



FIVE  
ESTUARIES  
OFFSHORE WIND FARM

FIVE ESTUARIES  
OFFSHORE WIND FARM  
PRELIMINARY ENVIRONMENTAL  
INFORMATION REPORT

VOLUME 5, ANNEX 4.2: HABITAT AND  
HEDGEROW SURVEY REPORT: NORTH  
OF A120

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# FIVE ESTUARIES OFFSHORE WIND FARM

**Habitat & Hedgerow Survey: North of A120**

**Prepared for: Five Estuaries Offshore Wind Ltd**

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## DEFINITION OF ABBREVIATIONS AND ACRONYMS

Term	Definition
ASNW	Ancient semi-natural woodland
CEnv	Chartered Environmentalist
CIEEM	Chartered Institute for Ecology and Environmental Management
EIA	Environmental Impact Assessment.
ES	Environmental Statement
DCO	Development Consent Order
GIS	Geographical Information System
GPS	Global Positioning System
GR	Grid Reference
HAP	Habitat Action Plans
NERC Act	Natural Environment and Rural Communities Act 2006
NSIP	Nationally Significant Infrastructure Project
PAWS	Plantation on Ancient Woodland Site
PEA	Preliminary Ecological Appraisal
VE OWFL	Five Estuaries Offshore Windfarm Limited.



## 1.0 Introduction

Five Estuaries Offshore Wind Farm (VE OWF) is a Nationally Significant Infrastructure Project (NSIP). An Environmental Impact Assessment (EIA) is being undertaken, the findings of which will be presented within an Environmental Statement (ES), which will accompany a Development Consent Order (DCO) application under the Planning Act 2008.

SLR Consulting was commissioned by GoBe Consultants, on behalf of Five Estuaries Offshore Wind Ltd, to undertake habitat survey and hedgerow assessment at the areas that may be affected by construction and operation of the onshore aspects of the VE OWF project comprising cable corridor and substation (hereafter referred to as “onshore infrastructure”), north of the A120<sup>1</sup>. Initial identification and classification of areas of similar habitat (i.e., habitat polygons) had previously been undertaken primarily via interpretation of aerial imagery in 2021 and early 2022, as reported in the Preliminary Ecological Appraisal (PEA)<sup>2</sup>. A recommendation of the PEA was that field survey of all areas within 100m of the onshore infrastructure options that were not previously accessible be undertaken, to be certain of habitat type and condition.

This report presents the findings of the habitat and hedgerow survey undertaken in summer and autumn 2022; the results supersede those reported in the PEA.

### 1.1 Survey area

The habitat survey area is shown on Drawing 1 and was initially undertaken to consider habitats within 100 m of the Red Line Boundary (RLB) that was under consideration at the time, for part of the scheme north of the A120.

### 1.2 Purpose of this report

This report presents the findings of the habitat survey and hedgerow assessment. The report seeks to establish baseline conditions and identify habitats that are important ecological features (irrespective of animal species they may support). The assessment of impacts resulting from VE is beyond the scope of this report however and will be covered in the Onshore Biodiversity and Nature Conservation chapters of the ES.

### 1.3 Evidence of technical competence and experience

This report has been authored by Jess Colebrook and Emily Drinkwater. Jess is a Principal Ecologist at SLR Consulting with over 20 years’ experience as a professional ecologist; she is a Chartered Environmentalist (CEnv) and a full member of CIEEM (MCIEEM). Jess is leading the onshore ecological work necessary to inform the EIA for the project, has been involved in the scoping and consultation process.

Emily Drinkwater and Ellen Miller undertook the habitat survey and condition assessment<sup>3</sup>. Emily is an Associate Ecologist and Ellen is a Senior Ecologist, both at SLR Consulting and Associate members of the Chartered Institute of Ecology and Environmental Management (CIEEM) (ACIEEM) and have over 10 years’ experience as

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<sup>1</sup> Habitat and hedgerow survey for the remainder of the onshore infrastructure, and including the landfall area, has been undertaken by others and are detailed within separate reports.

<sup>2</sup> Five Estuaries Offshore Wind Farm: Preliminary Ecological Appraisal (Onshore), SLR Consulting, May 2022

<sup>3</sup> Condition Assessment data collected in accordance with Defra Metric 3.0 is in the process of being processed and will be provided in an updated version of this report, to be submitted with the ES.

professional ecologists.

Hannah McBlain and Charlie Kempson undertook the hedgerow surveys. Both are skilled field ecologists with 3 years' experience of habitat, botanical and protected species survey. Both are working toward CIEEM membership and abide by its professional code of conduct.

