitations to the badger survey due to dense scrub preventing full access, particularly along the western boundary of the site. However, the selected cable route will not affect this area. Although no evidence of badger was recorded elsewhere on site, a pre-construction check for badgers should be carried out to ensure that no badger setts will be disturbed during any of the works. Ideally, this survey should be carried out in February/March when badgers become more active in marking their territories, but vegetation has not yet developed to such an extent as to pose significant constraints to access.

#### Reptiles

- 5.16 A small number of common lizard has been recorded in the area of sand dunes along the coast and in the rank grassland to the south-east of the existing electricity sub-station. It is possible therefore that this species could be affected by vegetation clearance works associated with the cable installation, particularly the HVAC in the southern area of the site. As these works are all temporary only and will not result in any permanent habitat loss, it is considered that reasonable avoidance measures (RAMs) could be implemented during these works to ensure no harm or injury to common reptile species during the working period. A full reptile survey is not considered necessary as there is unlikely to be a significant population of reptiles in the area and, even if no reptiles were recorded during a survey, RAMs would still be recommended for works as there would still be the potential for low numbers to be present in the area.
- 5.17 It is recommended that a precautionary working method statement should be prepared to avoid impacts on reptile species during site clearance and construction works. This is likely to include restricting timing of works and carrying out a staged strip of vegetation, in a single direction, to avoid harm or injury to reptiles during works.

#### Birds

- 5.18 There will be minimal permanent loss of potential nesting habitat for birds due to the construction of the converter station. This is limited to the loss of one defunct, species poor hedgerow with an ash tree, and the easement areas above the cable routes within which no scrub or trees can be planted. This will require some compensation in the form of replacement nesting habitat, by planting of suitable trees, scrub and hedgerows within the new site layout.
- 5.19 It should be noted that all nesting birds, their nests and eggs are protected under the Wildlife and Countryside Act 1981 (as amended). It is an offence to intentionally or recklessly, damage or destroy nests, so it is recommended that all vegetation

clearance should be undertaken outside the bird nesting season (March to August inclusive). If this is not possible, a check by an experienced ornithologist will be required a maximum of 24 hours in advance of any works to search for any active nests. If active nests are recorded, an exclusion zone will need to be implemented, the size of which is dependent upon the species nesting. The ornithologist will monitor the nest to confirm when any young have fledged and works can proceed in that area

- 5.20 TEP's separate ornithological survey advises that shoreline works should avoid the months of January and February (Report TEP/2336.050).

S.41 species of invertebrate and fish

- 5.21 Common toad has been recorded within the survey area (as noted above in 5.13), and European eel has been reported to be present in the ditch along the eastern boundary of the motorcycle scrambling field. There should be no impacts on these species from vegetation clearance and construction works if the recommendations to avoid impacts on reptiles and watercourses, as detailed above, are implemented.
- 5.22 A number of S.41 butterfly species have been recorded within the site or the surrounding areas. Wall butterfly was recorded in the motorcycle scrambling field and grayling and dingy skipper butterflies have both been recorded in the wider area. The only suitable habitats for these species are within the proposed landfill areas and sections of the cable routes. As works in these areas are temporary only and will affect only a small proportion of the suitable habitat which will be reinstated following completion of cable installation, no significant impacts on invertebrates are considered likely.

## 6.0 REFERENCES & FURTHER READING

Bat Conservation Trust (2012): *Bat Surveys. Good Practice Survey Guidelines (2<sup>nd</sup> edition)*.

Chanin, P (2003). Monitoring the otter *Lutra lutra*. Conserving Natura 2000 Rivers Monitoring Series No.10, English Nature, Peterborough

Clive Stace (2010). *New Flora of the British Isles*. 3<sup>rd</sup> edition. Cambridge University Press, Cambridge

English Nature (2001). *Great Crested Newt Mitigation Guidelines*. Peterborough  
Institute of Ecology and Environmental Management (2012). *Guidelines for preliminary ecological appraisal*

Harris S, Cresswell P and Jefferies D (1989). *Surveying Badgers*. Mammal Society.

Institute of Ecology and Environmental Management (IEEM) (2012). *Guidelines for Baseline Ecological Appraisal*.

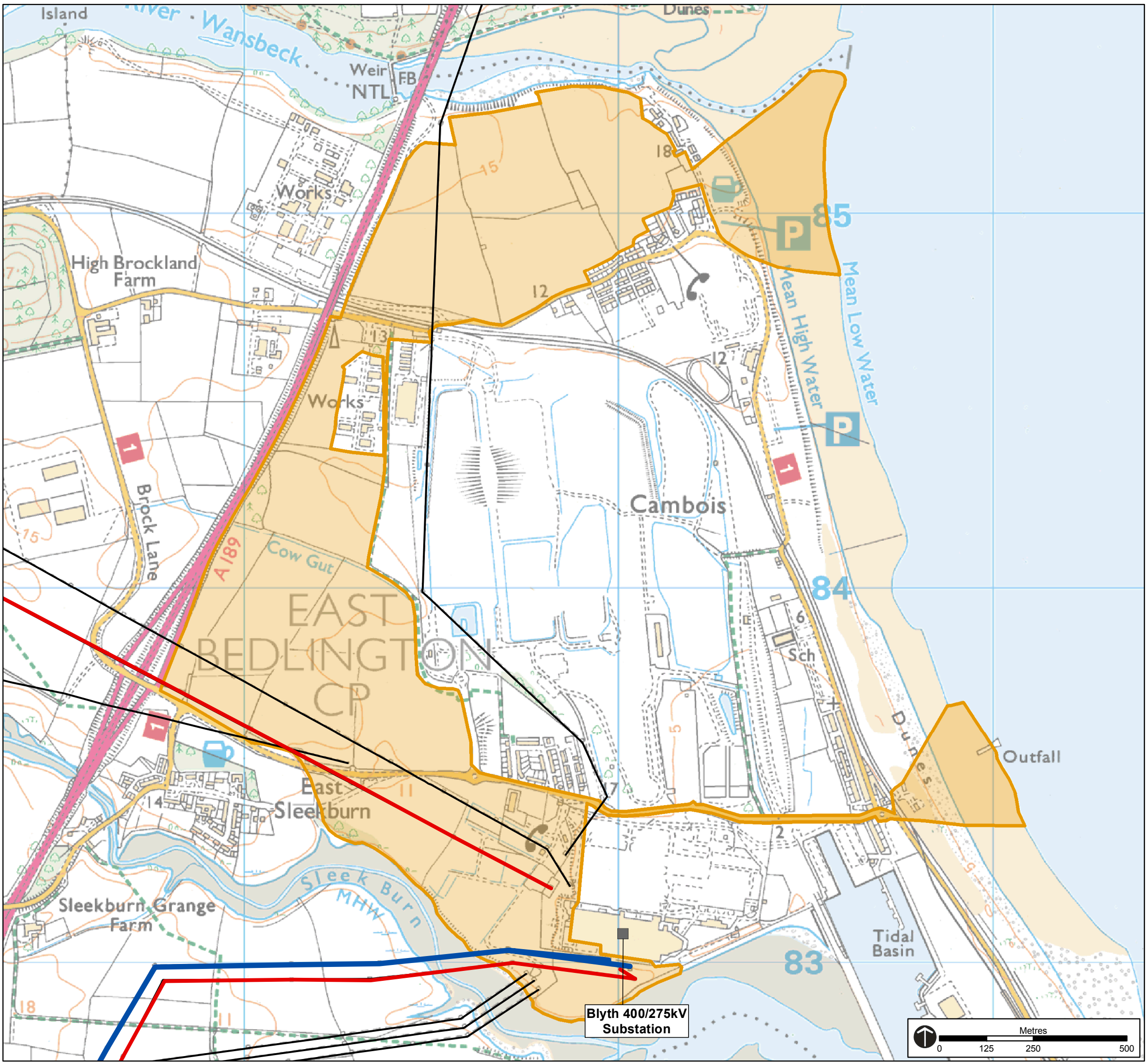
Joint Nature Conservation Committee (2010) *Phase 1 Habitat Survey*. JNCC. Peterborough

Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). *Herpetological Journal* 10(4), 143-155.

Strachan R, Moorhouse T, and Merryl Gelling (2011). *Water Vole Conservation Handbook*, 3rd Edition. Wildlife Conservation Research Unit (WildCRU), Oxford University

**DRAWINGS**

**Figure 1 - Area of Survey  
G2336.082b**



**Key**

**Existing Infrastructure**

- Existing National Grid Substation
- Existing 400kV Overhead Line
- Existing 275kV Overhead Line
- Existing 132kV or less Overhead Line

**Proposed Survey Area**

- Proposed Survey Area

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**TEP**

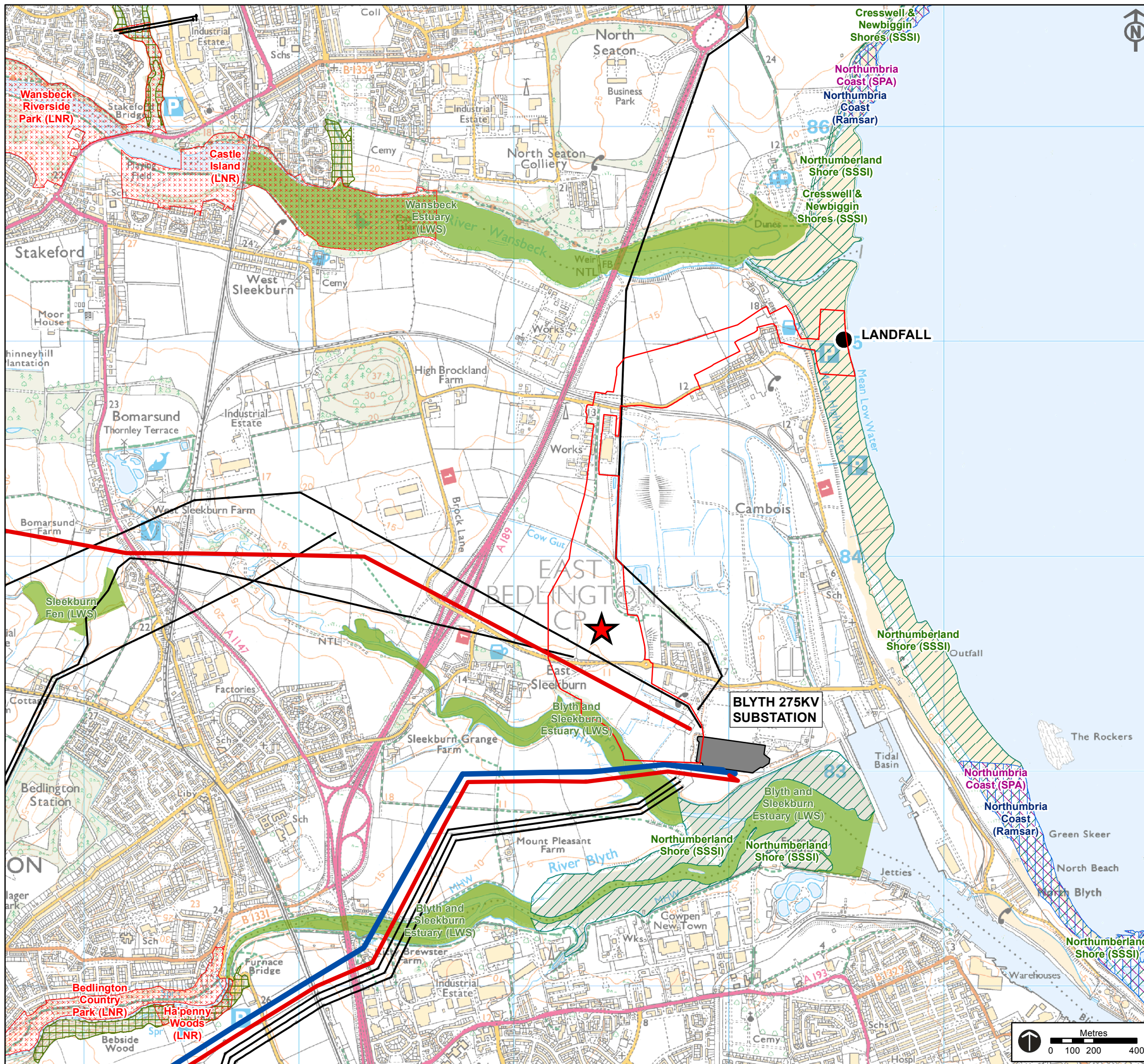
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Project:	<b>NSN</b>	
Title:	<b>Area of Survey 2013</b>	
Drawing No:	<b>G2336.082b</b>	
Date:	14-11-2013	TEP Ref No: G2336.082b
Drawn:	Checked:	Approved:
DH	JB	JB

**DRAWINGS**

**Figure 2 – Designated Sites  
G2336.157a**





**Key**

- Proposed Converter Station Site
- Proposed Landfall
- Red Line Boundary

**Existing Infrastructure**

- Existing 400kV Overhead Line
- Existing 275kV Overhead Line
- Existing 132kV or less Overhead Line
- Existing National Grid Substation

**Environmental Constraints**

- Ramsar
- Special Protection Area
- Site of Special Scientific Interest (SSSI)
- Local Nature reserve (LNR)
- Ancient Woodland
- Northumberland Local Wildlife Sites

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A	10/02/2014	DRAFT ISSUE FOR COMMENT	MK	CB	JB

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Drawing No:	<b>FIGURE 2</b>	
Date:	10-02-2014	TEP Ref No: G2336.173
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MK	CB	LS

**DRAWINGS**

**Figures 3 to 6: Phase 1 Habitat Plans  
G2336.114-117**



### Key

- ⊙ Target notes
- × Scattered scrub
- Scattered broad-leaved trees
- × Scattered introduced shrub
- Species-poor defunct hedge
- ++++ Fence
- Wall
- ▨ Plantation mixed woodland
- ▩ Dense/continuous scrub
- ▧ Scattered scrub
- SI Semi-improved neutral grassland
- SI Poor semi-improved grassland
- Tall ruderal
- Standing water
- A Arable
- A Amenity grassland
- Introduced shrub
- Buildings
- Alg Other habitat (*Alopecurus geniculatus*)
- Hardstanding

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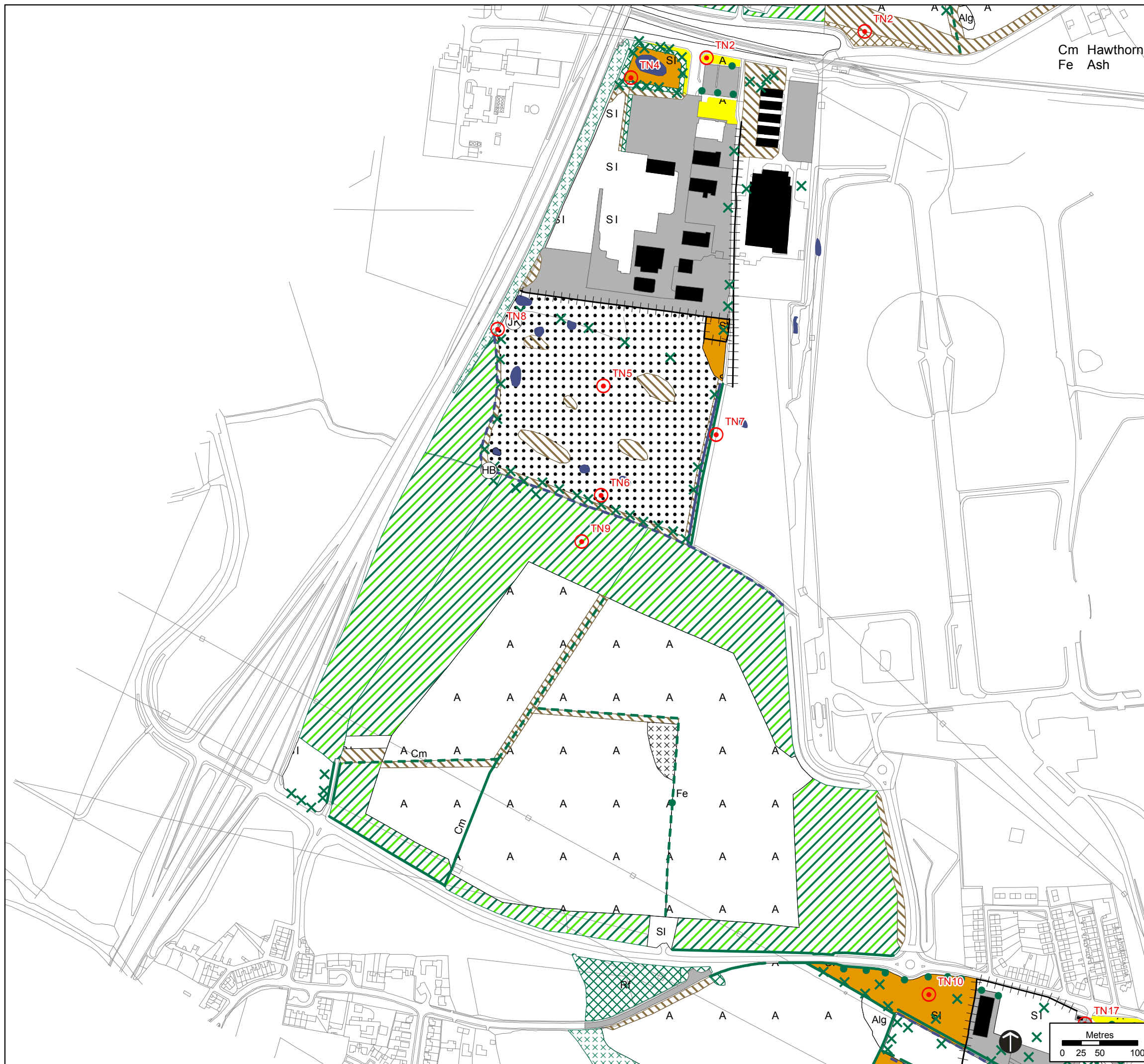
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Cm Hawthorn  
Fe Ash

### Key

- ⊙ Target notes
- × Scattered scrub
- Scattered broad-leaved trees
- × Scattered introduced shrub
- Standing water
- Species-poor intact hedge
- - - Species-poor defunct hedge
- Fence
- Dry ditch
- Semi-natural broad-leaved woodland
- Plantation mixed woodland
- Dense/continuous scrub
- Scattered scrub
- SI Semi-improved neutral grassland
- SI Poor semi-improved grassland
- Tall ruderal
- Standing water
- A Arable
- A Amenity grassland
- Ephemeral/short perennial
- Introduced shrub
- Buildings
- Bare ground
- Alg Other habitat (*Alopecurus geniculatus*)
- Hardstanding
- HB Himalayan balsam
- JK Japanese knotweed