Additional technical support and Quality Assurance review has been provided by Duncan Watson. Duncan is a Technical Director at SLR Consulting with over 23 years' professional ecological experience. He is also a Chartered Environmentalist (CEnv) and a full member of CIEEM (MCIEEM).

## 2.0 Methodology

### 2.1 Field survey

The field survey comprised three main elements:

- mapping of habitats - habitats were mapped using UKHab v1.1<sup>6</sup>, as agreed at the scoping stage, to capture the presence of Section 41 and Annex 1 habitat types. The presence of invasive non-native plant species was also recorded during the habitat survey;
- each polygon or line of habitat was subject to Condition Assessment in accordance with Defra Metric 3.1<sup>4</sup>; and
- sufficient detail was gathered to determine if hedgerows that could be breached by the proposed development meet the definition of “important” under the Hedgerow Regulations (1997).

#### 2.1.1 Habitat survey

##### 2021/2022 Initial mapping

Initial identification and classification of areas of similar habitat (i.e., habitat polygons) was undertaken primarily via interpretation of aerial imagery in 2021 and early 2022, as reported in the Preliminary Ecological Appraisal (PEA)<sup>5</sup>. Once more comprehensive access was gained to the survey area, each of the polygons identified from aerial interpretation was visited, and where necessary, remapped. Habitats at each were classified as follows using the UKHab Primary Habitat Hierarchy:

- Urban habitats were classified to Level 3 “Built up areas and gardens”, with the exception of buildings which were mapped to Level 5 “buildings”;
- Newly planted hedgerows were classified to Level 3 “Hedgerows” (h2), in conjunction with secondary code 56 “young trees – planted” to distinguish them from mature hedgerows, whereas hedgerows that were not accessible were also classified as h2 but without a secondary code;
- Ditches and ponds were classified to Level 3 “Standing open water and canals”, with the inclusion of the following secondary codes to denote their current conditions at the time of survey; 19 “Ponds (Priority Habitat)”, 39 “Freshwater – manmade”, 41 “Freshwater Natural”, 117 “Dry”, 162 “Temporary water bodies”, 191 “Ditch” and 362 “Artificial Lake or Pond”;
- All other habitats were classified to Level 4 (where applicable) including mandatory secondary habitat codes (numbers 10 – 41). Habitats were only further classified to Level 5 if they represented an Annex 1 habitat type;
- Each polygon or line of habitat was subject to Condition Assessment in accordance with Defra Metric 3.1; and

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<sup>4</sup> This data is being collated and will be appended to future iteration of this report.

<sup>5</sup> Five Estuaries Offshore Wind Farm: Preliminary Ecological Appraisal (Onshore), SLR Consulting, May 2022.

- Boundary fences or walls were not mapped.

Additional secondary codes, photographs and notes were recorded for the majority of polygons; these have been retained in a Geographical Information System (GIS) and due to the amount of data are not presented in this report, they can however be supplied upon request. The most relevant/pertinent records are included here, in particular for habitats deemed to be important ecological features.

The field survey was undertaken by Emily Drinkwater ACIEEM and Ellen Miller ACIEEM over a period of 18 days in 2022; specific dates were as follows: .

- 24<sup>th</sup> May – 27<sup>th</sup> May 2022;
- 20<sup>th</sup> June – 24<sup>th</sup> June 2022;
- 27<sup>th</sup> June – 1<sup>st</sup> July 2022; and
- 11<sup>th</sup> – 14<sup>th</sup> July 2022.

### 2.1.2 Hedgerow assessment

During the habitat survey, summary notes were made about each hedgerow including the species present and the presence of trees, ditches, or walls. This information, along with the preliminary scheme design, was used to make a shortlist of hedgerows that could be breached by the onshore elements of VE, and which warranted more detailed survey, to determine if they were “important” under Schedule 1 Part II (6) of the Hedgerow Regulations 1997 (i.e., for wildlife and landscape reasons rather than archaeological or historical reasons).

For the purpose of the assessment a “hedgerow” is defined in Section 3(1) of the Hedgerow Regulations as follows:

*any hedgerow growing in, or adjacent to, any common land, protected land, or land used for agriculture, forestry or the breeding or keeping of horses, ponies, or donkeys, if—*

*(a) it has a continuous length of, or exceeding, 20 metres; or*

*(b) it has a continuous length of less than 20 metres and, at each end, meets (whether by intersection or junction) another hedgerow.*

“Important” hedgerows (for wildlife and landscape reasons) must be at least 30 years old and satisfy at least one of the criteria listed in Part II of Schedule 1 of the Hedgerow Regulations. To summarise, the criteria are a hedgerow that:

- Contains Schedule 1 birds, Schedule 5 animals or Schedule 8 plants species listed in the Wildlife and Countryside Act 1981 (as amended);
- Contains endangered, extinct, rare or vulnerable species, as listed in the British Red Data Books;
- Includes (on average, per 30m section) at least:
  - seven woody species (as defined within the Hedgerow Regulations 1997); or

- six woody species and three features in sub paragraph 4 (see below); or
- six woody species, including one of black-poplar *Populus nigra ssp betulifolia*, large-leaved lime *Tilia platyphyllos*, small-leaved lime *Tilia cordata* or wild service-tree *Sorbus torminalis*; or
- at least five woody species, and has associated with it at least four of the features specified in sub-paragraph 4 of Part II of Schedule 1 of the Hedgerow Regulations; or
- at least four woody species, at least two features in sub paragraph 4 and is adjacent to a bridleway or footpath, a road used as a public path, or a byway open to all traffic.

The features referred to in sub paragraph 4 of Part II of Schedule 1 of the Hedgerow Regulations are:

- a bank or wall which supports the hedgerow along at least one half of its length;
- gaps which in aggregate do not exceed 10% of the length of the hedgerow;
- where the length of the hedgerow does not exceed 50 m, at least one standard tree;
- where the length of the hedgerow exceeds 50 m but does not exceed 100 m, at least two standard trees;
- where the length of the hedgerow exceeds 100 m, such number of standard trees (within any part of its length) as would when averaged over its total length amount to at least one for each 50 m;
- at least three woodland species within one metre, in any direction, of the outermost edges of the hedgerow;
- a ditch along at least one half of the length of the hedgerow;
- connections scoring four points or more (a connection with another hedgerow scores one point and a connection with a pond or a woodland in which the majority of trees are broad-leaved trees scores two points); and
- a parallel hedge within 15 m of the hedgerow.

The shortlist for survey was based upon the minimum species requirements of the above; therefore, all hedgerows potentially breached by the onshore elements of VE, which were recorded as potentially supporting at least four woody species (in their entire length) were subject to further survey to gather the additional detail necessary for assessment. 29 hedgerows were subject to further survey and are identified on Figure 2.

The additional hedgerow survey was conducted on 17 and 18 August 2022 by Hannah McBlain and Charlie Kempson. The hedgerows requiring survey were marked on a plan in advance and divided into 30m sections. Global Positioning System (GPS) was used to determine the start and end of each section on the ground. For each section specific details were recorded on to a proforma to enable ease of reference against the regulations; if the hedge had less than four species (on average) within each 30 m section, or was less than 30 years old then no further details were recorded as it could not meet the threshold importance criteria.

### 2.1.3 Limitations

Surveys were all undertaken within the optimal period for habitat survey, but:

- it should be noted that some plant species may have been missed if not in evidence at the time of the survey due to their seasonal nature; and
- the surveys dates coincided with record breaking, prolonged periods of very hot and dry weather. This resulted in some vegetation suppression, wilting and dieback.

However, the above points are not considered to be a significant limitation as it was still possible to identify the majority of plants in order to assess the habitat types which were present.

Access permission was not granted for some areas of the survey area; therefore, these areas were not ground truthed and aerial mapping was used to identify the types of habitats present or likely to be present in these areas. The inaccessible areas constituted only a small proportion of the total survey area, unlikely to be of high conservation value based on aerial mapping interrogation and given the types of habitats recorded it is unlikely that high value habitats have been missed.

## 2.2 Determining Important Ecological Features

Ecological features can be important for a variety of reasons and the rationale used to identify them is explained below. Importance may relate, for example, to protected status, the quality or extent of the site or habitats therein; habitat and/ or species rarity; the extent to which such habitats and/or species are threatened throughout their range, or to their rate of decline.

Important habitats are considered here to be those which:

- match descriptions of habitats listed on Annex 1 of the Habitats Directive, so far as it applies to the UK and as transposed by The Conservation of Habitats and Species Regulations 2017 (as amended);
- match descriptions of habitats of principal importance for biodiversity under Section 41 of Natural Environment and Rural Communities (NERC) Act 2006;
- match Local Wildlife Site Selection Criteria<sup>6</sup>;
- match descriptions of habitats with Habitat Action Plans (HAPs) contained within Local Biodiversity Action Plans<sup>7</sup>;
- comprise irreplaceable habitats; such as (but not limited to) ancient woodland and veteran trees<sup>8</sup>; and/or
- comprise a significant habitat resource for an important species (see below).