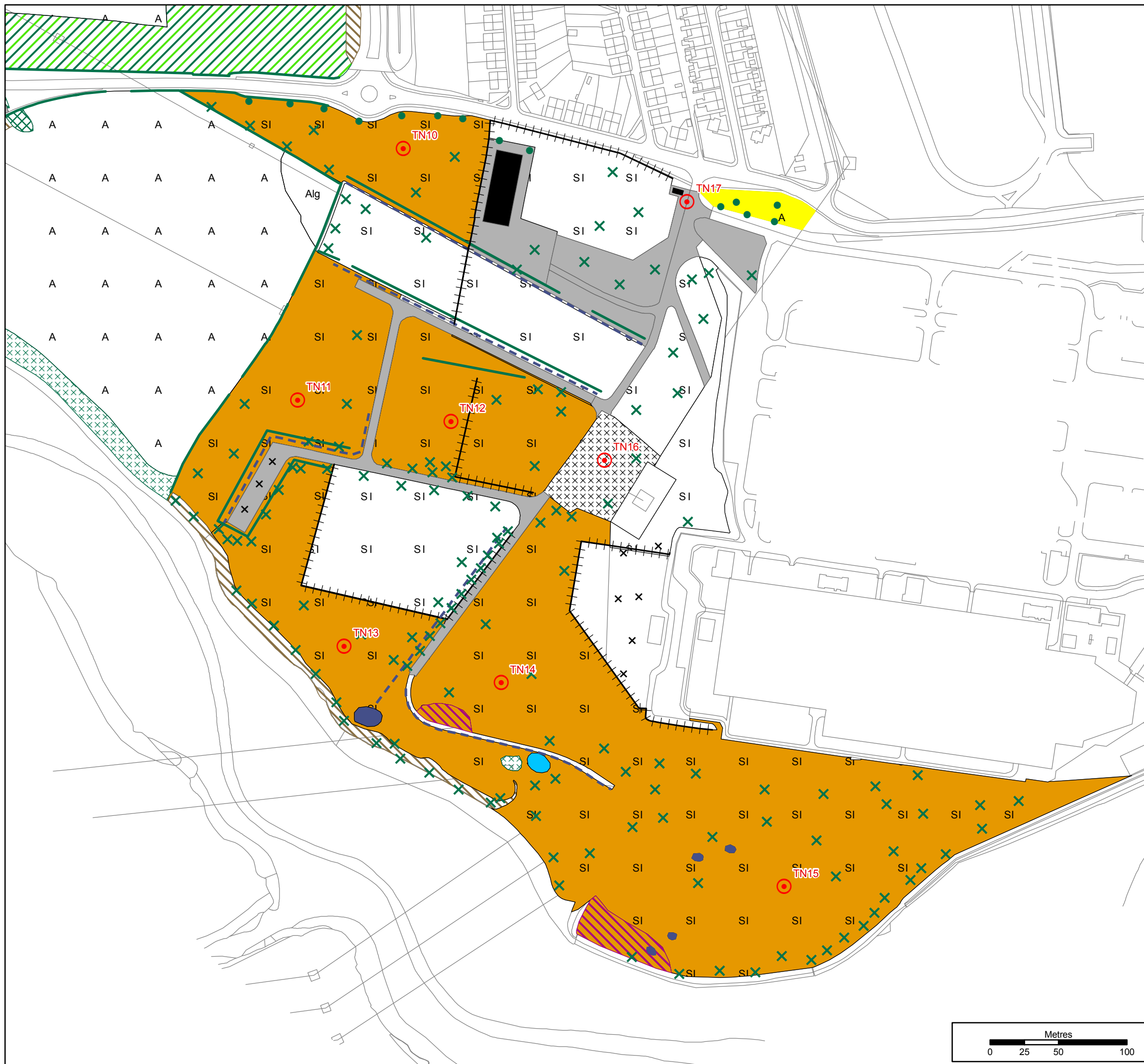
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### Key

- Target notes
- Scattered scrub
- Scattered broad-leaved trees
- Ephemeral/short perennial
- Species-poor intact hedge
- Fence
- Dry ditch
- Plantation mixed woodland
- Dense/continuous scrub
- Scattered scrub
- Unimproved neutral grassland
- Semi-improved neutral grassland
- Marsh/marshy grassland
- Poor semi-improved grassland
- Tall ruderal
- Swamp
- Standing water
- Arable
- Amenity grassland
- Ephemeral/short perennial
- Buildings
- Bare ground
- Hardstanding

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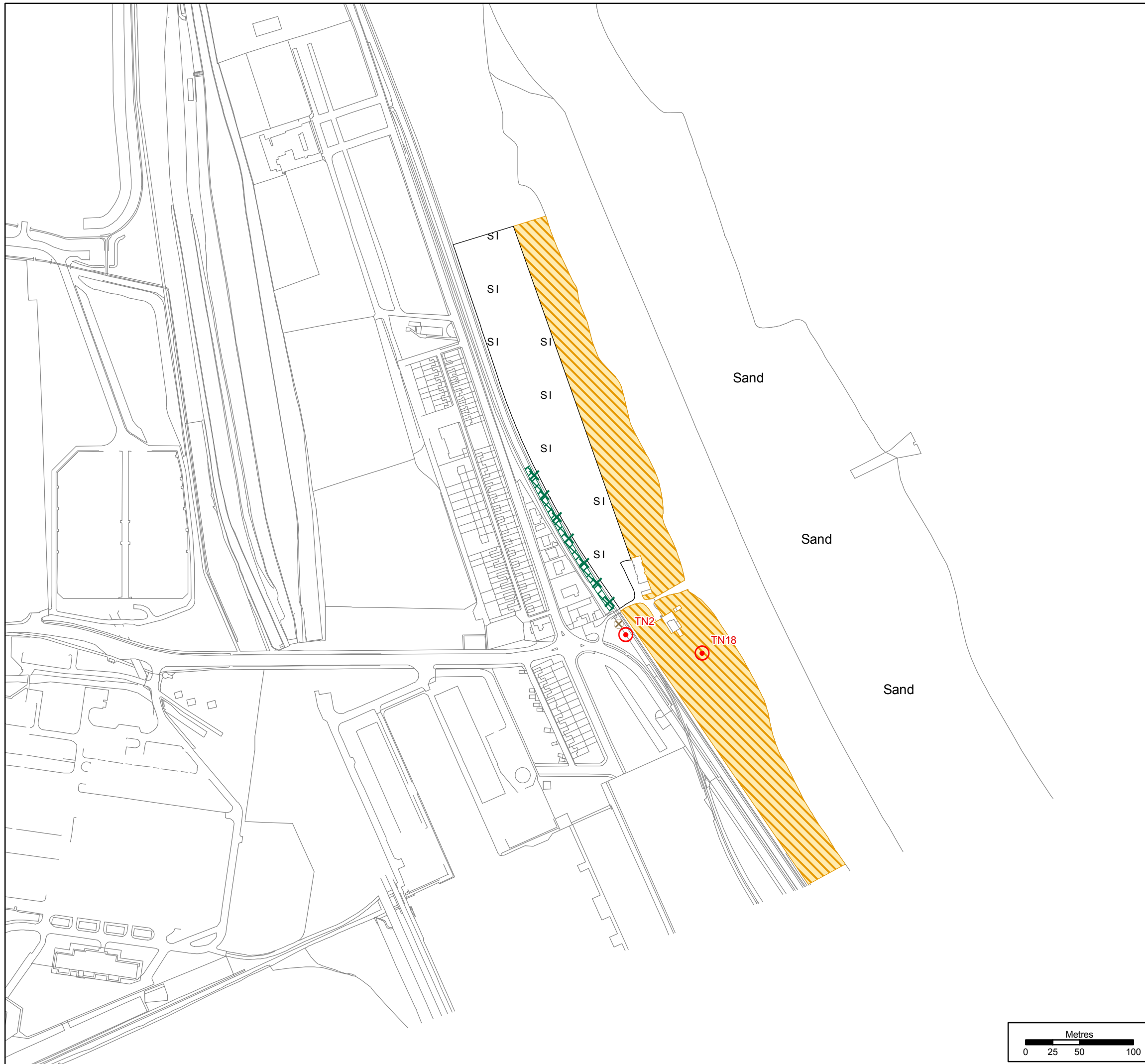
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



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Drawing No:	<b>G2336.114</b>	
Date:	15-08-13	TEP Ref No: G2336.114
Drawn:	Checked:	Approved:
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### Key

-  Target notes
-  Scattered scrub
-  Scattered introduced shrub
-  Dense/continuous scrub
-  Poor semi-improved grassland
-  Dune grassland

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Drawing No:	<b>G2336.117</b>	
Date:	15-08-13	TEP Ref No: G2336.117
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**APPENDIX 1:**  
**Desktop Study Information**

## **Desk Based Ecology Assessment**

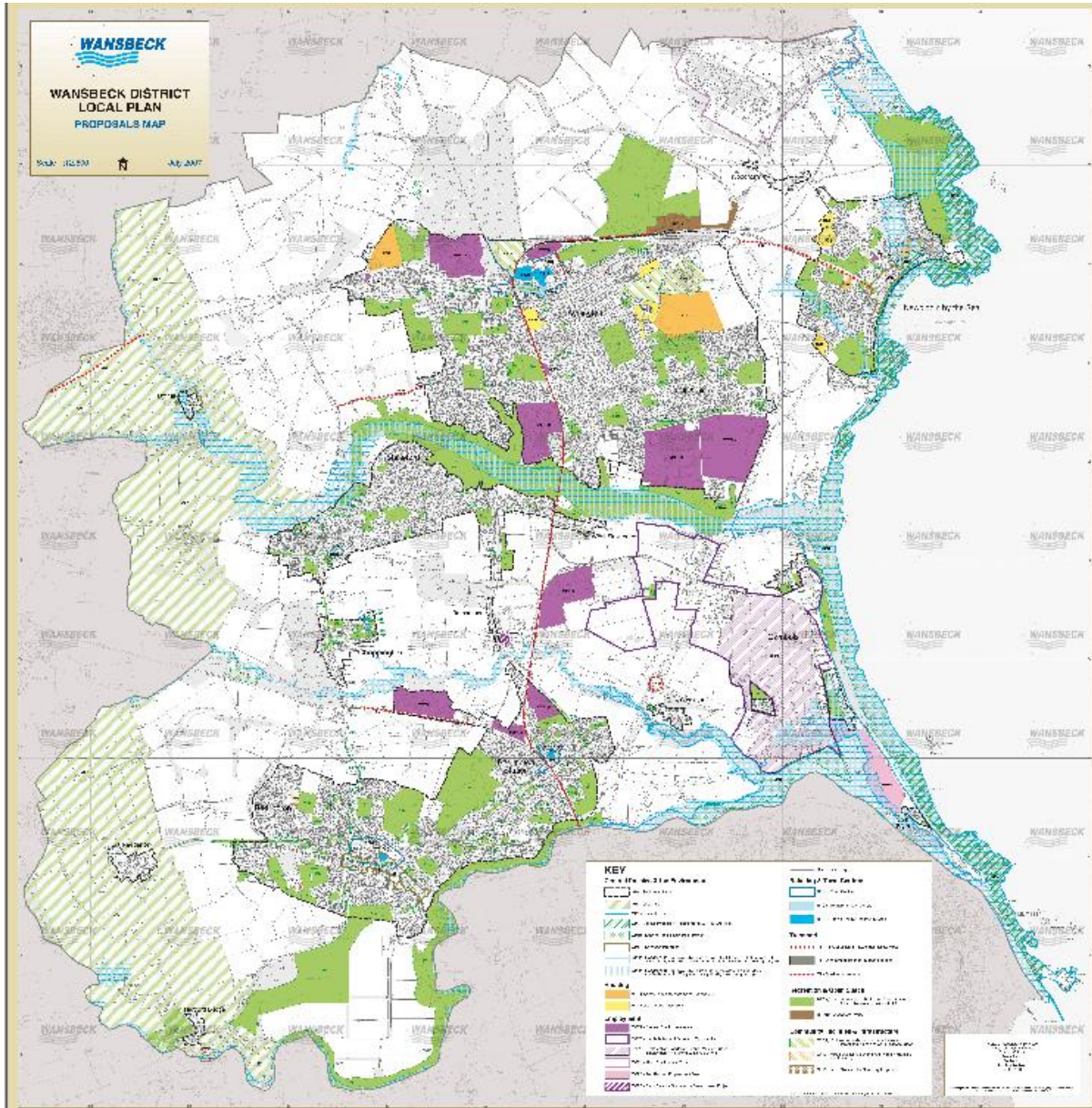
### **NSN Northumberland Approximate Central Grid Reference: NZ 300 845**

#### **Contents**

- **Extract from local plan**
- **Extracts of relevant planning policies**
- **Local site designations**
- **Local species records**
- **National site designations**
- **Habitat inventory records**
- **Bat Group species records**



## Extract of Wansbeck District Council *Local Plan* (adopted July 2007) and supporting key



## **Extracts of relevant planning policies and supplementary planning guidance**

### **Trees and hedgerows**

#### **Policy GP6**

The authority will seek to protect trees, woodlands and hedgerows in the District and will encourage new planting, particularly of native species.

When planning permission is granted for development, conditions will be applied or planning agreements entered into to secure the protection of existing trees or hedgerows of value on the site and to secure and maintain new planting.

Development which would result in the loss of healthy trees which make an important contribution to the quality of the environment will not be permitted unless there are overriding social or economic benefits to the community and compensatory off-site provision of landscape infrastructure is made. Healthy trees lost as a consequence of development shall be replaced with trees of an equivalent standard.

### **The Coastal Zone**

#### **Policy GP8**

The Coastal Zone, as defined on the Proposals Map, will be protected and, where possible, improved. Development in or affecting the Coastal Zone will only be permitted if:

- a) a coastal location is essential and no suitable alternative site exists; and
- b) development would not cause harm to coastal systems and habitats.

### **Sites of international importance for nature conservation**

#### **Policy GP9**

The policy applied to these sites is that imposed by statute. The sites are shown on the Proposals Map. In Wansbeck, parts of the coast line are designated as part of the Northumbria Coast Special Protection Area (SPA) and Ramsar site. Proposals for development likely to affect any of these internationally important sites, either directly or indirectly, individually or in combination, must be made in accordance with the procedures set out in the Habitats Regulations for the protection and management of European sites (see Part I of Circular, ODPM 06/2005 and Defra 01/2006).

### **Sites of national importance for nature conservation**

#### **Policy GP10**

Development proposals in or likely to affect sites designated as being of national importance to nature conservation will be subject to special scrutiny. Development which is likely to have an adverse affect will not be permitted unless the authority is satisfied that:

- a) the reasons for the development clearly outweigh the nature conservation value of the site including its importance in relation to the national network of sites; and
- b) there are no reasonable alternative means of meeting the development need.

Where development affecting a site is permitted, the use of conditions and/or planning agreements will be used to ensure the protection and enhancement of the site's nature conservation interest or to provide compensatory measures for any harm.

## **Sites of local or regional nature conservation significance**

### **Policy GP11**

Development likely to have an adverse affect on a site designated of local or regional importance to nature conservation will not be permitted unless the authority is satisfied that the benefits of the development clearly outweigh the nature conservation value of the site including its importance in relation to the local or regional network of sites.

If development is permitted which would cause damage to the nature conservation interest of a site, such damage should be kept to a minimum. Planning conditions and/or agreements will be used to ensure compensatory measures are undertaken.

## **Protection of species**

### **Policy GP12**

In accordance with Planning Policy Statement 6 (Biodiversity and Geological Conservation) a specific policy in respect of legally protected species is not included. Determination of development proposals where there is a reasonable likelihood of an adverse impact on these species must be in line with the relevant legislation. The determination can only be made on the basis of adequate information on the presence of relevant species, provided by the applicant, in accordance with the procedures explained in part 1V of Circular, ODPM 06/2005, Defra 01/2005.

Where development affecting a site providing habitat for a protected species is permitted, planning conditions and/or agreements will be used to ensure the protection of the species. Where permission is granted for works likely to disturb or damage a protected species or their habitat, a licence may be required from Defra. Conditions in such a case will secure protection, mitigation and compensation, as appropriate, to meet the licensing requirements.

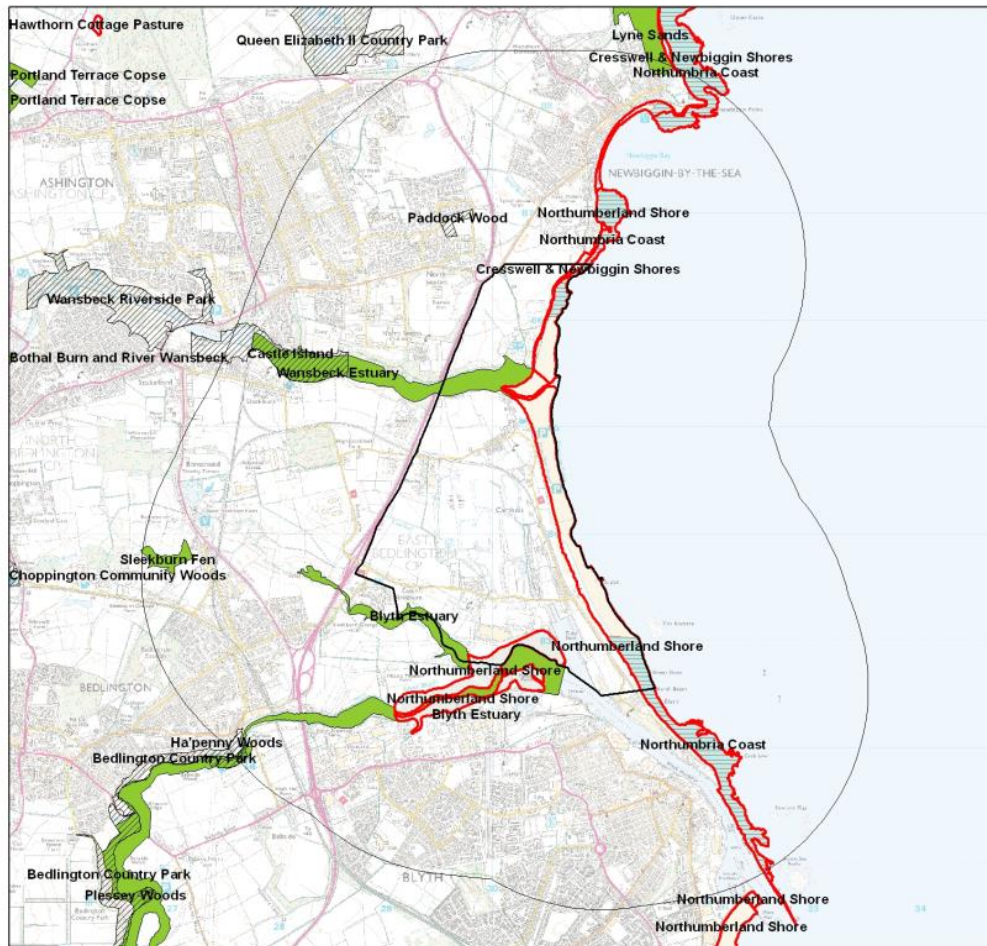
## **Biodiversity and wildlife networks**

### **Policy GP13**

The value to biodiversity of all sites proposed for development will be considered when planning applications are determined whether or not they are designated sites. Particular importance will be attached to the protection of priority habitats and species in Wansbeck. Where proposals affect a habitat which contributes, or could potentially contribute, to a network of natural habitats the developer will be required to protect and enhance the network.

3.47 Conserving biodiversity i.e. the variety of plant and animal life and the habitats that support them is central to sustainable development. The conservation of biodiversity requires not only the protection of designated wildlife sites and statutorily protected species but also the protection and enhancement of other important natural habitats and species. The Biodiversity Audit of the North East (October 2001) indicates that examples of some of the national priority habitats identified in the UK Biodiversity Action Plan are found in Wansbeck including lowland meadows, coastal sandmarsh, coastal sand dunes and mudflats. The Northumberland Biodiversity Action Plan (April 2000) provides a list of additional key habitats which may not be identified as national priorities but which are of local importance to biodiversity.