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<sup>6</sup> <https://www.essexwtrrecords.org.uk/sites/default/files/LOCALWILDLIFESITESELECTIONCRITERIA2016.pdf>

<sup>7</sup> Essex Biodiversity Action Plan "A Wild Future for Essex" (1999) does not appear to have been updated in recent years and can be found here <https://www.braintree.gov.uk/downloads/file/2436/e47-the-essex-biodiversity-action-plan-1999>

<sup>8</sup> Referenced in Natural England Standing Advice for ancient woodland and veteran trees <https://www.gov.uk/guidance/ancient-woodland-ancient-trees-and-veteran-trees-advice-for-making-planning-decisions>)

## 3.0 Results

### 3.1 Habitats

Habitat types within the Survey Area are shown in Drawing 1 (Habitat Plan), with primary and mandatory secondary UKHab codes stated. Important habitats (as defined in Section 2.3) are shown in Drawing 2 (Important Habitats), including primary codes, mandatory secondary codes plus additional secondary codes as appropriate.

General descriptions for the various habitats encountered, including illustrative photographs, are provided below. More detailed descriptions are provided for specific areas of Priority Habitat, where there was potential for Annex 1 habitat, locally important or rare species to occur. Data for all habitat polygons, including (in almost all cases) photographs and dominant/characteristic species are stored in a GIS and can be made available upon request.

#### 3.1.1 Cropland – arable and horticulture (c1)

The overwhelming majority of the area surveyed supports cropland comprising cereal crops such as wheat (as shown in Photograph 3.1), barley, maize and non-cereal crops; flax, oil-seed rape, potatoes, beetroot, onions, and peas.

**Photograph 3.1: Cropland: Wheat fields south of Barns Lane, Lawford, Manningtree**



Small rectangular strips or field corners planted with game bird cover (Photograph 3.2); maize interspersed with arable weeds, containing cereal feeders for pheasants and partridges and some pens, were regularly occurring throughout the survey area.

**Photograph 3.2: Establishing game bird cover crop, south of the Ardleigh Road, Little Bromley**



Some areas had been ploughed or cultivated. Other areas of bare ground exist within the cropland comprised of cross-field footpaths (Photograph 3.3), tracks (Photograph 3.4), and narrow strips surrounding the cropland allowing some common arable weeds and other herbs to establish in between. This included the following notable species (refer to Section 3.2 for further details);

- common cudweed *Filago vulgaris*;
- corn spurrey *Spergula arvensis* and
- sea holly *Eryngium maritimum*.

Additional species included:

- knotgrass sp.;
- black mustard *Brassica nigra*;
- redshank *Persicaria maculosa*;
- pale persicaria *Persicaria lapathifolia*;
- common fumitory *Fumaria officinalis*;
- wild radish *Raphanus raphanistrum* subsp. *Raphanistrum*;
- field bindweed *Convolvulus arvensis*;
- common field speedwell *Veronica persica*;



- scarlet pimpernel *Anagallis arvensis*;
- Shepherd's purse *Capsella bursa-pastoris*;
- small nettle *Urtica urens*;
- upright hedge parsley *Torilis japonica*;
- fat hen *Chenopodium album*;
- scentless mayweed *Tripleurospermum inodorum*;
- fool's-parsley *Aethusa cynapium*;
- sand spurrey *Spergularia rubra*;
- bird's-foot trefoil *Lotus corniculatus*;
- field madder *Sherardia arvensis*;
- toad rush *Juncus bufonius*;
- sun spurge *Euphorbia helioscopia* and
- mayweed.

**Photograph 3.3: Sandy/gravel tracks with ephemeral vegetation, north of Manning Grove wood**



**Photograph 3.4: Cross -field footpath north of Manning Grove wood**



Priority habitat Arable Field Margins sown with wild flowers or pollen and nectar mixes occur in a few locations throughout the survey area (Photograph 3.5, Photograph 3.6 and Photograph 3.7). These areas vary from having 80% herb and 20% grass cover, 50% herbs and 50% grass cover, areas which have recently begun to establish with bare ground and an area which includes a non-native seed mix. Species noted to occur in these areas include;

- chicory *Cichorium intybus* (considered notable, refer to Section 3.2 for details);
- oxeye daisy *Leucanthemum vulgare*;
- field madder *Sherardia arvensis*;
- hawkweed sp.;
- common poppy *Papaver rhoeas*;
- wild carrot *Daucus carota*;
- musk mallow *Malva moschata*;
- Yorkshire fog *Holcus lanatus*;
- red clover *Trifolium pratense*;
- curled dock *Rumex crispus*;
- self-heal *Prunella vulgaris*;
- meadow vetchling *Lathyrus pratensis*;
- tufted vetch *Vicia cracca*;
- sainfoin *Onobrychis viciifolia*;
- black medick *Medicago lupulina*;
- field bindweed;
- creeping thistle *Cirsium arvense*;
- scarlet pimpernel;
- creeping bent *Agrostis stolonifera*;
- crested dog's-tail *Cynosurus cristatus*;
- greater bird's-foot trefoil *Lotus pedunculatus*;
- bristly oxtongue *Helminthotheca echioides*;