## Map provided by Environmental Records Information Centre of site designations within 2km



ECOLOGICAL DATA SEARCH - STATUTORY & NON-STATUTORY SITES

NSN STUDY AREA

TEP

PLOT PRODUCED: 28 January 2013

- 2km Search Area
- NSN\_Study\_Area
- SSSI
- Local Nature Reserve
- Northumberland LWS
- Ramsar
- SPA

Produced by



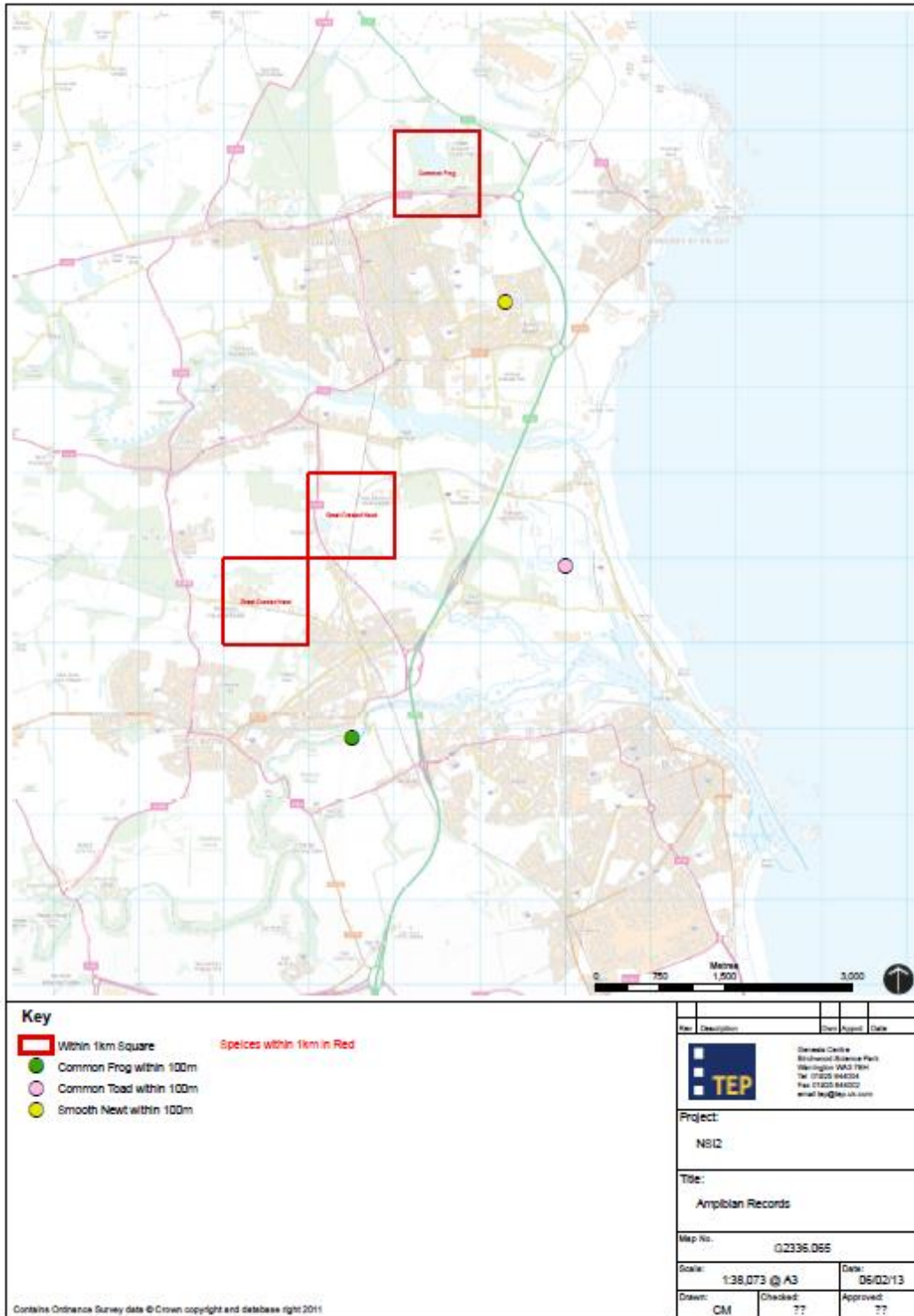
**Environmental Records Information Centre**  
 North East

Great North Museum: Hancock  
 Barras Bridge  
 Newcastle upon Tyne  
 Tyne & Wear  
 NE2 4PT

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## Maps produced from the data received from Environmental Records Information Centre of species records within 2km



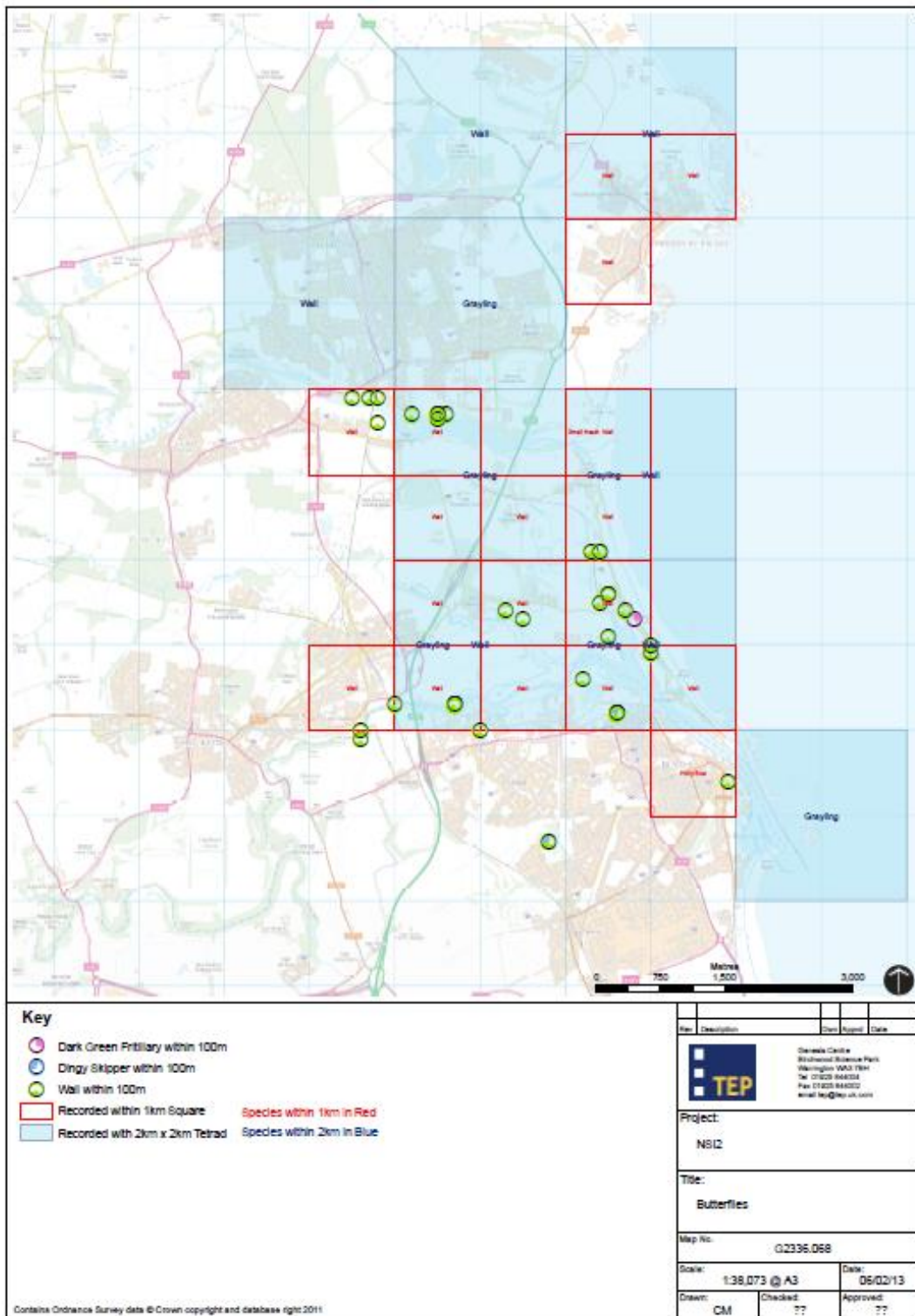




- Key**
- Recorded within 1km Square Species within 1km in Red
  - Bluebell within 100m
  - Cirsium within 100m
  - Corn Marigold within 100m
  - Cornflower within 100m
  - Cowslip within 100m
  - Primrose within 100m

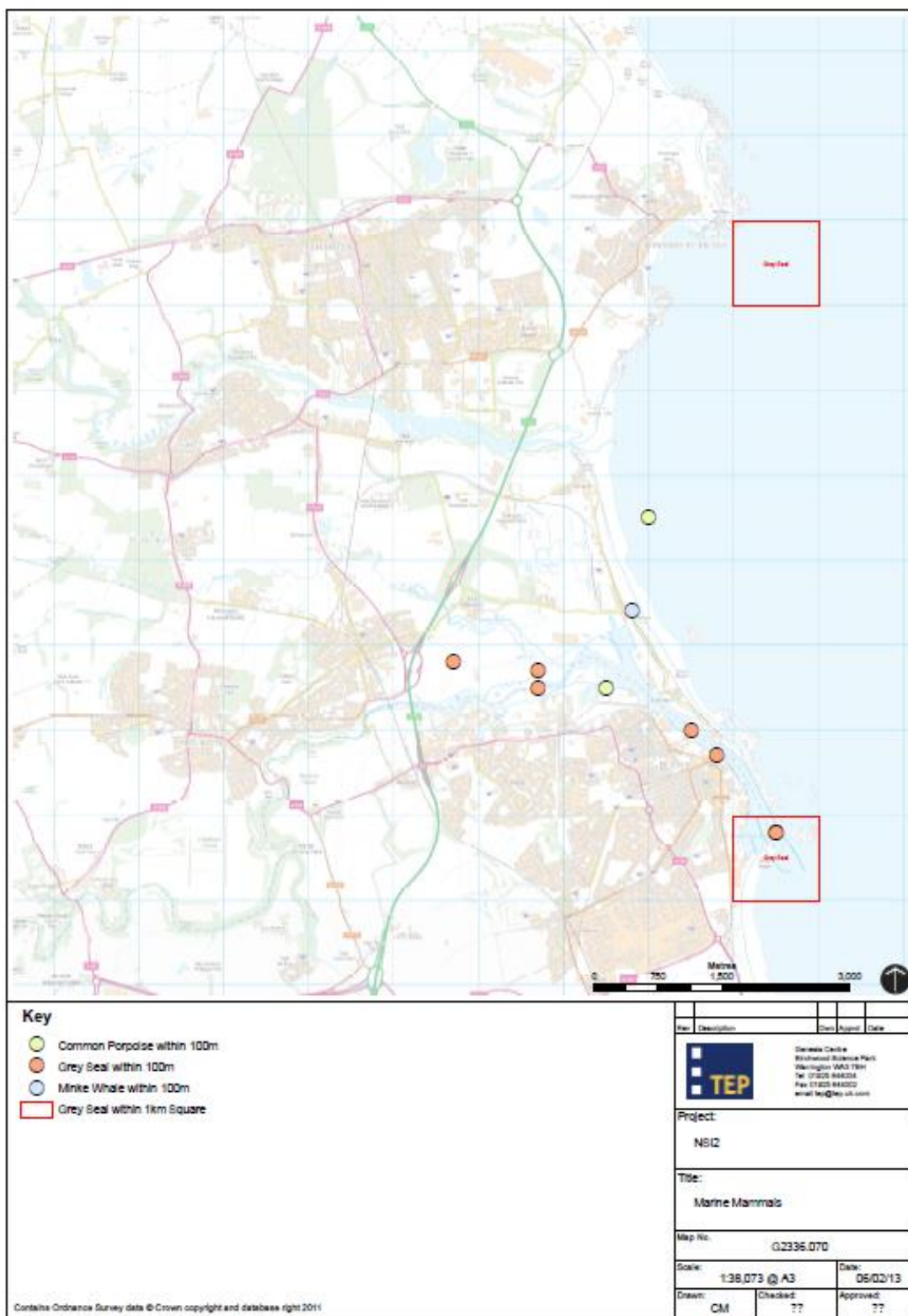
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No.	Description	Drawn	Issued	Date
Theaella Centre Woodhouse Business Park Washington WA3 1BN Tel: 01205 846234 Fax: 01205 846232 email: tep@tep.co.uk				
Project: NS12				
Title: Flowering Plants				
Map No: G2336.D67				
Scale: 1:38,073 @ A3			Date: 05/02/13	
Drawn: CM	Checked: ??	Approved: ??		











## Extract of species data provided by Environmental Records Information Centre within 2km

Taxon group	Taxon Latin Name	Recommended Common Name	Sample Date	Sample Spatial Reference
amphibian	Bufo bufo	Common Toad	14/09/2012	NZ300839
amphibian	Lissotriton vulgaris	Smooth Newt	18/06/2008	NZ293870
amphibian	Rana temporaria	Common Frog	22/10/2007	NZ275819
amphibian	Rana temporaria	Common Frog	02/07/2008	NZ2888
amphibian	Triturus cristatus	Great Crested Newt	28/05/2003	NZ2683
amphibian	Triturus cristatus	Great Crested Newt	2004	NZ2784
bony fish (Actinopterygii)	Anguilla anguilla	European Eel	1996	NZ276819
bony fish (Actinopterygii)	Salmo trutta subsp. fario	Brown Trout	1996	NZ276819
flowering plant	Centaurea cyanus	Cornflower	28/06/2003	NZ282821
flowering plant	Chamaemelum nobile	Chamomile	30/10/2008	NZ2986
flowering plant	Cirsium	Cirsium	14/04/2008	NZ303821
flowering plant	Dactylorhiza fuchsii	Common Spotted- orchid	03/06/2011	NZ2985
flowering plant	Dactylorhiza fuchsii	Common Spotted- orchid	18/06/2008	NZ2888
flowering plant	Dactylorhiza fuchsii	Common Spotted- orchid	02/07/2008	NZ2888
flowering plant	Dactylorhiza fuchsii	Common Spotted- orchid	30/05/2008	NZ2888
flowering plant	Dactylorhiza purpurella	Northern Marsh- orchid	03/06/2011	NZ2987
flowering plant	Dactylorhiza purpurella	Northern Marsh- orchid	03/06/2011	NZ2985
flowering plant	Dactylorhiza purpurella	Northern Marsh- orchid	02/10/2010	NZ2985
flowering plant	Dactylorhiza purpurella	Northern Marsh- orchid	18/06/2008	NZ2888
flowering plant	Dactylorhiza purpurella	Northern Marsh- orchid	02/07/2008	NZ2888
flowering plant	Euphorbia helioscopia	Sun Spurge	02/10/2010	NZ2985
flowering plant	Euphorbia peplus	Petty Spurge	02/10/2010	NZ2985
flowering plant	Glebionis segetum	Corn Marigold	28/06/2003	NZ282821
flowering plant	Hyacinthoides non- scripta	Bluebell	28/05/2008	NZ276820
flowering plant	Hyacinthoides non- scripta	Bluebell	18/06/2008	NZ293870
flowering plant	Hyacinthoides non- scripta	Bluebell	29/05/2008	NZ278856
flowering plant	Hyacinthoides non- scripta x hispanica = H. x massartiana	Hyacinthoides non- scripta x hispanica = H. x massartiana	03/06/2011	NZ2987
flowering plant	Orchis mascula	Early-purple Orchid	18/06/2008	NZ2888
flowering plant	Orchis mascula	Early-purple Orchid	30/05/2008	NZ2888

flowering plant	<i>Primula veris</i>	Cowslip	28/06/2011	NZ300807
flowering plant	<i>Primula veris</i>	Cowslip	06/05/2011	NZ300807
flowering plant	<i>Primula veris</i>	Cowslip	03/06/2011	NZ2985
flowering plant	<i>Primula veris</i>	Cowslip	29/05/2008	NZ278856
flowering plant	<i>Primula veris</i>	Cowslip	18/06/2008	NZ293870
flowering plant	<i>Primula veris</i>	Cowslip	18/06/2008	NZ2888
flowering plant	<i>Primula vulgaris</i>	Primrose	18/06/2008	NZ293870
flowering plant	<i>Salicornia fragilis</i>	Yellow Glasswort	22/10/2011	NZ2983
insect - butterfly	<i>Argynnis aglaja</i>	Dark Green Fritillary	13/07/2006	NZ308833
insect - butterfly	<i>Celastrina argiolus</i>	Holly Blue	24/05/2007	NZ3181
insect - butterfly	<i>Coenonympha pamphilus</i>	Small Heath	12/08/1999	NZ3085
insect - butterfly	<i>Erynnis tages</i>	Dingy Skipper	13/06/2004	NZ298807
insect - butterfly	<i>Erynnis tages</i>	Dingy Skipper	19/06/2005	NZ306822
insect - butterfly	<i>Erynnis tages</i>	Dingy Skipper	26/06/2005	NZ306822
insect - butterfly	<i>Hipparchia semele</i>	Grayling	14/07/2008	NZ28X
insect - butterfly	<i>Hipparchia semele</i>	Grayling	14/07/2008	NZ28X
insect - butterfly	<i>Hipparchia semele</i>	Grayling	15/07/2002	NZ38B
insect - butterfly	<i>Hipparchia semele</i>	Grayling	18/07/2002	NZ38B
insect - butterfly	<i>Hipparchia semele</i>	Grayling	04/07/2003	NZ38B
insect - butterfly	<i>Hipparchia semele</i>	Grayling	09/07/2003	NZ38B
insect - butterfly	<i>Hipparchia semele</i>	Grayling	15/07/2004	NZ38B
insect - butterfly	<i>Hipparchia semele</i>	Grayling	11/08/2004	NZ38B
insect - butterfly	<i>Hipparchia semele</i>	Grayling	09/07/2005	NZ38B
insect - butterfly	<i>Hipparchia semele</i>	Grayling	06/09/2005	NZ38B
insect - butterfly	<i>Hipparchia semele</i>	Grayling	13/07/2006	NZ38B
insect - butterfly	<i>Hipparchia semele</i>	Grayling	13/07/2006	NZ38B
insect - butterfly	<i>Hipparchia semele</i>	Grayling	16/07/2006	NZ38B
insect - butterfly	<i>Hipparchia semele</i>	Grayling	17/07/2006	NZ38B
insect - butterfly	<i>Hipparchia semele</i>	Grayling	28/07/2007	NZ38B
insect - butterfly	<i>Hipparchia semele</i>	Grayling	28/07/2007	NZ38B
insect - butterfly	<i>Hipparchia semele</i>	Grayling	18/07/2004	NZ38C
insect - butterfly	<i>Hipparchia semele</i>	Grayling	26/07/2004	NZ38C
insect - butterfly	<i>Hipparchia semele</i>	Grayling	09/07/2005	NZ38C
insect - butterfly	<i>Hipparchia semele</i>	Grayling	08/07/2006	NZ38C
insect - butterfly	<i>Hipparchia semele</i>	Grayling	08/07/2006	NZ38C
insect - butterfly	<i>Hipparchia semele</i>	Grayling	08/07/2006	NZ38C
insect - butterfly	<i>Hipparchia semele</i>	Grayling	13/07/2006	NZ38C
insect - butterfly	<i>Hipparchia semele</i>	Grayling	13/07/2006	NZ38C
insect - butterfly	<i>Hipparchia semele</i>	Grayling	14/07/2007	NZ38C
insect - butterfly	<i>Hipparchia semele</i>	Grayling	16/07/2007	NZ38C
insect - butterfly	<i>Hipparchia semele</i>	Grayling	16/07/2007	NZ38C
insect - butterfly	<i>Hipparchia semele</i>	Grayling	16/07/2007	NZ38C

insect - butterfly	Hipparchia semele	Grayling	28/07/2007	NZ38C
insect - butterfly	Hipparchia semele	Grayling	11/08/2007	NZ38C
insect - butterfly	Hipparchia semele	Grayling	23/07/2008	NZ38C
insect - butterfly	Hipparchia semele	Grayling	23/07/2008	NZ38C
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insect - butterfly	Hipparchia semele	Grayling	01/07/2006	NZ28X
insect - butterfly	Hipparchia semele	Grayling	08/07/2006	NZ28X
insect - butterfly	Hipparchia semele	Grayling	15/07/2006	NZ28X
insect - butterfly	Hipparchia semele	Grayling	15/07/2007	NZ28X
insect - butterfly	Hipparchia semele	Grayling	23/07/2008	NZ38B
insect - butterfly	Hipparchia semele	Grayling	23/07/2008	NZ38B
insect - butterfly	Hipparchia semele	Grayling	23/07/2008	NZ38B
insect - butterfly	Hipparchia semele	Grayling	24/07/2008	NZ38B
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insect - butterfly	Hipparchia semele	Grayling	25/07/2009	NZ38B
insect - butterfly	Hipparchia semele	Grayling	25/07/2009	NZ38B
insect - butterfly	Hipparchia semele	Grayling	25/07/2009	NZ38B
insect - butterfly	Hipparchia semele	Grayling	16/07/2010	NZ38B
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insect - butterfly	Hipparchia semele	Grayling	30/07/2001	NZ38C
insect - butterfly	Hipparchia semele	Grayling	15/07/2002	NZ38C
insect - butterfly	Hipparchia semele	Grayling	18/07/2002	NZ38C
insect - butterfly	Hipparchia semele	Grayling	05/08/2002	NZ38C
insect - butterfly	Hipparchia semele	Grayling	09/07/2003	NZ38C
insect - butterfly	Hipparchia semele	Grayling	15/07/2004	NZ38C
insect - butterfly	Hipparchia semele	Grayling	16/07/2004	NZ38C
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insect - butterfly	Lasiommata megera	Wall	01/09/2006	NZ287823
insect - butterfly	Lasiommata megera	Wall	12/09/2004	NZ295833
insect - butterfly	Lasiommata megera	Wall	02/09/2004	NZ3085
insect - butterfly	Lasiommata megera	Wall	17/08/2005	NZ3085



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insect - butterfly	Lasiommata megera	Wall	11/09/2005	NZ3085
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insect - butterfly	Lasiommata megera	Wall	24/05/2008	NZ38C
insect - butterfly	Lasiommata megera	Wall	24/05/2008	NZ28Z
insect - butterfly	Lasiommata megera	Wall	15/06/2008	NZ28W
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insect - butterfly	Lasiommata megera	Wall	22/09/2001	NZ3087
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insect - butterfly	Lasiommata megera	Wall	29/07/2006	NZ28W
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insect - butterfly	Lasiommata megera	Wall	22/05/2005	NZ293834
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insect - butterfly	Lasiommata megera	Wall	07/08/2006	NZ2982
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insect - butterfly	Lasiommata megera	Wall	08/08/2010	NZ307834
insect - butterfly	Lasiommata megera	Wall	07/09/2008	NZ3088
insect - butterfly	Lasiommata megera	Wall	08/08/2010	NZ2882
insect - butterfly	Lasiommata megera	Wall	31/08/2007	NZ2983
insect - butterfly	Lasiommata megera	Wall	23/08/2008	NZ3085
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insect - butterfly	Lasiommata megera	Wall	20/08/2005	NZ306822
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insect - butterfly	Lasiommata megera	Wall	10/09/1996	NZ278859
insect - butterfly	Lasiommata megera	Wall	09/06/2006	NZ2883
insect - butterfly	Lasiommata megera	Wall	09/06/2006	NZ2884
insect - butterfly	Lasiommata megera	Wall	03/08/2003	NZ285857
insect - butterfly	Lasiommata megera	Wall	21/08/2005	NZ302826
insect - butterfly	Lasiommata megera	Wall	11/06/2006	NZ3082
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insect - butterfly	Lasiommata megera	Wall	06/09/2005	NZ305831
insect - butterfly	Lasiommata megera	Wall	23/08/2005	NZ2983
insect - butterfly	Lasiommata megera	Wall	23/05/2005	NZ305836
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insect - butterfly	Lasiommata megera	Wall	23/08/2005	NZ3084
insect - butterfly	Lasiommata megera	Wall	11/09/2005	NZ3083
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insect - butterfly	Lasiommata megera	Wall	08/08/2010	NZ310830
insect - butterfly	Lasiommata megera	Wall	12/06/2010	NZ2785
insect - butterfly	Lasiommata megera	Wall	22/08/2009	NZ2982
insect - butterfly	Lasiommata megera	Wall	14/08/2010	NZ3188
insect - butterfly	Lasiommata megera	Wall	01/09/2010	NZ3085
insect - butterfly	Lasiommata megera	Wall	07/06/2010	NZ3083
insect - butterfly	Lasiommata megera	Wall	28/06/2010	NZ2982
insect - butterfly	Lasiommata megera	Wall	05/08/2002	NZ304841
insect - butterfly	Lasiommata megera	Wall	17/05/2009	NZ3088
insect - butterfly	Lasiommata megera	Wall	20/09/2008	NZ2982
insect - butterfly	Lasiommata megera	Wall	21/09/2008	NZ2982
insect - butterfly	Lasiommata megera	Wall	27/08/2008	NZ278856
insect - true bug (Hemiptera)	Plea minutissima	Plea minutissima	11/04/2005	NZ297884



marine mammal	<i>Balaenoptera acutorostrata</i>	Minke Whale	21/09/2006	NZ308834
marine mammal	<i>Halichoerus grypus</i>	Grey Seal	13/03/2010	NZ325808
marine mammal	<i>Halichoerus grypus</i>	Grey Seal	13/03/2010	NZ325808
marine mammal	<i>Halichoerus grypus</i>	Grey Seal	03/01/2005	NZ315820
marine mammal	<i>Halichoerus grypus</i>	Grey Seal	04/01/2005	NZ287828
marine mammal	<i>Halichoerus grypus</i>	Grey Seal	14/01/2005	NZ297825
marine mammal	<i>Halichoerus grypus</i>	Grey Seal	31/01/2009	NZ3280
marine mammal	<i>Halichoerus grypus</i>	Grey Seal	27/11/2005	NZ3280
marine mammal	<i>Halichoerus grypus</i>	Grey Seal	28/11/2005	NZ3280
marine mammal	<i>Halichoerus grypus</i>	Grey Seal	03/01/2011	NZ318817
marine mammal	<i>Halichoerus grypus</i>	Grey Seal	18/09/2011	NZ297827
marine mammal	<i>Halichoerus grypus</i>	Grey Seal	04/09/2011	NZ3287
marine mammal	<i>Phocoena phocoena</i>	Common Porpoise	15/01/2005	NZ310845
marine mammal	<i>Phocoena phocoena</i>	Common Porpoise	29/07/2011	NZ305825
reptile	<i>Anguis fragilis</i>	Slow-worm	12/07/2010	NZ276821
terrestrial mammal	<i>Erinaceus europaeus</i>	West European Hedgehog	02/09/2011	NZ2786
terrestrial mammal	<i>Erinaceus europaeus</i>	West European Hedgehog	2009	NZ289868
terrestrial mammal	<i>Lutra lutra</i>	European Otter	1997	NZ302854
terrestrial mammal	<i>Lutra lutra</i>	European Otter	1998 - 1999	NZ302854
terrestrial mammal	<i>Lutra lutra</i>	European Otter	1999 - 2000	NZ302854
terrestrial mammal	<i>Lutra lutra</i>	European Otter	2001 - 2002	NZ302854
terrestrial mammal	<i>Lutra lutra</i>	European Otter	01/03/2007	NZ295881
terrestrial mammal	<i>Lutra lutra</i>	European Otter	20/12/2009	NZ2885
terrestrial mammal	<i>Pipistrellus pipistrellus</i>	Common Pipistrelle	19/06/2007	NZ305823
terrestrial mammal	<i>Pipistrellus pipistrellus</i>	Common Pipistrelle	31/05/2007	NZ301820
terrestrial mammal	<i>Pipistrellus pipistrellus</i>	Common Pipistrelle	11/06/2007	NZ301820
terrestrial mammal	<i>Pipistrellus pipistrellus</i>	Common Pipistrelle	19/06/2007	NZ301820
terrestrial mammal	<i>Sciurus vulgaris</i>	Eurasian Red Squirrel	06/01/2007	NZ280823
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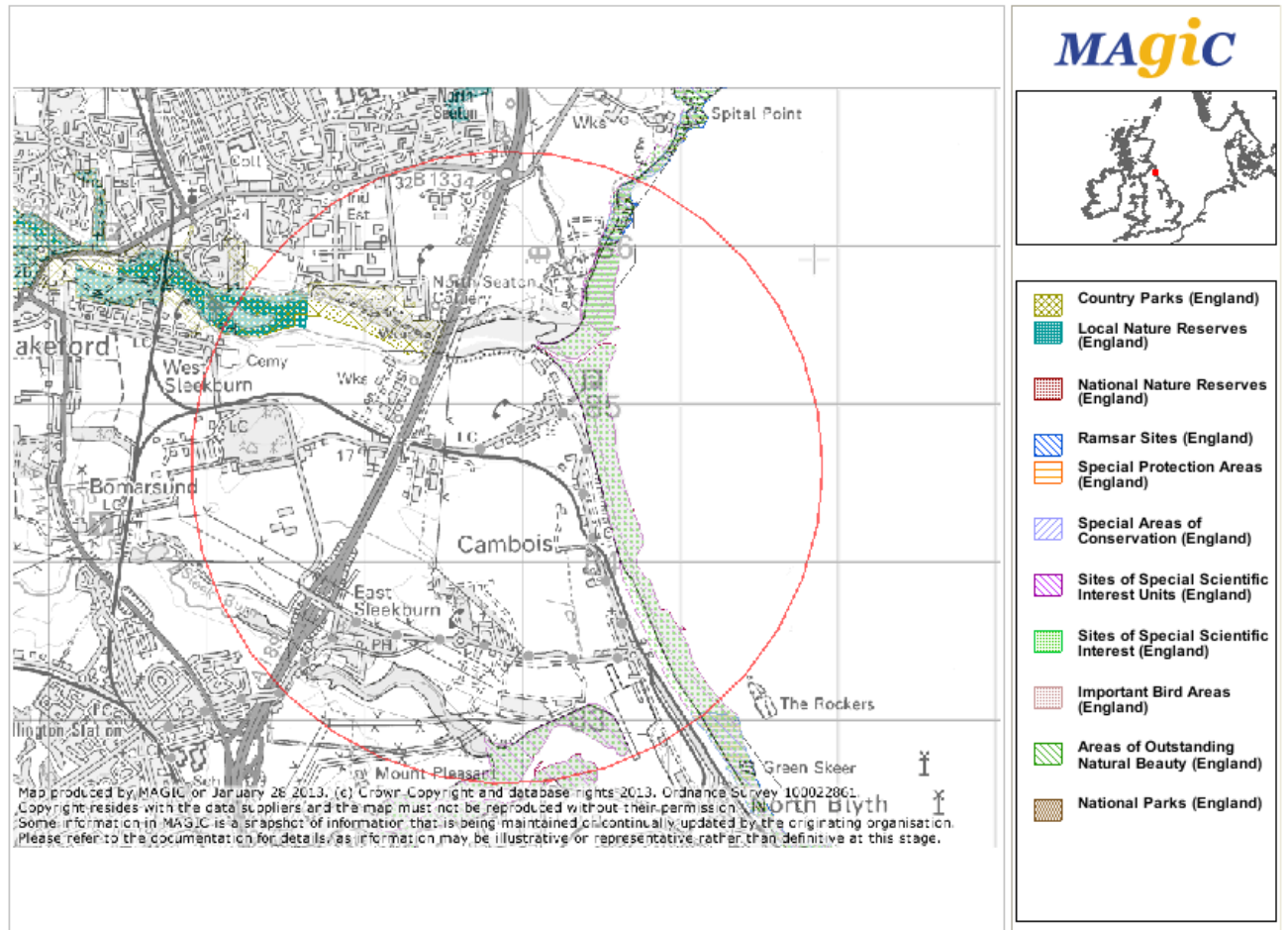
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terrestrial mammal	Sciurus vulgaris	Eurasian Red Squirrel	02/02/2010	NZ302842
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terrestrial mammal	Sciurus vulgaris	Eurasian Red Squirrel	22/01/2004	NZ270830
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terrestrial mammal	Sciurus vulgaris	Eurasian Red Squirrel	22/05/2003	NZ275825
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terrestrial mammal	Sciurus vulgaris	Eurasian Red Squirrel	26/07/2007	NZ270828
terrestrial mammal	Sciurus vulgaris	Eurasian Red Squirrel	01/08/2007	NZ279822
terrestrial mammal	Sciurus vulgaris	Eurasian Red Squirrel	23/02/2007	NZ271827
terrestrial mammal	Sciurus vulgaris	Eurasian Red Squirrel	20/09/2007	NZ271829
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terrestrial mammal	Sciurus vulgaris	Eurasian Red Squirrel	25/05/2004	NZ270830
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terrestrial mammal	Sciurus vulgaris	Eurasian Red Squirrel	22/11/2001	NZ274822
terrestrial mammal	Sciurus vulgaris	Eurasian Red Squirrel	23/05/2003	NZ275825

## Magic Map 2km search zone for designated wildlife sites - Map



# Magic Map 2km search zone for designated wildlife sites - Report

## Site Check Report

Report generated on January 28 2013.

### You clicked on the point:

Grid Ref: **NZ 299 845**

Full Grid Ref: **429905 , 584595**

The following features have been found within 2,000 metres of your search point:

### Counties, Metropolitan Districts and Unitary Authorities (GB)

Name	Geographic Level
NORTHUMBERLAND	UNITARY AUTHORITY

### NUTS1 - Government Office Regions (GB)

Name	Reference	Hotlink
NORTH EAST	UKC	<a href="http://www.ons.gov.uk/ons/guide-method/geography/beginner-s-guide/other/nomenclature-of-units-for-territorial-statistics/north-east/index.html">http://www.ons.gov.uk/ons/guide-method/geography/beginner-s-guide/other/nomenclature-of-units-for-territorial-statistics/north-east/index.html</a>

### Country Parks (England)

Grid Reference	Name	Reference	Status
NZ266861	WANSBECK RIVERSIDE PARK	1422008	KNOWN AS A COUNTRY PARK

### Local Nature Reserves (England)

Name	Reference
CASTLE ISLAND	<a href="#">1009792</a>

### National Nature Reserves (England)

There are no features within your search area.

### Ramsar Sites (England)

Reference	Name
UK11049	NORTHUMBRIA COAST

### Special Protection Areas (England)

Reference	Name
UK9006131	NORTHUMBRIA COAST

### Special Areas of Conservation (England)

There are no features within your search area.

### Sites of Special Scientific Interest Units (England)

Reference	Name	Citation	Site Unit Condition
1060247	NORTHUMBERLAND SHORE	<a href="#">1010100</a>	FAVOURABLE
1082419	CRESSWELL & NEWBIGGIN SHORES	<a href="#">1009911</a>	FAVOURABLE

1082420	CRESSWELL & NEWBIGGIN SHORES	<a href="#">1019291</a>	FAVOURABLE
1060248	NORTHUMBERLAND SHORE	<a href="#">1010076</a>	FAVOURABLE
1060250	NORTHUMBERLAND SHORE	<a href="#">1010077</a>	FAVOURABLE

### Sites of Special Scientific Interest (England)

Reference	Name	Citation	Natural England Contact	Natural England Phone Number
1003355	NORTHUMBERLAND SHORE	<a href="#">2000134</a>	BOB CUSSEN	0845 600 3078
1003265	CRESSWELL & NEWBIGGIN SHORES	<a href="#">1002926</a>	BOB CUSSEN	0845 600 3078

### Important Bird Areas (England)

Site reference	Name	Description
UK050	NORTHUMBRIA COAST	First identified as Northumberland Coast in 1989; 2007 renamed and resolved differences with the SPA boundary, adopting that boundary. 2000 area, 1926ha. SPA boundary used from JNCC, with Cresswell Ponds area added; digitised at 1:10,000 scale.

### Areas of Outstanding Natural Beauty (England)

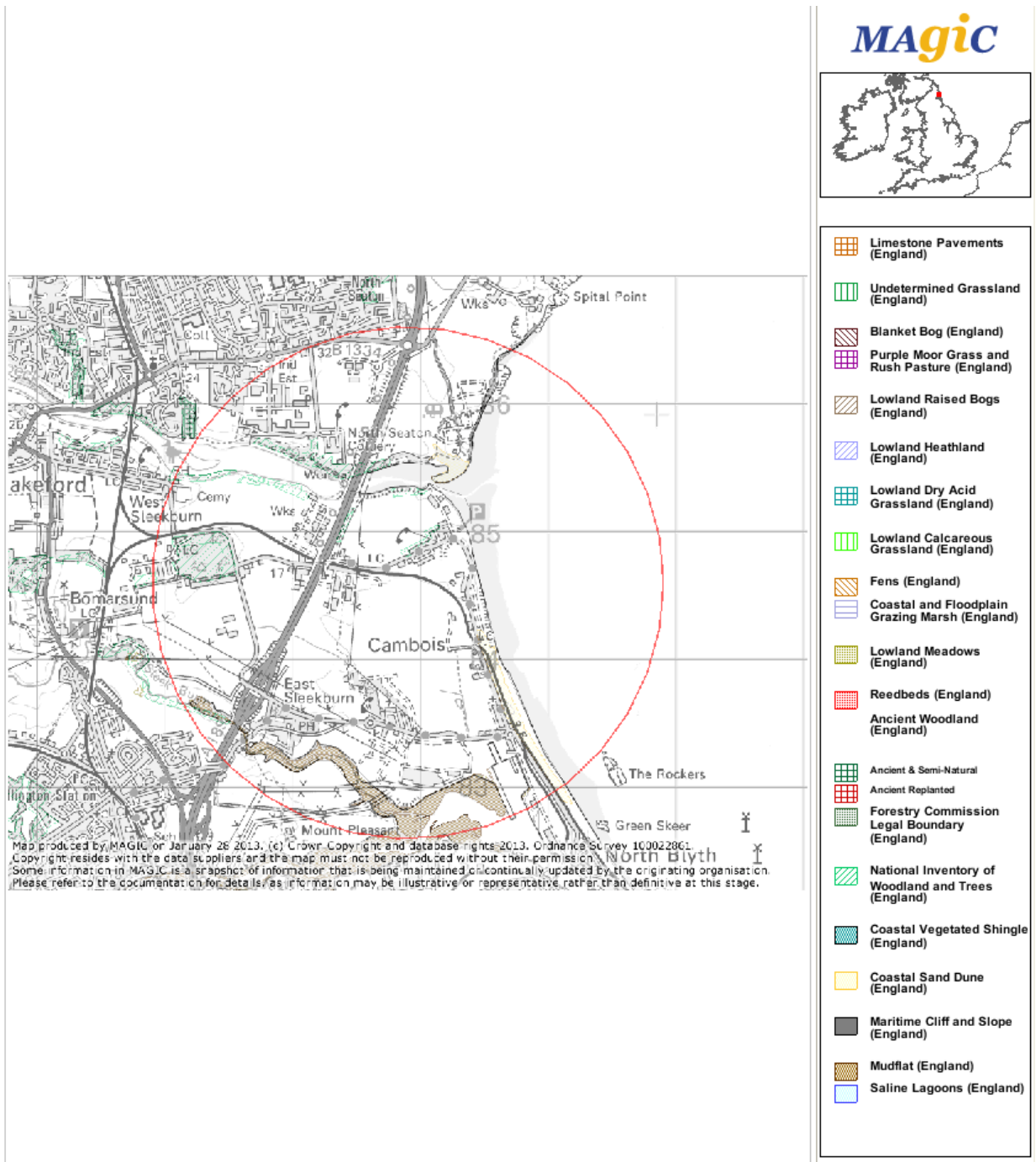
There are no features within your search area.