- scentless mayweed;
- common knapweed *Centaurea nigra*;
- lady's bedstraw *Galium verum*;
- red fescue *Festuca rubra*;
- common hogweed *Heracleum sphondylium*;
- timothy grass *Phleum pratense*;
- white campion *Silene latifolia*;
- common nettle *Urtica dioica*;
- ribwort plantain *Plantago lanceolata*;
- perforate St john's wort *Hypericum perforatum*;
- rose sp.;
- rosebay willowherb *Chamaenerion angustifolium*;
- cut-leaved geranium *Geranium dissectum*;
- bird's-foot trefoil;
- hedge bedstraw *Galium mollugo*;
- cleavers *Galium aparine*;
- perennial ryegrass *Lolium perenne*;
- creeping buttercup *Ranunculus repens*;
- yarrow *Achillea millefolium*;
- rough meadow grass *Poa trivialis*;
- soft brome *Bromus hordeaceus*;
- cow parsley *Anthriscus sylvestris*;
- common bent *Agrostis capillaris*;
- hairy tare *Vicia hirsute*;
- cock's-foot *Dactylis glomerata*;
- common sorrel *Rumex acetosa*;
- wild oat-grass *Avena fatua*;
- slender meadow foxtail *Alopecurus myosuroides*;
- scented mayweed *Matricaria chamomilla*;
- lady's mantle sp.;
- perennial sow-thistle *Sonchus arvensis*;
- white clover *Trifolium repens*;
- common ragwort *Jacobaea vulgaris*;
- salsify *Tragopogon porrifolius*;
- creeping soft grass *Holcus mollis*;
- field horse tail *Equisetum arvense*;
- Shepherd's purse;
- wild mustard *Sinapis arvensis*;
- burdock *Arctium minus*;
- melilot *Melilotus officinalis*;
- fat hen;
- lucerne *Medicago sativa*;
- pineapple weed *Matricaria discoidea*;
- common nettle;
- red dead nettle *Lamium purpureum*;
- field speedwell;
- salad burnet *Sanguisorba minor*;
- greater plantain *Plantago major*;
- black horehound *Ballota nigra*;

- common fumitory *Fumaria officinalis*;
- mugwort *Artemisia vulgaris*;
- phacelia *Phacelia tanacetifolia*;
- broad-leaved willowherb *Epilobium montanum*;
- groundsel *Senecio vulgaris*;
- prickly sow-thistle *Sonchus asper*;
- field pansy *Viola arvensis*; and
- prickly lettuce *Lactuca serriola*.

**Photograph 3.5: Flower forage abundant field within Bounds Farm east of Hungerdown Lane**



**Photograph 3.6: Flower forage abundant field west of Barlon Road, Little Bromley, Manningtree**



**Photograph 3.7: Herbaceous strip within cropland field west of Barlon Road, Little Bromley, Manningtree**



### **3.1.2 Neutral grassland (g3) and modified grassland (g4)**

Two areas of lowland meadow (g3a) were noted within the survey area providing nectar and pollen vital for bees, and food for other beneficial insects and birds. Most comprise of a diverse range of species within an abundance of finer grasses, herbs with fewer undesirable species. A comprehensive list was not gathered in both instances,

however, the most diverse of the two areas (Photograph 3.8) contained a notable population of pyramidal orchids *Anacamptis pyramidalis* (approximately 30 individuals within survey area) plus creeping softgrass, cock's-foot, yarrow, bristly oxtongue, creeping bent, Yorkshire fog, ribwort plantain, small amount of bramble *Rubus fruticosus* towards the roadside, red fescue, oxeye daisy, common centaury *Centaureum erythraea*, hawkweed sp., black medick, white clover, white campion, common ragwort, hairy tare, curled dock, fairy flax, common vetch *Vicia sativa*, soft brome, sweet vernal grass, common knapweed, common poppy, common mouse ear *Cerastium fontanum*, red fescue hybrid sp., lady's bedstraw, self-heal, Perforate St John's wort, crested dog's-tail, salsify, cow parsley, meadow buttercup *Ranunculus acris*, common sorrel, meadow fescue *Festuca pratensis*, sheep's fescue *Festuca ovina*, ribbed melilot, creeping thistle, willow seedlings *salix* sp., rough meadow grass, smooth meadow grass *Poa pratensis*. A skylark was recorded flying and landing within the meadow and numerous invertebrates were also observed, including ant hills.