### National Parks (England)

There are no features within your search area.



# Magic Map 2km search zone for habitat inventory data



## Extract of species data provided by Northumberland Bat Group within 2km

R=roost (1 bat or maternity)

O=occasional such as downed bats.

H=hibernacula

Swarm= swarming sites

max no. eg 1-5 is an estimate, where single numbers are given this is a count.

LOCATION	SPECIES	KM SQUARE	R(oost)	D(owned) Bat	H(ibernation)	Fl(ight)	MAX NO.	DATE	SITE DESCRIPTION	NOTES
Ashington	PIP45	NZ2886				*	3	28/09/2010	HOUSE	
Ashington	PIP55	NZ2886				*	1	28/09/2010	HOUSE	foraging
Ashington	PIP45	NZ2886	*				1	20/08/2009	SCHOOL	
Ashington	PIP45	NZ2986	*				1	14/06/2009	SCHOOL	
Ashington	PIP	NZ2886	*				8	1999	HOUSE	

**APPENDIX 2:**  
**Target Note Report**

## APPENDIX 2

### TARGET NOTE REPORT: NSN 2336.

#### Target Note 1

Semi-improved, tall, rank grassland, with a short mown section adjacent to the road. Dominated by false oat grass *Arrhenatherum elatius* with occasional Yorkshire fog *Holcus lanatus* and white clover *Trifolium repens*, creeping cinquefoil *Potentilla reptans*, ribwort plantain *Plantago lanceolata* with red fescue *Festuca rubra*, meadow foxtail *Alopecurus pratensis*, common couch, *Elytrigia repens* and cock's foot *Dactylis glomerata*. Also present are red clover *Trifolium pratense*, field bindweed *Calystegia arvensis*, creeping buttercup *Ranunculus repens*, common vetch *Vicia sativa*, common mouse-ear *Cerastium fontanum*, curled dock *Rumex crispus*, dandelion *Taraxacum officinale* agg., creeping thistle *Cirsium arvense*, cleavers *Galium aparine*, yarrow *Achillea millefolium*, bird's-foot trefoil *Lotus corniculatus*, perennial rye grass *Lolium perenne* and common cat's-ear *Hypochoeris radicata*. There is some scattered tall ruderal comprising cow parsley *Anthriscus sylvestris*, hogweed *Heracleum sphondylium* and common nettle *Urtica dioica* on the mounds.

#### Target Note 2

Japanese rose *Rosa rugosa* or cotoneaster species (**Sched 9**).

#### Target Note 3

Semi-improved, rank grassland, similar to Target Note 1 but more diverse with lots of common restharrow *Ononis repens*. Meadow buttercup *Ranunculus acris*, crested dog's tail *Cynosurus cristatus*, mugwort *Artemisia vulgaris*, silverweed *Potentilla anserina*, creeping cinquefoil, dandelion, red fescue, yarrow, common cat's-ear, ribwort plantain and yellow oat grass *Trisetum flavescens* are all present, with some Timothy *Phleum pratense* towards the north end. Also present rye grass, yellow rattle *Rhinanthus minor* and tufted vetch *Vicia cracca*. The vegetation is taller and more diverse towards the cliff edge, the remainder less so with few flowers visible, but it is heavily grazed, trampled and manured. Yellow rattle and bird's-foot trefoil are frequent in longer patches of vegetation. Sea-milkwort *Glaux maritime* occurs in the shorter vegetation. The grassland towards the north end closer to the houses appears less diverse but still contains abundant crested dog's tail, bird's-foot trefoil, ribwort plantain, as well as lots of white *Trifolium repens* and red clover, common knapweed *Centaurea nigra*, perennial rye grass, Yorkshire fog and red fescue. There is a large patch of Japanese rose (**Sched 9**) adjacent to the garden on the edge of cliff.

#### Target Note 4

Nature reserve. Planted trees and scrub around the north east boundary comprising blackthorn *Prunus spinosa*, hawthorn *Crataegus monogyna*, aspen *Populus tremula* and ash *Fraxinus excelsior*, with a mown verge adjacent. Semi-improved neutral grassland with a diversity of species including ox eye daisy *Leucanthemum vulgare*, birds's-foot trefoil, yarrow, daisy *Bellis perennis*, Yorkshire fog, red fescue, great willowherb *Epilobium hirsutum*, black medick *Medicago lupulina*, common knapweed, common mouse-ear, ribwort plantain, selfheal *Prunella vulgaris*, creeping cinquefoil, common spotted orchid *Dactylorhiza fuchsii*, common fumitory *Fumaria officinalis*, crested dog's-tail, a mouse-ear-hawkweed species *Pilosella* sp., with a dense mossy layer in places.

Other species in the grassland include red campion *Silene dioica*, common mouse ear, rosebay willowherb *Chamerion angustifolium*, silverweed, meadow vetchling *Lathyrus pratensis*, cock's-foot *Dactylis glomerata*, tufted vetch, meadow buttercup, teasel *Dipsacus fullonum*, meadow-sweet *Filipendula ulmaria*, tufted hair grass *Deschampsia cespitosa*, creeping buttercup, creeping thistle, dandelion species and common vetch. Surrounding scrub is composed of alder *Alnus glutinosa*, grey alder *Alnus incana*, willows *Salix sp.*, guelder rose *Viburnum opulus* and silver birch *Betula pendula*.

There is a large pond with some yellow flag iris *Iris pseudacorus* with large sedges around the edges, as well as marsh cinquefoil *Potentilla palustris*, water mint *Mentha aquatica*, greater spearwort *Ranunculus lingua*, water figwort *Scrophularia auriculata*, ragged robin *Lychnis flos-coculi*, common reed *Phragmites australis*, bulrush *Typha latifolia*, lesser bulrush *Typha angustifolia* and a horsetail species *Equisetum sp.*

#### **Target Note 5**

Motorcycle scrambling field. Mosaic of bare ground and mounds vegetated with mostly tall ruderal comprising broadleaved dock, Yorkshire fog, nettle, creeping thistle, false oat grass, creeping buttercup, ragwort *Senecio jacobaea*, common cat's-ear and scattered willows. Common mouse ear, creeping bent *Agrostis capillaris* and scarlet pimpernel *Anagallis arvensis* are also present in the field. Bird's-foot trefoil, meadow vetchling, common knapweed, hard rush and cock's-foot present. The hedgerow along the eastern boundary is largely intact. Two small pieces of Japanese knotweed *Fallopia japonica* were noted on bare ground in the north-west corner of the field near the fence (**Sch 9**). There is some alder scrub in west and lots of rushes along the northern boundary with scattered orchids. A water crowfoot species *Ranunculus sp* is present in one of the larger scrapes in the south-west of the field, and bulrush dominates the majority of other ephemeral pools. Lots of rabbits. Wall butterfly recorded (**S.41**).

#### **Target Note 6**

Noticeable chemical smell along Cow Gut, cannot get access through dense bramble and alder scrub. There is a band of alder scrub to the south with scattered bramble. Cow Gut looks virtually dry at the south east corner of the scrambling field and there is a dense cover of great willowherb in places, with rosebay willowherb along the north-western bank. There are very steep banks along Cow Gut with dense scrub on both sides, largely hawthorn to the north. The ditch is very shaded and overgrown and inaccessible for survey. Blackthorn and alder are also present on the north side. There are lots of rabbit trails through the vegetation along the ditch.

There is abundant false oat grass, Yorkshire fog, tufted vetch, meadow buttercup, meadow foxtail and meadow vetchling along the path on the southern side and lots of bees were noted in this area as well as large skipper butterflies and lots of other invertebrates including a damselfly, a lacewing and lots of micro moths. Himalayan balsam in Cow Gut towards the western end (**Sch.9**), together with lots of rosebay willowherb and more bramble scrub.

#### **Target Note 7**

Ditch along the eastern boundary of the scramble field. Anecdotal evidence of large eels present in the ditch as well as tawny owls, kestrels and little owl hunting on the grassland. Yellowhammer in hedgerow. There is some broadleaved pondweed in the

ditch, which is quite dense in places towards the southern end, although it is not possible to access the southern half of the ditch due to dense scrub. A small amount of iris is present as well as patches of a spike rush *Eleocharis* sp. The water in the ditch is deep and access is not possible to the eastern bank due to dense hawthorn scrub with some rose and tall ruderal vegetation below. There is an outfall from a chemical type factory upstream, which recently discharged blue lemon smelling water into the ditch and the water at the southern end of the ditch is very milky looking. The ditch is approx. 2-3m wide with concrete blocks at the north end. The banks are covered with cock's foot, Yorkshire fog, ribwort plantain, false oat grass, hedge woundwort *Stachys sylvatica*, clustered dock *Juncus conglomeratus*, black medick, white clover, ragwort, creeping buttercup, creeping cinquefoil, horsetail, red clover, teasel, colt's-foot *Tussilago farfara*, great willowherb, curled dock, creeping thistle, Swedish whitebeam, red fescue, greater plantain *Plantago major*, daisy, perennial rye grass, creeping bent *Agrostis stolonifera*, tufted hair grass, common vetch, bittersweet *Solanum dulcamara*, spear thistle *Cirsium vulgare*, tufted vetch, meadow foxtail, broad leaved dock and hogweed. The ditch becomes more shaded towards the southern end and there is also some scattered bramble on the west bank.

There is a hole visible in the eastern bank but it is broken up around the edges and does not look as if it has been used recently. The ditch is regularly dredged out to maintain a barrier to keep local youths out.

#### **Target Note 8**

There is another very steep sided, inaccessible ditch, totally overgrown with rosebay willowherb, hawthorn, bramble and hedge bindweed *Calystegia sepium* along the western boundary. It is not possible to see if there is any water along the majority of the ditch, but several frog tadpoles were noted toward the northern end. There is a small wet area in the north-west corner of the field with some shallow water and marginal vegetation, but it appears to be drying out and has an oily film on the water. Another small ephemeral waterbody with steep sides devoid of vegetation contains some brown, murky water. On the far side of the ditch is an area of mixed planting which includes sycamore *Acer pseudoplatanus*, ash and a rose species.

#### **Target Note 9**

Wide bands of mixed woodland planting. These are very dense in places, particularly along the western boundary of the site. They all contain a mix of similar species including alder, silver birch, hawthorn, ash, oak species *Quercus* sp. field maple *Acer campestre*, rowan *Sorbus aucuparia* and evergreen species, with tall ruderal vegetation below comprising a mix of false oat grass, Yorkshire fog, broadleaved dock *Rumex obtusifolius*, cock's foot, creeping thistle, creeping buttercup, tufted hair grass, red fescue, dandelions, common vetch, sedges and rushes. In more open areas of planting orchids occur frequently.

#### **Target Note 10**

Semi-improved neutral grassland with scattered trees and scrub. The grassland is largely dominated by grasses, not so many forbs, but meadow vetchling, a vetch species and creeping cinquefoil are present. Planted trees include ash, a spruce species and an apple tree *Malus* sp. and spruce. There is a large open area of tall ruderal vegetation toward the eastern end with false oat grass, hogweed, nettle and a rose species, which

is dominated by rosebay willowherb at the eastern boundary. A hawthorn hedgerow forms the southern boundary to the arable field, with a line of trees along the road and another along the south-eastern boundary. There is a band of scrub along the ditch composed of bramble, rose species, hawthorn and blackthorn, with tall ruderal/grasses below. Chiffchaff.

#### **Target Note 11**

Semi-improved, rank, neutral grassland field currently grazed by horses, with scattered scrub. The field is dominated by Yorkshire fog and false oat grass with abundant creeping buttercup and some hogweed, as well, to a lesser extent, meadow foxtail, creeping thistle, creeping cinquefoil, Yorkshire fog, couch grass, great willowherb and broadleaved dock *Rumex obtusifolius*. There is an area of old hardstanding, now breaking up, with a diversity of vegetation coming through including frequent rosebay willowherb, occasional bird's-foot trefoil, hogweed, frequent yellow rattle, and common knapweed, common cat's-ear, abundant kidney vetch, a low number of orchids, tufted vetch, ragwort, rose species. There is a band of scrub along both edges which includes Swedish whitebeam and bramble.

#### **Target Note 12**

Semi-improved, rank, neutral grassland with scattered scrub, similar to TN 11 above but appears more diverse and creeping cinquefoil is more abundant. It is also grazed by horses and there are numerous signs of rabbits. Biting stonecrop *Sedum acre* is colonising the hard standing where it crosses the dry ditch and tufted vetch, prickly sow-thistle *Sonchus asper* and meadow vetchling are also present. Scrub is dominated by Swedish whitebeam with dog rose along the boundary and hawthorn scrub forming a short hedgerow in the northern section of the field.

The grassland appears more diverse close the dry ditch in the centre, with angelica *Angelica sylvestris*, some orchids, sweet vernal grass *Anthoxanthum odoratum*, colt's-foot, clustered dock and scattered rose species. To the east of the dry ditch are large patches of common sedge *Carex nigra* and glaucous sedge *Carex flacca*, with rushes, as well as bird's-foot trefoil, horsetails, rough chervil *Chaerophyllum temulum*, ribwort plantain *Plantago lanceolata*, silverweed, common sorrel *Rumex acetosa* and clustered dock *Rumex conglomeratus*.

#### **Target Note 13**

At the southern end of the dry ditch there is an area of standing water with a large patch of hard rush adjacent. The water is surrounded by scrub which includes gorse *Ulex europaeus*, hawthorn, bramble and tall ruderal vegetation. Aquatic vegetation includes a very large marsh marigold *Caltha palustris*, some duckweed *Lemna sp.* and greater spearwort. Some orchids present. Skipper butterfly.

#### **Target Note 14**

Yellow rattle is colonising the pathway near the southern end. There is a patch of marshy grassland on the north side of the track by the bend which is very wet and mossy with a mix of sedges, orchids, and bird's-foot trefoil. The grassland on the southern side of the track is dominated by cock's foot with scattered scrub, orchids and yellow rattle is present along both sides of the track.

There is a large patch of viper's bugloss *Echium vulgare* adjacent to the 2<sup>nd</sup> pylon to the south of the path where numerous bees were foraging. Also present was biting stonecrop, some tufted hair grass and red fescue. Rosebay willowherb dominates the vegetation along the bank with soft brome *Bromus hordeaceus*, cock's-foot and rose and bramble scrub down the slope towards the water.

#### **Target Note 15**

There is another area of marshy grassland in the south-west corner of this area dominated by sedges with yellow rattle, bird's-foot trefoil, a mouse-ear hawkweed species, crested dog's tail, ribwort plantain, creeping buttercup, creeping cinquefoil and Yorkshire fog. There are also patches of tufted hair grass, jointed rush black medick, curled dock and various rush species toward the north-east. The ponds in this area are mostly covered with dense bulrush and are totally or almost dry.

#### **Target Note 16**

Ephemeral/short perennial developing over area of old hardstanding. Now colonised by kidney vetch, various hawkweeds/hawkbeards, Yorkshire fog, biting stonecrop, common cat's-ear, colt's-foot, black medick, common mouse-ear, field forget-me-not *Myosotis arvensis*, groundsel, prickly sow thistle, selfheal *Prunella vulgaris*, creeping thistle and red fescue, daisy, dandelion and occasional orchids. Rosebay willowherb, great willowherb, hogweed and bramble also occur rarely.

#### **Target Note 17**

Small brick built building at north east corner of field. Pitched, tiled roof with a number of slipped tiles. Six open holes in east facing upper section, and five in the western section, concrete along ridge. Not possible to access close to building but soffit box appears well sealed. There also appears to be a hole into roof from the east side. May be mesh in some of holes in upper section, look like pipe holes.

#### **Target Note 18**

Southern dune area. This area is dominated by marram grass *Ammophila arenaria* with Lyme-grass *Elymus arenarius*. There is also abundant red fescue, frequent common cat's-ear and common restharrow, with occasional yellow oat grass, hoary ragwort *Senecio erucifolius*, bird's-foot trefoil, ribwort plantain and the odd dandelion, sand sedge *Carex arenaria*, jointed rush *Juncus articulatus*, rough hawbit *Leontodon hispidus* and goat's-beard *Tragopogon pratensis*. Other species recorded in this area include field bindweed *Convolvulus arvensis*, silverweed, cock's-foot, colt's-foot and yarrow. Numerous birds singing in scrub behind the houses, as well as swallows and common blue butterflies foraging in the grassland.