**Photograph 3.8: Pyramidal orchard at lowland meadow south of Barlon Road, Little Bromley, Manningtree**



The second lowland meadow (Photograph 3.9) species included; fairy flax *Linum catharticum*, Yorkshire fog, false oat grass *Arrhenatherum elatius*, meadow fescue, red fescue, hawkweed sp., cock's-foot, black medick, salsify, common dandelion *Taraxacum officinale*, hairy tare, common vetch, tall fescue *Festuca arundinacea*, white clover, creeping thistle, common ragwort, common knapweed, common sorrel, oak *Quercus robur* seedlings, ribwort plantain, common hogweed, common mouse-ear *Cerastium fontanum*, sheep's sorrel, common centaury, creeping bent, perforate St John's wort, sweet vernal grass, perennial rye-grass, yarrow, broad-leaved dock and oxeye daisy. The field was noted to have been cut and bailed by surveyors carrying out bat surveys in August.

**Photograph 3.9: Lowland meadow south of Norman's Farm**



Neutral grassland (g3c) is the most numerous grassland habitat across the survey area, which occurs around fields edges, hedgerows, woodland, ditches and standing open water. It is predominantly tall and tussocky around field edges and mown at roadsides (Photograph 3.10).

**Photograph 3.10: Tall sward and mown neutral grassland along the Grange Road**



The majority of this grassland is relatively species poor, containing an abundance of competitive grass species such as false oat-grass and cock's-foot. One notable species was recorded - field scabious *Knautia arvensis* - plus false oat-grass, cock's-foot, perennial ryegrass, creeping bent, common bent, meadow foxtail *Alopecurus pratensis*, red fescue, rough meadow grass, couch *Elymus repens*, common nettle, creeping thistle, cow parsley, greater willowherb, burdock, common ragwort, bristly oxtongue, prickly lettuce, smooth sow thistle *Sonchus oleraceus*, hedge mustard *Alliaria petiolate*, soft brome, timothy, wild oat-grass, common hogweed, common mallow *Malva sylvestris*, red dead nettle, curled dock, nipplewort *Lapsana communis*, cleavers, white clover, yarrow, black horehound, mugwort, poppy, lemon balm *Melissa officinalis*, white campion, slender meadow foxtail, barren brome *Bromus sterilis*, fat hen, bramble, love in a mist *Nigella damascena*, wild radish, common sorrel, scentless mayweed, knotgrass sp., cut-leaved geranium, hedge woundwort *Stachys sylvatica*, hawkweed sp., rosebay willowherb, broad-leaved willowherb, meadowsweet *Filipendula ulmaria*, common knapweed, wall barley *Hordeum murinum*, comfrey sp., meadow vetchling, viper's bugloss *Echium vulgare*, dove's-foot cranesbill *Geranium molle*, annual meadow-grass *Poa annua*, , agrimony *Agrimonia eupatoria*, yellow toadflax *Linaria vulgaris*, rough hawkbit *Leontodon hispidus*, common foxglove *Digitalis purpurea* and borage *Borago officinalis*, Bracken occurs infrequently.

Some of the grassland was classified as Arrhenatherum neutral grassland (g3c5) where false oatgrass dominates (Photograph 3.11).

**Photograph 3.11: Arrhenatherum neutral grassland to the north of Red House Farm, Little Bromley**



Grassland also occurs within private gardens and churchyards (both mapped as u1), along tracks adjacent to arable fields where fertilisers are frequently used, around fishing lakes (Photograph 3.12) and newly seeded areas lacking in species diversity (mapped as g4).



### Photograph 3.12: Mown modified grassland around angling lake west of Clacton Road B1035



This grassland is typically dominated by a few species and in this instance notably; perennial ryegrass and cock's-foot and Yorkshire fog with other species occurring sporadically with the main sward and more frequently at the margins; ribwort plantain, creeping bent, common nettle, white dead nettle *Lamium album*, rough meadow grass, pineapple weed, cut-leaved geranium, timothy-grass, smooth sow thistle, common hogweed, soft brome, barren brome, common dandelion, cleavers, greater plantain, common groundsel, creeping buttercup, white clover, cow parsley, wall barley, common fumitory, common mallow, annual meadow-grass, creeping thistle, black medick, wild oat-grass and occasional mosses.

The remaining modified grassland (g4) provides habitat and food for grazing livestock including sheep and horses (Photograph 3.13 and Photograph 3.14). These areas are species poor with palatable grasses and herbs including; ryegrass, timothy-grass, Yorkshire fog, cock's-foot, creeping bent, ribwort plantain, white clover, broad-leaved dock *Rumex obtusifolius*, crested dog's-tail *Cynosurus cristatus* and common dandelion.