**APPENDIX 3**

**Bat Activity Survey Report  
(E3 Ecology, 2013)**

## Cambois Bat Transect Survey Results September 2013

### Weather conditions

5th September 2013					
<b>Wind</b>	F1 - southerly	<b>Start temperature</b>	15°C	<b>Start time</b>	19.35
<b>Cloud</b>	100%	<b>End temperature</b>	11°C	<b>End time</b>	22.00
<b>Precipitation</b>	None	<b>Sunset</b>	19.49		

18th September 2013					
<b>Wind</b>	F2 - westerly	<b>Start temperature</b>	12°C	<b>Start time</b>	19.05
<b>Cloud</b>	20%	<b>End temperature</b>	9°C	<b>End time</b>	21.00
<b>Precipitation</b>	None	<b>Sunset</b>	19.15		

Transect Survey Results 5 <sup>th</sup> September 2013					
Year	Month	Day	Time	Species	
2013	9	5	20.41	Noctule	
2013	9	5	20.46	45 kHz Pipistrelle	
2013	9	5	20.46	45 kHz Pipistrelle	
2013	9	5	20.47	45 and 55 kHz Pipistrelle	
2013	9	5	20.47	45 kHz Pipistrelle	
2013	9	5	20.47	45 kHz Pipistrelle	
2013	9	5	20.48	45 kHz Pipistrelle	
2013	9	5	20.48	45 kHz Pipistrelle	
2013	9	5	20.49	45 kHz Pipistrelle	
2013	9	5	20.51	45 kHz Pipistrelle	
2013	9	5	21.07	45 kHz Pipistrelle	
2013	9	5	21.13	Noctule	
2013	9	5	21.43	45 kHz Pipistrelle	
Monitoring Points Results 5 <sup>th</sup> September 2013					
Year	Month	Day	Time	Species	Monitoring Points
2013	9	5	20.04	None	E
2013	9	5	20.17	None	G
2013	9	5	20.26	None	H
2013	9	5	20.35	None	I
2013	9	5	20.46	45 kHz pip heard not seen over the river 16 passes	J
2013	9	5	21.01	None	K
2013	9	5	21.15	None	L
2013	9	5	21.26	None	M
2013	9	5	21.33	None	N
2013	9	5	21.44	45 kHz pip heard not seen 1 pass	O

Transect Survey Results 19 <sup>th</sup> September 2013					
Year	Month	Day	Time	Bats recorded	
2013	9	18	19.52	55 kHz Pipistrelle	
2013	9	18	20.01	55 kHz Pipistrelle	
2013	9	18	20.17	55 kHz Pipistrelle	
2013	9	18	20.24	Noctule	
2013	9	18	20.37	45 kHz Pipistrelle	
2013	9	18	20.38	45 kHz Pipistrelle	
Monitoring Points Results 19 <sup>th</sup> September 2013					
Year	Month	Day	Time	Bats recorded	Monitoring Point
2013	9	18	19.31	None	A
2013	9	18	19.38	None	B
2013	9	18	19.49	None	C
2013	9	18	19.58	None	D
2013	9	18	20.11	None	E
2013	9	18	20.24	None	F

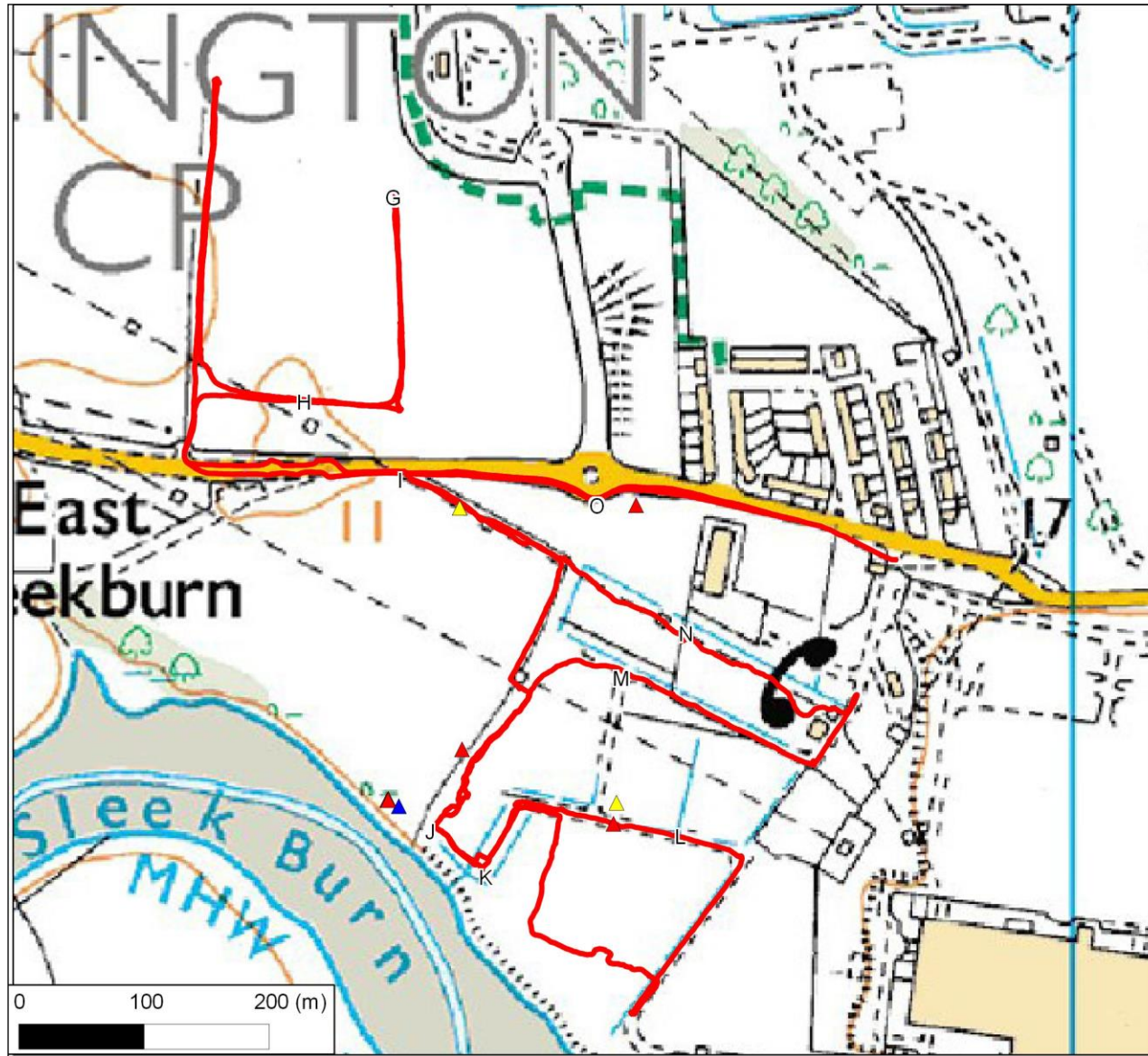
### Summary of results

Overall limited bat activity was recorded across the site, with the hedgerows providing only limited commuting and foraging habitat for the local population. The majority of the passes recorded were common pipistrelle (45 kHz) with small numbers of soprano pipistrelle (55 kHz) and noctule recorded. The bats were recorded across the site with the river corridor providing the most records of bat passes at the monitoring points of 16 within the three minute period, all other records were individual passes, but likely to be the same bats as they were recorded foraging in most instances and no more than a single bat of any species was ever seen at the same time. Within the figures below a number the approximate location bat passes is shown. The main area of bat passes is to the north west of point J, where a small number of common pipistrelle (45kHz) (up to 3 maximum) and a single soprano (55Hz) pipistrelle were recorded foraging along the river. Due to the close proximity of the records, individual passes are not shown on the map, but the approximately location of activity is.

It is recommended that the retention of some level of linkage to the residential areas to the north, where roosts could be located, is ensured to provide linkages from these areas to the



river, which appears to be the most important feature within the survey area. Given the species recorded however, small breaks in hedgerow are unlikely to result in significant severance being caused, particularly if compensatory planting can be incorporated into the proposals.



**Key**

Transect 05.09.13

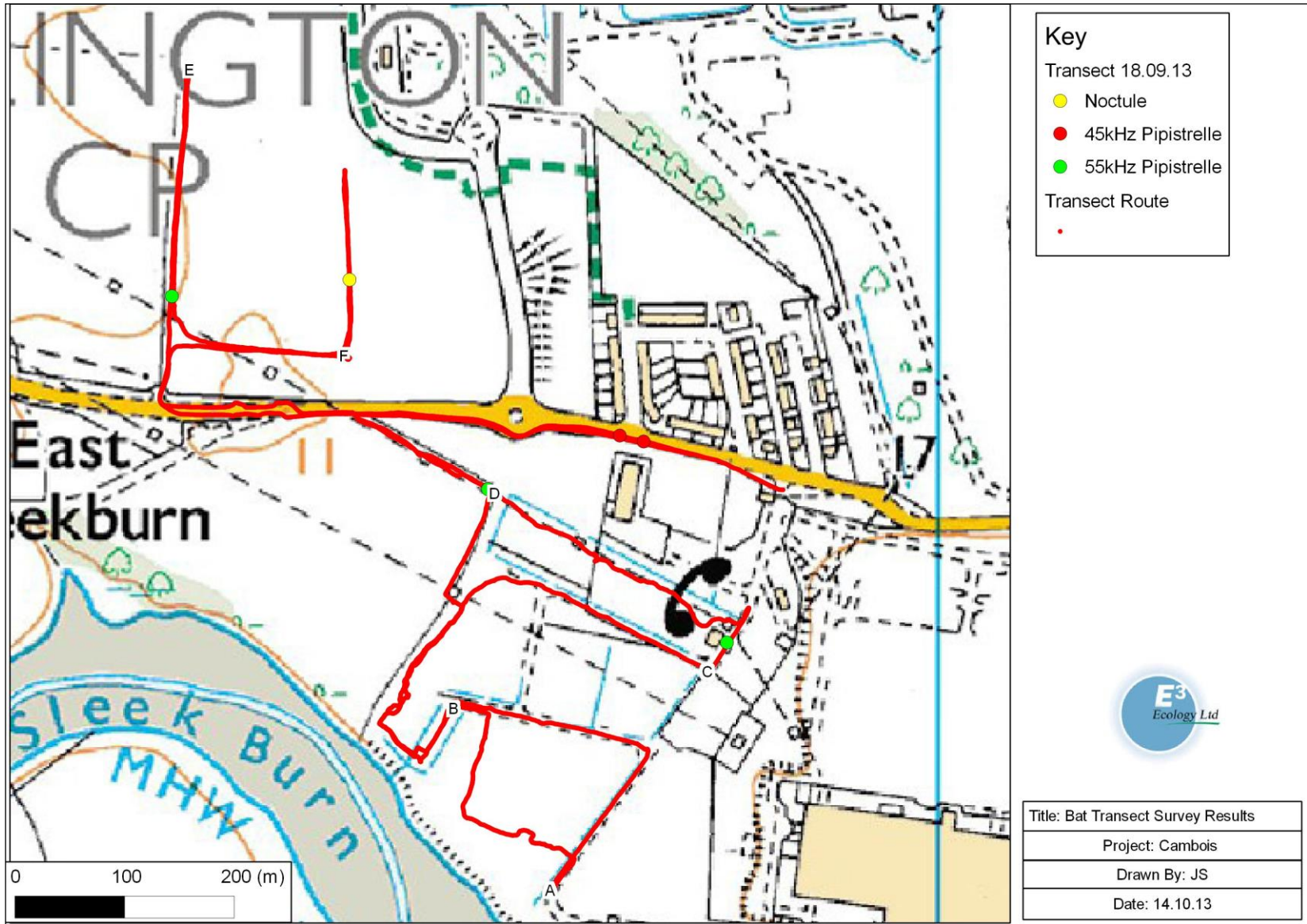
- ▲ Noctule
- ▲ 45 kHz Pipistrelle
- ▲ 45 and 55 kHz Pipistrelle

Transect Route

- 



Title: Bat Transect Survey Results
Project: Cambois
Drawn By: JS
Date: 14.10.13



**APPENDIX 4**

**Great Crested Newt Survey Report  
(E3 Ecology, 2013)**

# **GREAT CRESTED NEWT SURVEY**



## **LAND AROUND CAMBOIS, NORTHUMBERLAND**



**Report No 1  
Final  
July 2013**





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Client	Revision	Status	Date	Author	Proof Read	Checked
TEP	R01	Draft	24.06.13	JS		MEM
	R02	Final	23.10.13	JS		
Job No. 3306						

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## SUMMARY

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E3 Ecology Ltd was commissioned by TEP to undertake a great crested newt survey of land around Cambois, Northumberland in spring 2013.

The survey work was commissioned to inform a feasibility assessment of a new high voltage power cable route linking undersea cables with a new sub-station.

The terrestrial habitats in the local area comprise a range of habitat types including brownfield land, arable and pastoral land, hedgerow, specially created wildlife areas and built development. This mosaic of habitats provides a good range of opportunities including foraging and dispersal routes.

The aquatic habitats within the site comprise a range of habitats including a total of 22 waterbodies. Ponds 1 to 5 are to the south of the southern area and are small, shallow ponds, some of which became dry during the survey period. Pond 6 is a large, concrete lined pond which was used for water storage when the power plant was operational. It is within the northern area of the site and is dominated by *Crassula helmsii*. Pond 7 is a highly ephemeral pool within an arable field which was dry at the start of the detailed assessment work. Ponds 8-10, located to the north of the site, are associated with the drainage system of the coal storage and are heavily choked by *Typha latifolia*.

Pond 11 is to the north west of the survey area and is a man made water-body within a small nature reserve. The ponds and ditches labelled 12-22 inclusive comprise a number of wetland bodies associated with the motocross track within the northern area of the site. There are also ditches surrounding this area that have been created for security reasons, preventing access for motor vehicles.

No evidence of great crested newts was recorded during survey work, however small numbers of smooth newt, common frog and common toad were recorded.

*If you are assessing this report for a local planning authority and have any difficulties interpreting plans and figures from a scanned version of the report, E3 Ecology Ltd would be happy to email a PDF copy to you. Please contact us on 01434 230982.*

## A INTRODUCTION

E3 Ecology Ltd was commissioned by TEP to undertake a great crested newt survey of land surrounding Cambois, Northumberland to inform a feasibility study for a new power cable.

### A.1 Background to Development

The site is located to the west of Cambois, north of Blyth, Northumberland at an approximate central grid reference of NZ 298840. Site location is illustrated below in Figure 1.



Figure 1 – Site Location

(Reproduced from the ordnance survey map with the permission of the controller of Her Majesty's stationery office. CJ Crown Copyright reserved. Licence number 100039392.)

The current land use of the site is varied, with the southern and eastern areas comprising a brownfield site formerly comprising the Cambois Power Station, and the western and northern areas supporting arable and pastoral fields, and an industrial estate.

## **A.2 Personnel**

Survey work and reporting was undertaken by:

- Mark Osborne Btec MCIEEM
- James Streets BSc MSc MCIEEM

The project was supervised by:

- Mary Martin BSc MCIEEM

Details of experience and qualifications are available at [www.e3ecology.co.uk](http://www.e3ecology.co.uk).

## **A.3 Objectives of Study**

To determine the presence or otherwise of great crested newts, the value of the habitats on site to the species, the extent that they may be affected by the proposed development and, where necessary, to develop mitigation proposals that will allow development to proceed without significant adverse ecological effect.

## **B RELEVANT LEGISLATION AND PLANNING CONTEXT**

---

### **B.1 National Planning Policy Framework**

The Government's National Planning Policy Framework (NPPF) states the following:

- Plan policies and planning decisions should be based upon up-to-date information about the natural environment (Paragraph 158 and 165).
- Plan policies should promote the preservation, restoration and recreation of priority habitats, ecological networks and the recovery of priority species (Paragraph 117).
- Local planning authorities should set out a strategic approach in their Plans, planning positively for the creation, protection, enhancement and management of networks of biodiversity and green infrastructure. (Paragraph 114).
- When determining planning applications in accordance with the Local Plan and the presumption in favour of sustainable development local planning authorities should aim to conserve and enhance biodiversity by applying a number of principles, including if significant harm resulting from a development cannot be avoided, adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused. (Paragraph 118).

### **B.2 Protected Species Legislation**

Within England great crested newts are specially protected under the Conservation of Habitats and Species Regulations (2010) and under Schedule 5 of the Wildlife and Countryside Act of 1981 (as amended).

As a result there is a requirement to consult with Natural England before undertaking any works that may disturb great crested newts, or damage their breeding ponds, hibernacula or refugia, and under the Conservation of Habitats and Species Regulations it is illegal to.

- Deliberately kill, injure or capture great crested newts.
- Deliberately disturb great crested newts, particularly disturbance which is likely-
  - (a) to impair their ability-
    - (i) to survive, to breed or reproduce, or to rear or nurture their young; or
    - (ii) to hibernate; or
  - (b) to affect significantly the local distribution or abundance of the species.
- Deliberately take or destroy great crested newt eggs.
- Deliberately obstruct access to a great crested newt breeding pond, hibernacula or refugia.
- Damage or destroy a great crested newt breeding pond, hibernacula or refugia.

Under the Wildlife and Countryside Act (1981) the above offence of disturbing great crested newts includes low level disturbance and as such under this act it is also an offence to:

- Intentionally or recklessly disturb a great crested newt while it is occupying a breeding pond, hibernacula or refugia.

- Intentionally or recklessly obstruct access to a breeding pond, hibernacula or refugia.

Under the above legal protection, only the offences under the Conservation of Habitats and Species Regulations (2010) are strict liability offences; the remaining offences, under the Wildlife and Countryside Act (1981), are offences only where they are carried out "intentionally or recklessly".

Under the Countryside and Rights of Way Act 2000 (CROW Act) the offence in section 9(4) of the 1981 Act of disturbing great crested newts is extended to cover reckless damage or disturbance.

The Hedgerow Regulations 1997 provide for the conservation of important hedgerows and their constituent trees. The presence of a protected species such as great crested newts is a relevant consideration when assessing whether a hedgerow is important and may influence a local planning authority's decision on whether to approve removal of such hedges.

As of October 1 2006, public authorities have a duty to conserve biodiversity under the Natural Environment and Rural Communities (NERC) Act 2006.

#### Common Toad

The common toad, *Bufo bufo*, has been designated a UK Biodiversity Action Plan (UK BAP) species as of 2009. This designation highlights the rarity or population decline of this species at a national level and provides a conservation methodology to mitigate this.

## C SURVEY AREA AND METHODOLOGY

---

### C.1 Survey Area

Figure 2 illustrates the broad survey area and the habitats present within the local area.



Figure 2 - Survey area and habitats within the local area  
(Reproduced under licence from Google Earth Pro.)



## C.2 Methodology

### C.2.1 Desktop Study

Initially, the site was assessed from aerial photographs and 1:25000 OS plans. Consultation with the local records centre is being undertaken as part of the wider ecological assessment of the scheme.

The records held by E3 Ecology Ltd were also checked and any records utilised within the survey design, impact assessment and mitigation strategy.

### C.2.2 Field Survey

#### C.2.2.1 Survey Equipment

The following items of equipment were utilised during survey work and analysis:

- Clulite CB2 (1 million candle power).
- 2mm aquatic sampling net.
- Between 10 and 50 bottle traps per pond.

#### C.2.2.2 Habitats

Habitats on site are being assessed as part of a separate study, however an assessment of the habitats in the local area for great crested newts was made based on the habitat requirements of the species. Habitats were classified as sub-optimal or optimal value to the species based on the criteria set out by Oldham *et al* (2000).

#### C.2.2.3 Habitat Suitability Index (HSI)

A habitat suitability Index assessment of all of the waterbodies on site and within the surrounding area was undertaken using the methodology produced by Oldham *et al* (2000). The detailed methodology of this assessment technique is provided in Appendix 1.

#### C.2.2.4 Aquatic Survey

The survey area encompasses all waterbodies within the survey area and included ponds 1-22. The extent of the survey area was determined by the Natural England Mitigation Guidelines which states that all ponds within 500m of a development require assessment.

The survey was conducted using the standard methodology as published in the Herpetofauna Workers Manual (1998) and following national guidelines including those issued by Natural England in their Great Crested Newt Mitigation Guidelines (English Nature, August 2001) and Froglife's Advice Sheet 11: Surveying for (Great Crested) Newt Conservation (Froglife, 2001). All work was undertaken by surveyors with Natural England licences.