**Photograph 3.13: Modified grassland: sheep grazed to the west of St Mary's Church, Little Bromley,**



**Photograph 3.14: Modified grassland: horse paddock northwest of Bentley Road, Little Bromley**



### 3.1.3 Hedgerows (h2) and scrub (h3)

Hedgerows are present across the Survey Area and commonly classified as Priority Habitat (h2a) (Photograph 3.15 and Photograph 3.16). Most are nevertheless species-poor, dominated by a mixture of hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa* and bramble, though even these hedgerows often included mature oak

trees *Quercus* spp. The most species-rich hedgerows also included species such as (but not limited to) wych elm *Ulmus glabra*, hazel *Corylus avellana*, sycamore *Acer pseudoplatanus*, holly *Ilex aquifolium*, rose *Rosa* sp. bird cherry *Prunus padus* and ash *Fraxinus excelsior*. Further information in respect of the most species-rich hedges which may be breached by the scheme is included in Section 4.

**Photograph 3.15: Less intensively managed hedgerow, North of Little Bromley Road**



**Photograph 3.16: Managed hedgerow along Grange Road**



Other hedgerows (h2b) include non-native and ornamental hedgerows (i.e., *leylandii*, cherry laurel *Prunus laurocerasus*) (Photograph 3.17) as well as newly planted hedgerows; hedging whips planted in two rows (Photograph 3.18). The newly planted hedgerows comprise of a mixture of; blackthorn, hawthorn, hazel, dogwood *Cornus sanguinea*, field maple *Acer campestre* and oak.

**Photograph 3.17: Ornamental hedgerow West of Payne’s Lane**



**Photograph 3.18: Newly planted hedgerow along Grange Road**



The majority of the hedgerows are managed on the roadsides leaving the field side less intensively managed. Many field boundaries were also noted to retain remnant sections of hedge, which due to their sparsity could no longer be technically termed hedgerow.

Scrub habitat (h3) occurs in patches across the survey area and most commonly comprises a single species stands or mixtures of brambles, blackthorn and hawthorn with occasional hazel, elder *Sambucus nigra*, rose sp., field maple, holly, elm *Ulmus* sp., and willow *Salix* sp. Some of the above noted sections of remnant hedge have been classified as scrub.

### 3.1.4 Standing open water (r1)

Lakes, ponds and ditches are present across the area surveyed. It is worth highlighting here that all waterbodies have been mapped as r1, those considered to meet the pond Priority Habitat definition have the additional secondary code 19.

The majority of waterbodies appeared to be of man-made origin, or have been modified, based upon the regular shape of the waterbody and the landscape context (i.e., garden pond, angling lakes, agricultural reservoirs and ditches).

Nine ponds or lakes occur either entirely or partially within the survey area and these were identified by a combination of aerial mapping and ground truthing. These comprise of three semi-natural ponds (two are shown on Photograph 3.19 and Photograph 3.20) and six man made ponds and lakes (Photograph 3.21, Photograph 3.22 and Photograph 3.23). One of the manmade ponds was within a private garden and inaccessible, but from aerial mapping it is shown as situated within a well-maintained garden setting.

**Photograph 3.19 Woodland pond south of Moorhouse Farms Ltd, Little Bromley Road**



**Photograph 3.20: Hedgerow pond adjacent to Mulberry Lane, Manningtree**



**Photograph 3.21: Newly created pond adjacent to the Barlon Road, Little Bromley, Manningtree**



**Photograph 3.22: Recently created lake to the west of Clacton Road B1035**



**Photograph 3.23: Angling lake to the west of Clacton Road B1035**



The types of vegetation present varies greatly between ponds. Two of the semi-natural ponds (Photograph 3.19 and Photograph 3.20) are heavily shaded by woodland and mature hedgerow and therefore aquatic vegetation and marginal vegetation has been suppressed as few wetland plants tolerate shade, however, they did contain leaf litter, fallen dead wood and tree roots providing food and shelter for invertebrates. The woodland pond (Photograph 3.19) was completely covered with duckweed *Lemna* sp. Of the semi-natural ponds this is the only

one that has partial engineering works along the side closest to the road, with a solid retaining wall with hessian bags filled with wet concrete and pinned together. The third semi-natural pond is shaded by trees and scrub over one half and contains marginal vegetation of common bullrush *Typha latifolia* and branched bur reed *Sparganium erectum* but with no aquatic vegetation present. All three semi-natural ponds have connections with drainage ditches.

The newly created pond (Photograph 3.20) is lined, connected to a pump, is highly turbid and currently contains no submergent or emergent aquatic vegetation. It is completely open with no trees or scrub with establishing neutral grassland around the perimeter.