Four survey visits were undertaken on the following dates:

Visit number	Date	Methods used
1	13 <sup>th</sup> and 14 <sup>th</sup> May 2013	Egg searching, torching and bottle trapping
2	21 <sup>st</sup> and 22 <sup>nd</sup> May 2013	Egg searching, torching and bottle trapping
3	28 <sup>th</sup> and 29 <sup>th</sup> May 2013	Egg searching, torching and bottle trapping

4	11 <sup>th</sup> and 12 <sup>th</sup> June 2013	Egg searching, torching and bottle trapping
---	--	---

This level of survey effort meets the Natural England requirements for survey effort.

During each visit the weather, including air temperature, wind, precipitation and cloud cover was recorded. If the air temperatures dropped below 5°C then consideration was given to the time of year and water temperature to determine whether it was considered that newts would remain active. If not, the survey was aborted and undertaken on a separate visit. The vegetation cover across the pond and the turbidity of the water were also recorded on a scale of 0-5, 0 indicating no vegetation obscuring survey/clear water and 5 indicating that the water was completely obscured by vegetation or very turbid.

#### Egg searching

Egg searching was undertaken around the periphery of the pond(s). Submerged vegetation and other such material, including rubbish and dead leaves were examined to determine whether eggs were present. Great crested newts lay eggs singly and fold pliable material, usually the leaves of aquatic plants, around them, often in large numbers. The surveyor searched for folded leaves, and then gently opened them to check for eggs. Great crested newts prefer to deposit their eggs on relatively larger-leaved plants than do the smaller newts, which make their egg locations particularly conspicuous. Plants favoured by great crested newts include water forget-me-not (*Myosotis scorpioides*), water mint (*Mentha aquatica*), willowherb (*Epilobium* spp.) and flote grasses (*Glyceria* spp.) and therefore stands of these plants were searched in particular detail, however all areas of the pond were searched.

#### Night Torching

Torchlight searching was undertaken from approximately 1 hour after dusk, depending on light levels. A high powered torch of one million candle power was used to actively search for adult great crested newts, which move from the deeper parts of the pond to the shallows during the evening to allow them to mate and lay eggs. The surveyors walked once slowly around each pond, looking for newts of all species in the torch beam, paying particular attention to marginal vegetation and potential display areas on the pond bottom. Where newts were recorded, their sex, species and age class were noted.

#### Bottle trapping

Both adult and larval newts can be trapped in ponds by the use of bottle traps. These are made from empty plastic two-litre drink bottles with the ends removed, inverted and replaced to create a funnel. They are then held in place around the banks of the pond by canes with a spacing of 2m between traps. Newts find their way into the bottles but usually cannot leave. Bottle traps are an effective way of detecting a population. Bottle trapping requires two visits to a pond for each trapping session; an evening visit to set the traps, followed by an early morning visit to check them. The use of bottle traps demands considerable care and should be carried out only by thoroughly trained surveyors. If traps are fully submerged and prevent newts rising to the surface of the water to breathe, then they may eventually suffocate. Warmer water holds less oxygen, so this risk increases in hot weather and also in small, well-weeded ponds.

The traps were deployed less than an hour before dusk, left overnight and then checked between 06.00 and 11.00 hours. Traps were placed around the pond margins, facing towards the centre. Each trap was firmly fixed to a cane ensuring an air pocket is retained but that the bottom lip of the trap touches the pond substrate increasing trapping efficiency. Because of the potential danger to wildlife posed by lost bottle traps it is vital to ensure that all traps set were counted in and out to ensure none were left.

Since newt activity decreases at low water temperatures bottle trapping below 5°C cannot be relied upon to detect newts.

## **D RESULTS**

---

### **D.1 Desktop Study**

#### **D.1.1 Pre-existing Information**

##### **OS map & aerial photographs**

Figures 1 (A1) and 2 (C1) show that the general land use in the surrounding area is varied, comprising brownfield land to the east and south of the survey area, industrial land to the north, and pastoral and arable land to the west.

#### **D.1.2 Consultation**

The records from the Amphibian Atlas and previous survey work undertaken by E<sup>3</sup> Ecology Ltd, suggests that within the local area, great crested newts are:

- Occasional - known or likely to occur at c. 1-5 ponds per square km

### **D.2 Field Survey**

#### **D.2.1 Terrestrial Habitats**

An aerial photograph (figure 3) of the site indicates the broad habitats present within the survey area; this is the subject of a separate habitat survey and report.

The site has been divided into two sections for ease of description, one half to the north of Brock Lane, which bisects the site, and the other to the south.

The northern section comprises three areas. To the east is a large former coal storage area which has been left unmanaged for a number of years and which, although predominantly bare, does support scattered scrub and grassland in places. To the north west is an industrial estate and attached to this, to the far north west, is a small nature reserve which was created as part of the construction of the industrial estate. This area supports hedgerow and grassland. To the south of the industrial estate is an active motocross track which is predominantly bare ground, but is bordered to the west, south and east by hedgerow and a small area of grassland. Between the motocross track and the former coal storage area is an arable field. Further south are four arable fields which are bound by areas of plantation woodland less than 20 years in age.

The southern half of the site, similar to the northern area, comprises a large area of industrial land, some of which remains active, but the majority of which comprises further areas of bare ground. To the south of this area is a small nature reserve, created when the power plant situated in this area was active, which supports small areas of scattered scrub and grassland.

### D.2.2 Aquatic Habitats

Ponds 1 to 3 are to the south of the southern area, within an area developed for nature created as part of the on-going works at Blyth power station when it was operational. They are small, shallow areas which became dry during the survey period. They have no shade associated with them, and support a range of macrophytes. They are within an area of coarse grassland and no fish or waterfowl were recorded within them during survey work.

Ponds 4 and 5 are to the north of ponds 1-3 and are larger in size. Both support dense stands of *Typha latifolia*. The northern boundary of pond 4 comprises a line of alder (*Alnus glutinosa*) that provides some shading over the ponds as it extends between them. The ponds are in close proximity to one another and have good water quality. No fish have been recorded within them, and no waterfowl seen during survey work.

Pond 6 is a large, concrete lined pond that was used for water storage when the power plant was operational. It is situated to the south of the northern portion of the site, and bound by alder and willow scrub. Much of the surface area is dominated by *Crassula helmsii*, creating a dense mat of vegetation within the pond. However, water quality is good and the surrounding scrub has only a limited height, casting only small amounts of shade. No waterfowl were recorded on the pond, which is likely to be due to the dense mats of *Crassula helmsii*.

Pond 7 is a highly ephemeral pool within an arable field that was dry at the start of the detailed assessment work.

Ponds 8-10, located to the north of the site, are associated with the drainage system of the coal storage and are heavily choked by *Typha latifolia*. Ponds 8 and 9 became dry during the more detailed survey work on site; however pond 10 retained some areas of open water during the survey period. All have some limited shading from scattered scrub in places and had good water quality.

Pond 11 is to the north west of the survey area and is a man made water-body within a small nature reserve. It was drying and choked during survey work, but retained small areas of open water throughout. The water quality was considered to be good and the pond supports a range of macrophytes and aquatic invertebrates. Sections of the pond are shaded; however other portions of the pond are open and likely to become sufficiently warmed to encourage amphibian activity.

The ponds and ditches labelled 12-23 inclusive comprise a number of wetland bodies associated with the motocross track within the northern area of the site. There are also ditches surrounding this area that have been created for security reasons, preventing access for motor vehicles. The ditches are turbid, deep and steep sided and bound by hedgerow along one of the banks. They are connected to a wider ditch system and support fish. The smaller water-bodies within the motocross area support small stands of *Ranunculus* sp, *Typha latifolia* and occasional *Juncus effusus*. These ponds are frequently created and removed as part of the on-going operations within the motocross area. The majority are small, less than 50m<sup>2</sup> in size and have shallow banks, although a number do also have steeper banks. Very few are shaded and none were found to support fish or waterfowl however grey heron has been recorded on site.



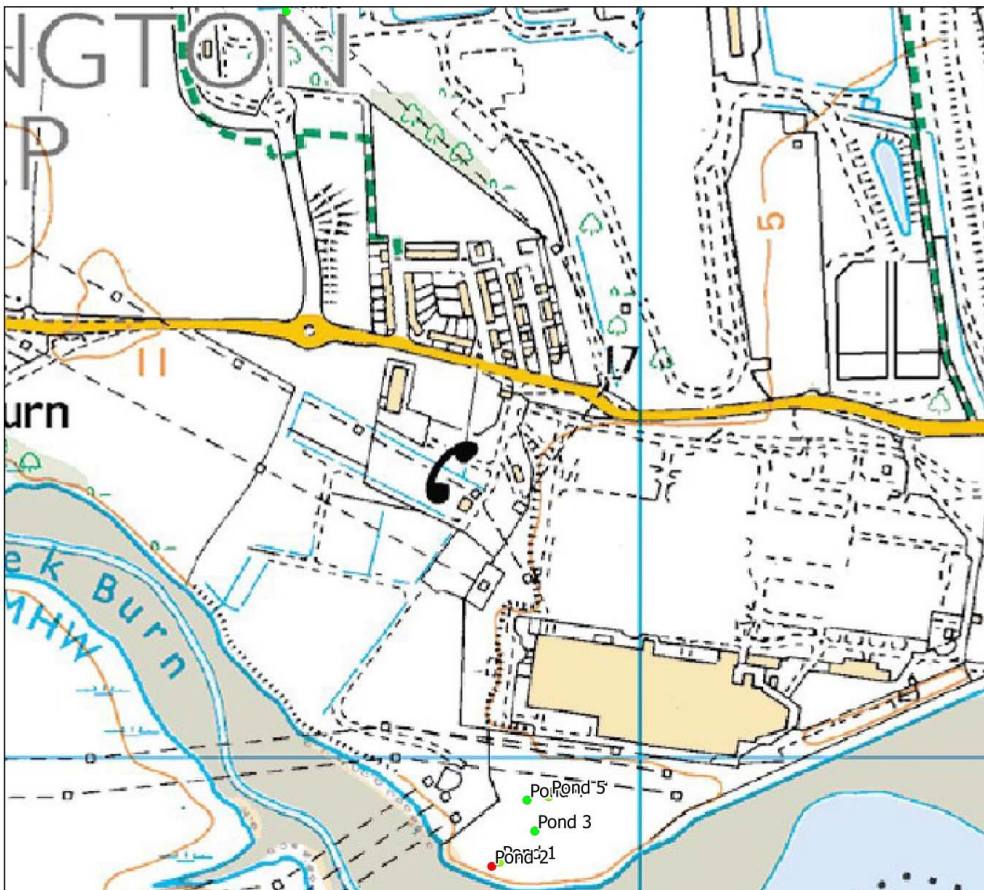
**Key**

HSI values

- 0.1922 - 0.2922
- 0.2922 - 0.3923
- 0.3923 - 0.4923
- 0.4923 - 0.5924
- 0.5924 - 0.6924



Title: GCN HSI Results
Project: Cambois GCN Assessment
Drawn By: JS
Date: 29.04.13



**Key**

HSI values

- 0.1922 - 0.2922
- 0.2922 - 0.3923
- 0.3923 - 0.4923
- 0.4923 - 0.5924
- 0.5924 - 0.6924



Title: GCN HSI Results
Project: Cambois GCN Assessment
Drawn By: JS
Date: 29.04.13

### D.2.3 Habitat Suitability Index

Pond Reference	Grid References (all NZ)		Location		Pond Area (m <sup>2</sup> )		Pond Permanence		Water Quality		Shade (%)		Fowl		Fish		Pond Density		Terrestrial Habitats			Macrophytes (%)		Overall Score
	Eastings	Northings	Field value	H.S.I.	Field value	H.S.I.	Field value	H.S.I.	Field value	H.S.I.	Field value	H.S.I.	Field value	H.S.I.	Field value	H.S.I.	Field value	H.S.I.	Field value - area	Field value - barriers	H.S.I.	Field value	H.S.I.	
Pond 1	429837	582878	A	1	50	0.1	6	0.5	Good	1	0	1	0	0.1	Absent	1	7	0.86	15	None	1	100	0.8	0.56699
Pond 2	429828	582873	A	1	Dry	0.001	10	0.1	Bad	0.01	0	1	0	0.1	Absent	1	7	0.86	15	None	1	100	0.8	0.19217
Pond 3	429878	582914	A	1	75	0.15	3	0.8	Good	1	0	1	0	0.1	Possible	0.67	7	0.86	15	None	1	60	0.9	0.60161
Pond 4	429869	582950	A	1	120	0.24	2	0.9	Good	1	50	1	0	0.1	Possible	0.67	7	0.86	15	None	1	80	1	0.64479
Pond 5	429894	582954	A	1	50	0.1	2	0.9	Good	1	0	1	0	0.1	Possible	0.67	7	0.86	15	None	1	40	0.7	0.57004
Pond 6	429589	583867	A	1	300	0.6	0	0.9	Good	1	20	1	1	0.1	Possible	0.67	15	1	13	None	1	40	0.7	0.6924
Pond 7	429405	584205	A	1	Dry	0.001	10	0.1	Bad	0.01	0	1	0	0.1	Absent	1	15	1	18	None	1	100	0.8	0.19512
Pond 8	429469	584241	A	1	50	0.1	8	0.3	Moderate	0.67	10	1	0	0.1	Absent	1	15	1	18	None	1	80	1	0.53743
Pond 9	429469	584341	A	1	300	0.6	8	0.3	Moderate	0.67	20	1	0	0.1	Absent	1	15	1	18	None	1	100	0.8	0.6287
Pond 10	429501	584468	A	1	100	0.2	7	0.4	Moderate	0.67	20	1	0	0.1	Absent	1	15	1	18	None	1	100	0.8	0.57973
Pond 11	429257	584692	A	1	200	0.4	2	0.9	Moderate	0.67	20	1	0	0.1	Absent	1	15	1	18	None	1	80	1	0.68903
Pond 12	429131	584309	A	1	50	0.1	8	0.3	Poor	0.33	0	1	0	0.1	Absent	1	15	1	16	None	1	0	0.3	0.44389
Ditch 13	429317	584056	A	1	200	0.4	1	1	Moderate	0.67	75	0.7	0	0.1	Possible	0.67	15	1	16	None	1	20	0.5	0.60232
Ditch 13	429364	584268								0.01														
Pond 14	429262	584149	A	1	50	0.1	3	0.8	Good	1	0	1	0	0.1	Absent	1	15	1	16	None	1	10	0.4	0.56301
Pond 15	429191	584135	A	1	50	0.1	8	0.3	Good	1	0	1	0	0.1	Absent	1	15	1	16	None	1	20	0.5	0.52193
Pond 16	429138	584154	A	1	50	0.1	2	0.9	Good	1	0	1	0	0.1	Absent	1	15	1	16	None	1	50	0.8	0.61057
Pond 17	429074	584180	A	1	50	0.1	6	0.5	Moderate	0.67	0	1	0	0.1	Absent	1	15	1	16	None	1	60	0.9	0.55967
Ditch 18	429118	584136	A	1	200	0.4	1	1	Moderate	0.67	80	0.6	0	0.1	Possible	0.67	15	1	16	None	1	20	0.5	0.59311
Ditch 18	429186	584111								0.01														
Pond 19	429053	584175	A	1	50	0.1	9	0.2	Poor	0.33	100	0.2	0	0.1	Absent	1	15	1	16	None	1	20	0.5	0.3819
Pond 20	429058	584268	A	1	50	0.1	9	0.2	Moderate	0.67	50	1	0	0.1	Absent	1	15	1	16	None	1	50	0.8	0.50468
Pond 21	429193	584336	A	1	50	0.1	8	0.3	Poor	0.33	0	1	0	0.1	Absent	1	15	1	16	None	1	20	0.5	0.46715
Pond 22	429101	584389	A	1	50	0.1	8	0.3	Poor	0.33	25	1	0	0.1	Absent	1	15	1	16	None	1	40	0.7	0.48314
Pond 23	429077	584231	A	1	100	0.2	2	0.9	Moderate	0.67	0	1	0	0.1	Absent	1	15	1	16	None	1	50	0.8	0.6287

\* a minimum of 50m<sup>2</sup> area has been used where appropriate

\*\* where more than 15 ponds are present, a maximum value of 15 has been used, giving the highest score of 1

## D.2.4 Aquatic Survey Results

Pond 1 was dry throughout the survey period.

Survey of pond 2		Great Crested Newt				Smooth		Palmate		Newt – unsure of spp.	Turbidity (0-5)	Vegetation (%)	Toad (E = Eggs L= larvae)	Frog (E = Eggs L= larvae)	Other species
Date of survey	Survey method	No. of traps	Male	Female	Immature	Eggs/ larvae	Male	Female	Male						
13.05.13	Torch		0	0	0	0	0	0	0	0	2	40	0	L	0
	Bottle trap	10	0	0	0		0	0	0	0					
21.05.13	Torch		0	0	0	0	0	0	0	0	3	40	L	0	0
	Bottle trap	10	0	0	0		0	0	0	0					
28.05.13	Torch		DRY												
	Bottle trap		DRY												
11.06.13	Torch		DRY												
	Bottle trap		DRY												

Survey of pond 3		Great Crested Newt				Smooth		Palmate		Newt – unsure of spp.	Turbidity (0-5)	Vegetation (%)	Toad (E = Eggs L= larvae)	Frog (E = Eggs L= larvae)	Other species
Date of survey	Survey method	No. of traps	Male	Female	Immature	Eggs/ larvae	Male	Female	Male						
13.05.13	Torch		0	0	0	0	0	0	0	0	2	40	0	L	0
	Bottle trap	10	0	0	0		0	0	0	0					
21.05.13	Torch		0	0	0	0	0	0	0	0	3	40	0	0	0
	Bottle trap	10	0	0	0		0	0	0	0					
28.05.13	Torch		0	0	0	0	0	0	0	0	1	60	L	L	0
	Bottle trap	10	0	0	0		0	0	0	0					
11.06.13	Torch		0	0	0	0	0	1	0	0	2	90	0	0	0
	Bottle trap	10	0	0	0		0	0	0	0					

Survey of pond 4		Great Crested Newt				Smooth	Palmate		Newt – unsure of spp.	Turbidity (0-5)	Vegetation (%)	Toad (E = Eggs L= larvae)	Frog (E = Eggs L= larvae)	Other species	
Date of survey	Survey method	No. of traps	Male	Female	Immature	Eggs/ larvae	Male	Female							Male
13.05.13	Torch		0	0	0	0	1	0	0	0	3	90	0	L	0
	Bottle trap	28	0	0	0		0	0	0	0					
21.05.13	Torch		0	0	0	0	0	0	0	0	3	75	L	L	2 Ma
	Bottle trap	30	0	0	0		0	0	0	0					
28.05.13	Torch		0	0	0	0	0	0	0	0	1	90	L	L	0
	Bottle trap	28	0	0	0		0	0	0	0					
11.06.13	Torch		0	0	0	0	0	0	0	0	2	100	L	L	0
	Bottle trap	17	0	0	0		0	0	0	0					

Survey of pond 5		Great Crested Newt				Smooth	Palmate		Newt – unsure of spp.	Turbidity (0-5)	Vegetation (%)	Toad (E = Eggs L= larvae)	Frog (E = Eggs L= larvae)	Other species	
Date of survey	Survey method	No. of traps	Male	Female	Immature	Eggs/ larvae	Male	Female							Male
13.05.13	Torch		0	0	0	0	0	1	0	0	2	80	0	L	0
	Bottle trap	10	0	0	0		0	0	0	0					
21.05.13	Torch		0	0	0	0	0	0	0	0	3	95	1	L	0
	Bottle trap	10	0	0	0		0	0	0	0					
28.05.13	Torch		0	0	0	0	0	0	0	0	1	30	0	L	0
	Bottle trap	10	0	0	0		0	0	0	0					
11.06.13	Torch		0	0	0	0	0	0	0	0	2	70	0	0	0
	Bottle trap	10	0	0	0		0	0	0	0					



Survey of pond 6		Great Crested Newt				Smooth	Palmate		Newt – unsure of spp.	Turbidity (0-5)	Vegetation (%)	Toad (E = Eggs L= larvae)	Frog (E = Eggs L= larvae)	Other species	
Date of survey	Survey method	No. of traps	Male	Female	Immature	Eggs/ larvae	Male	Female							Male
13.05.13	Torch		0	0	0	0	1	0	0	0	0	80	L	L	0
	Bottle trap	0	0	0	0		0	0	0	0					
21.05.13	Torch		0	0	0	0	0	0	0	0	2	90	1	L	St
	Bottle trap	0	0	0	0		0	0	0	0					
28.05.13	Torch		0	0	0	0	0	1	0	0	0	80	0	L	0
	Bottle trap	0	0	0	0		0	0	0	0					
11.06.13	Torch		0	0	0	0	0	0	0	0	1	100	L	0	0
	Bottle trap		0	0	0		0	0	0	0					

Pond 7-9 were dry at the time of survey.

Survey of pond 10		Great Crested Newt				Smooth	Palmate		Newt – unsure of spp.	Turbidity (0-5)	Vegetation (%)	Toad (E = Eggs L= larvae)	Frog (E = Eggs L= larvae)	Other species	
Date of survey	Survey method	No. of traps	Male	Female	Immature	Eggs/ larvae	Male	Female							Male
13.05.13	Torch		0	0	0	0	0	0	0	0	1	100	0	L	St
	Bottle trap	0	0	0	0		0	0	0	0					
21.05.13	Torch		0	0	0	0	0	0	0	0	3	100	L	L	St
	Bottle trap	0	0	0	0		0	0	0	0					
28.05.13	Torch		0	0	0	0	0	0	0	0	1	90	L	L	0
	Bottle trap	0	0	0	0		0	0	0	0					
11.06.13	Torch		0	0	0	0	0	1	0	0	1	80	L	0	0
	Bottle trap	0	0	0	0		0	0	0	0					

Survey of pond 11		Great Crested Newt				Smooth	Palmate		Newt – unsure of spp.	Turbidity (0-5)	Vegetation (%)	Toad (E = Eggs L= larvae)	Frog (E = Eggs L= larvae)	Other species	
Date of survey	Survey method	No. of traps	Male	Female	Immature	Eggs/ larvae	Male	Female							Male
13.05.13	Torch		0	0	0	0	0	0	0	0	1	90	0	0	St
	Bottle trap	10	0	0	0	0	0	0	0	0					
21.05.13	Torch		0	0	0	0	0	4	0	0	0	70	0	L	St
	Bottle trap	8	0	0	0	0	0	0	0	0					
28.05.13	Torch		0	0	0	0	0	0	0	0	2	90	0	L	0
	Bottle trap	10	0	0	0	0	0	0	0	0					
11.06.13	Torch		0	0	0	0	0	0	0	0	1	0	95	0	St
	Bottle trap	10	0	0	0	0	0	0	0	0					

Pond 12 was dry at the time of survey.

Survey of pond 13		Great Crested Newt				Smooth	Palmate		Newt – unsure of spp.	Turbidity (0-5)	Vegetation (%)	Toad (E = Eggs L= larvae)	Frog (E = Eggs L= larvae)	Other species	
Date of survey	Survey method	No. of traps	Male	Female	Immature	Eggs/ larvae	Male	Female							Male
13.05.13	Torch		0	0	0	0	0	0	0	0	4	30	0	0	0
	Bottle trap	0	0	0	0	0	0	0	0	0					
21.05.13	Torch		DRY												
	Bottle trap														
28.05.13	Torch														
	Bottle trap														
11.06.13	Torch														
	Bottle trap														

Pond 14 was dry at the time of survey.

Survey of pond 15		Great Crested Newt				Smooth	Palmate		Newt – unsure of spp.	Turbidity (0-5)	Vegetation (%)	Toad (E = Eggs L= larvae)	Frog (E = Eggs L= larvae)	Other species	
Date of survey	Survey method	No. of traps	Male	Female	Immature	Eggs/ larvae	Male	Female							Male
13.05.13	Torch		0	0	0	0	0	0	0	0	4	20	0	0	0
	Bottle trap	0	0	0	0		0	0	0	0					
21.05.13	Torch		0	0	0	0	0	0	0	0	1	20	0	0	0
	Bottle trap	0	0	0	0		0	0	0	0					
28.05.13	Torch		0	0	0	0	2	0	0	0	3	30	0	0	0
	Bottle trap	0	0	0	0		0	0	0	0					
11.06.13	Torch		0	0	0	0	0	0	0	0	2	25	1	0	0
	Bottle trap	0	0	0	0		0	0	0	0					

Survey of pond 16		Great Crested Newt				Smooth	Palmate		Newt – unsure of spp.	Turbidity (0-5)	Vegetation (%)	Toad (E = Eggs L= larvae)	Frog (E = Eggs L= larvae)	Other species	
Date of survey	Survey method	No. of traps	Male	Female	Immature	Eggs/ larvae	Male	Female							Male
13.05.13	Torch		0	0	0	0	0	0	0	0	4	60	0	0	0
	Bottle trap	0	0	0	0		0	0	0	0					
21.05.13	Torch		DRY												
	Bottle trap														
28.05.13	Torch														
	Bottle trap														
11.06.13	Torch														
	Bottle trap														

Survey of pond 17		Great Crested Newt				Smooth		Palmate		Newt – unsure of spp.	Turbidity (0-5)	Vegetation (%)	Toad (E = Eggs L= larvae)	Frog (E = Eggs L= larvae)	Other species
Date of survey	Survey method	No. of traps	Male	Female	Immature	Eggs/ larvae	Male	Female	Male						
13.05.13	Torch		0	0	0	0	0	0	0	0	4	5	0	0	0
	Bottle trap	0	0	0	0		0	0	0	0					
21.05.13	Torch		DRY												
	Bottle trap														
28.05.13	Torch														
	Bottle trap														
11.06.13	Torch														
	Bottle trap														

Survey of pond 18		Great Crested Newt				Smooth		Palmate		Newt – unsure of spp.	Turbidity (0-5)	Vegetation (%)	Toad (E = Eggs L= larvae)	Frog (E = Eggs L= larvae)	Other species
Date of survey	Survey method	No. of traps	Male	Female	Immature	Eggs/ larvae	Male	Female	Male						
13.05.13	Torch		0	0	0	0	0	0	0	0	4	30	0	0	0
	Bottle trap	0	0	0	0		0	0	0	0					
21.05.13	Torch		DRY												
	Bottle trap														
28.05.13	Torch														
	Bottle trap														
11.06.13	Torch														
	Bottle trap														

Ponds 19-20 were dry at the time of survey.

Survey of pond 21		Great Crested Newt				Smooth		Palmate		Newt – unsure of spp.	Turbidity (0-5)	Vegetation (%)	Toad (E = Eggs L= larvae)	Frog (E = Eggs L= larvae)	Other species
Date of survey	Survey method	No. of traps	Male	Female	Immature	Eggs/ larvae	Male	Female	Male						
13.05.13	Torch		0	0	0	0	0	0	0	0	2	10	0	0	0
	Bottle trap	0	0	0	0		0	0	0	0					
21.05.13	Torch		DRY												
	Bottle trap	0													
28.05.13	Torch														
	Bottle trap	0													
11.06.13	Torch		0	0	0	0	0	5	0	0	2	10	2	0	0
	Bottle trap	0	0	0	0		0	0	0						

Survey of pond 22		Great Crested Newt				Smooth		Palmate		Newt – unsure of spp.	Turbidity (0-5)	Vegetation (%)	Toad (E = Eggs L= larvae)	Frog (E = Eggs L= larvae)	Other species
Date of survey	Survey method	No. of traps	Male	Female	Immature	Eggs/ larvae	Male	Female	Male						
13.05.13	Torch		0	0	0	0	0	0	0	0	4	5	0	0	0
	Bottle trap	0	0	0	0		0	0	0	0					
21.05.13	Torch		0	0	0	0	0	2	0	0	1	50	0	0	0
	Bottle trap	0	0	0	0		0	0	0	0					
28.05.13	Torch		0	0	0	0	1	0	0	0	0	0	0	L	0
	Bottle trap	0	0	0	0		0	0	0	0					
11.06.13	Torch		0	0	0	0	1	0	0	0	2	50	1	0	0
	Bottle trap	0	0	0	0		0	0	0	0					

Survey of pond 23		Great Crested Newt				Smooth	Palmate		Newt – unsure of spp.	Turbidity (0-5)	Vegetation (%)	Toad (E = Eggs L= larvae)	Frog (E = Eggs L= larvae)	Other species
Date of survey	Survey method	No. of traps	Male	Female	Immature	Eggs/ larvae	Male	Female						
13.05.13	Torch		0	0	0	0	0	0	0	0	4	0	0	0
	Bottle trap	0	0	0	0		0	0	0	0				
21.05.13	Torch		0	0	0	0	3	3	0	0	1	50	0	0
	Bottle trap	0	0	0	0		0	0	0	0				
28.05.13	Torch		0	0	0	0	0	0	0	0	1	50	0	0
	Bottle trap	0	0	0	0		0	0	0	0				
11.06.13	Torch		0	0	0	0	0	0	0	0	2	50	0	0
	Bottle trap	0	0	0	0		0	0	0	0				

## E ASSESSMENT

The value and significance of the habitats and species found was assessed against the following criteria developed from the Guidelines for Ecological Impact Assessment produced by the Institute of Ecology and Environmental Management<sup>1</sup>.

Level of Value	Examples
<b>International</b>	<ul style="list-style-type: none"> <li>• An internationally designated site or candidate site.</li> <li>• A viable area of a habitat type listed in Annex I of the Habitats Directive, or smaller areas of such habitat, which are essential to maintain the viability of a larger whole.</li> <li>• Any regularly occurring population of an internationally important species, which is threatened or rare in the UK.</li> <li>• Any regularly occurring, nationally significant population/number of any internationally important species.</li> </ul>
<b>National</b>	<ul style="list-style-type: none"> <li>• A nationally designated site.</li> <li>• A viable area of a priority habitat identified in the UK BAP, or smaller areas of such habitat, which are essential to maintain the viability of a larger whole.</li> <li>• Any regularly occurring population of a nationally important species, which is threatened or rare in the region or county.</li> <li>• A regularly occurring regionally or county significant population/number of any nationally important species.</li> <li>• A feature identified as of critical importance in the UK BAP.</li> </ul>
<b>Regional</b>	<ul style="list-style-type: none"> <li>• Viable areas of key habitat identified in the Regional BAP or smaller areas of such habitat, which are essential to maintain the viability of a larger whole.</li> <li>• A regularly occurring, locally significant number of a regionally important species.</li> </ul>
<b>County</b>	<ul style="list-style-type: none"> <li>• County designated sites.</li> <li>• A viable area of a habitat type identified in the County BAP.</li> <li>• Any regularly occurring, locally significant population of a species which is listed in a County "red data book" or BAP on account of its regional rarity or localisation.</li> <li>• A regularly occurring, locally significant number of a species important in a County context.</li> </ul>
<b>District</b>	<ul style="list-style-type: none"> <li>• Areas of habitat identified in a District level BAP.</li> <li>• Sites designated at a District level.</li> <li>• Sites/features that are scarce within the District or which appreciably enrich the District habitat resource.</li> <li>• A population of a species that is listed in a District BAP because of its rarity in the locality.</li> </ul>
<b>Parish</b>	<ul style="list-style-type: none"> <li>• Area of habitat considered to appreciably enrich the habitat resource within the context of the Parish.</li> <li>• Local Nature Reserves.</li> </ul>
<b>Local</b>	<ul style="list-style-type: none"> <li>• Habitats and species that contribute to local biodiversity, could only be replicated in the medium term, but are common in the local area.</li> <li>• Loss of such habitats would ideally be mitigated if local biodiversity is to be conserved and enhanced.</li> </ul>
<b>Low</b>	<ul style="list-style-type: none"> <li>• Habitats of poor to moderate diversity such as established conifer plantations, species poor hedgerows and unintensively managed grassland that may support a range of Local BAP species but which are unexceptional, common to the local area and whose loss can generally be readily mitigated.</li> </ul>

<sup>1</sup> Institute for Ecology and Environmental Management (2006) Guidelines for Ecological Impact Assessment in the United Kingdom (Version 7 July 2006). <http://www.ieem.org.uk/ecia/index.html>.

### **E.1 Summary of Survey Results**

Overall, no great crested newts have been recorded on site, although small numbers of common frog, common toad and smooth newts have been recorded.

### **E.2 Site Status Assessment**

Due to the absence of great crested newts and the small populations of common amphibian species on site, the qualitative, contextual and quantitative value of the survey area is considered to be low. In terms of the functional value the site is considered to provide a linkage for amphibians throughout the local area, the movement of local amphibians being restricted by the North Sea coast to the east and the A189 to the west. It is therefore considered to be of moderate importance for the local population.

### **E.3 Limitations**

Surveys were restricted to between mid-May and mid June, with only a single survey in the mid-April to mid-May survey window. However due to the unusually cold weather in March, populations of amphibians were delayed in reaching breeding ponds and mating in 2013. Therefore the survey is considered to provide sufficiently robust data to inform any feasibility study. The delay to peak breeding populations has been confirmed with other surveys in the local area having similar findings.



## F APPENDICES

### F.1 Appendix 1: Habitat Suitability Index (HSI) Methodology

The Habitat Suitability Index (HSI) for the great crested newt was developed by Oldham *et al.* (2000) as a means of evaluating habitat quality and quantity for the species. It was developed to provide a numerical index of between 0 and 1 to aid in assessing habitats in a more objective manner. 0 indicates unsuitable habitat, 1 represents optimal habitat. The HSI for the great crested newt incorporates ten suitability categories, all of which are factors thought to affect great crested newts and are described in the text below in more depth.

The HSI for great crested newts is a measure of habitat suitability and it is not a substitute for newt surveys undertaken at the correct time of year as the system is not sufficiently precise to allow conclude that a pond does or does not support newts. Ponds with greater HSI scores are likely to support greater populations of the species, however again an assessment of a population cannot be made by an HSI score alone.

According to Natural England guidance, HSI scores can be useful when employed for the following tasks:

- 1) in **surveys**, to assess habitat quality in a repeatable, objective manner.
- 2) in **impact assessments**, to allow a measure of how damaging a development could be.
- 3) in **risk assessments**, helping to decide whether an offence might be committed, and therefore whether a license should be applied for.
- 4) in **habitat enhancement**, HSI could be used to identify the low-scoring factors in an existing pond that need addressing to improve its quality for newts.
- 5) in **post-development monitoring**, to allow an assessment of habitat condition.

The factors used in the calculation are explained below:

- **Geographic location (SI<sub>1</sub>):** Based upon national newt distribution.
- **Pond Area (SI<sub>2</sub>):** The optimum size of ponds for great crested newt occupancy is in between 500 and 750m<sup>2</sup>, calculated from the National Amphibian Survey (Sweet & Oldham, 1993). Ponds of a larger size become less suitable as are smaller ponds, which are unlikely to support viable breeding populations.
- **Pond permanence (SI<sub>3</sub>):** Pond permanence is essential to permit the completion of metamorphosis in any given year and if a pond successively dries out before metamorphosis is complete this could lead to extinction of a population. However, occasional drying out can be of benefit, by preventing colonisation by fish which may predate upon newt eggs. The optimal frequency of drying out is assumed to be one year per decade.
- **Water quality (SI<sub>4</sub>):** The presence of indicator organisms is used to assess water suitability. Normally clear water with an abundant and diverse invertebrate community including relatively sensitive groups such as mayfly larvae, water shrimps and amphibians is considered the optimum state.
- **Pond shading (SI<sub>5</sub>):** Shade can reduce the growth of beneficial macrophytes and excessive tree cover may increase the organic content through leaf fall and cause eutrophication. The National Amphibian Survey found that newt occurrence was significantly reduced above a threshold of 75% shade.
- **No. of waterfowl (SI<sub>6</sub>):** Common waterfowl, such as moorhens and mallards, in naturally occurring numbers have little adverse effect upon newt populations but when encouraged by supplementary feeding, they can seriously damage the habitat, partly by direct mechanical interference, but also by excessive nutrient enrichment.

- **Occurrence of fish (SI<sub>7</sub>):** Fish can have a negative impact on great crested newt presence, particularly stickleback, which can be both predatory and competitive. Other species such as goldfish and carp appear in some conditions to be benign.
- **Pond density (SI<sub>8</sub>):** Great crested newts are known to occur in metapopulations and population persistence depends, in part, upon the distance separating breeding sites. The optimum density of ponds for great crested newts is 4 per km<sup>2</sup>.
- **Proportion of “newt friendly habitat” (SI<sub>9</sub>):** In the terrestrial stage of their life-cycle newts are known to occur more frequently on land with low intensity use, than on pasture and arable. Scrub, unimproved grassland, woodland (both deciduous and coniferous) and gardens are regarded as providing newt-friendly habitat, unlike improved pasture, arable and urban land. The greater the area of good habitat, the greater the confidence that the site is suitable. Habitat features such as hedges and ditches also enhance the suitability of the site. The presence of barriers to terrestrial dispersal of newts modifies the importance of newt-friendly habitat within range of the breeding site. Roads and rivers are perhaps the two most serious amongst the many man-made and natural barriers interfering with newt migration.
- **Macrophyte Content (SI<sub>10</sub>):** Although not a direct food source for great crested newts, macrophytes fulfil a number of roles. They provide a food source (direct or indirect) for prey organisms, cover from predators and a substrate for egg attachment. The National Amphibian Survey data showed the highest occurrence of great crested newts in ponds with emergent vegetation cover between 25 and 50% and submerged vegetation between 50 and 75%.

### Calculation of the Habitat Suitability Index

$$HSI = (SI_1 * SI_2 * SI_3 * SI_4 * SI_5 * SI_6 * SI_7 * SI_8 * SI_9 * SI_{10})^{1/10}$$

HSI = Habitat Suitability Index; SI = Suitability indices (expressed as values between 0 and 1) in respect of each of the key habitat features.

The result of the above HSI calculation is a single number between 0 and 1. In evaluations of the Habitat Suitability Index the lowest HSI obtained at a site known to support breeding great crested newt was 0.43, the highest 0.96.

This is based on Lee Brady’s categorisation of the scores.

If a pond has a very low HSI score (<0.5) then there would be a minimal chance of great crested newt presence. Therefore in some limited circumstances, the HSI might be used to help conclude that an offence is highly unlikely and therefore development could proceed in an area without a license. The use of the system in this way could only be used when other factors such as distance from the pond, proposed area of habitat loss and quality of habitats to be lost further minimise the risk of newts being impacted by the development. There would still be a risk of committing an offence, but it would typically be so low as to be negligible.