Four lakes; i.e., bodies of water bigger than 1 acre (4,000 m<sup>2</sup>) are also present and are likely to be used for angling. Two of the lakes were stocked with large carp and it likely that the other lakes are also artificially stocked with fish. Riparian and marginal vegetation around the lakes include; scattered grasses, scattered rushes, reeds *Phragmites australis* and scattered trees including willow *Salix sp.* Filamentous algae occurred in one of the lakes. One of the lakes (Photograph 3.22) had been recently created, connected to a pump and aquatic and marginal vegetation has yet to establish.

Whilst the survey area includes a network of arable drainage ditches, the vast majority held no water and were dominated by neutral grassland, denoting that they had been dry for a long period of time, and were therefore mapped as such (Photograph 3.24).

**Photograph 3.24: Typical arable drainage ditch habitat, near Mulley's wood**



Few ditches in the survey area contained water and where they did, this wasn't along the entire ditch, in short sections or sporadic pooling. Some of the roadside drainage ditches were culverted, no other artificial pipework was observed elsewhere. Ditches which had indicators for holding water, albeit containing water normally for less than four months of the year; i.e., bare ground at the base and presence of riparian species such as watercress sp., hemlock and greater willowherb, were mapped as temporary waterbodies (Photograph 3.25).



**Photograph 3.25: Ditch containing water culverted at either end, along the Ardleigh Road**



### **3.1.5 Rivers, streams (r2b)**

One watercourse with obviously flowing water along its length was recorded (Photograph 3.26), this is Holland Brook which is fed by ditches starting near the junction between Shop Road and Bentley Road, and just north of Welham's Farm. Whilst these ditches started dry, closer to the A120 Holland Brook contained flowing water of approximately 0.2-0.3m depth. The bed material was silt and little to no aquatic vegetation was contained within the stream flow itself; typical bank face vegetation comprised common nettle, greater willowherb, bramble and hemlock, similar in structure to seasonally dry ditches recorded onsite, as well as scattered mature willow trees in the southerly portion.

**Photograph 3.26:Section of Holland Brook near the A120**



### **3.1.6 Reedbeds (f2e) and aquatic marginal vegetation (f2d)**

The largest and therefore mappable stand of reedbed is located along the banks of an angling lake to the north of Welham's Farm, Little Bentley (Photograph 3.27). Less extensive stands of reeds and other aquatic marginal habitat occur along the ditch network; however, these were not mapped due to being smaller than the minimum mapping units. Species included; great willowherb, meadowsweet, water-cress *Rorippa nasturtium-aquaticum*, water mint *Mentha aquatica*, tansy *Tanacetum vulgare*, broad-leaved dock, common figwort *Scrophularia nodosa*, hemlock *Conium maculatum*, couch, hard rush *Juncus inflexus*, soft rush *Juncus effusus*, common hogweed, marsh bedstraw *Galium palustre*, branched bur reed and bullrush.

No evidence of hog's fennel *Peucedanum officinale* was encountered during the surveys.

### Photograph 3.27: Reed bed along the bank of an angling lake to the north of Welham's Farm, Little Bentley



#### 3.1.7 Urban (u1)

Urban areas within the Survey Area include (but are not limited to) agricultural buildings, plant nursery/horticulture, an electricity substation, church, and small settlements. These constitute a very small proportion of the surveyed area and were not subject to detailed survey.

Although detailed inspections of buildings were outside the scope of the surveys, the following ad hoc notes were recorded.

- The door to a small agricultural building (Photograph 3.28) to the south of the Ardleigh Road, Little Bromley at Grid Reference: TM 07985 28395, was open during the survey, and a brief look inside found evidence of a small number of old bat droppings on the surfaces inside and a couple of mud nests (likely swallow *Hirundo rustica*) at the apex of the roof.
- A colony of honey bees was recorded swarming around a cavity on the northeast aspect stone wall of St Mary's church at Grid Reference: TM 09163 27828 (Photograph 3.29).

**Photograph 3.28: Small agricultural building, south of the Ardleigh Road, Little Bromley**



**Photograph 3.29: Honey bee colony in stone wall cavity in St Mary's Church, Little Bromley**



### **3.1.8 Woodland and forest, including lines of trees (w1)**

Woodland is relatively scarce within the survey area, and the majority is plantation or secondary woodland. Three stands of lowland mixed deciduous woodland (w1f, a Priority Habitat) are present. The main woodland areas are described below in Table 3.1 and identified on the habitat plan.

**Table 3.1**  
**Main woodlands within Survey Area**

Woodland Name and Location	Description
<p>Unnamed woodland to the west of Hungerdown Lane.</p> <p>Grid Reference (GR): TM 07131 29226</p>	<p>Broadleaved mixed and yew woodland, plantation (w1 36)</p> <p>Not accessible. From aerial mapping going back to 2000 tree planted in rows can be clearly seen, interspersed with a few older trees.</p>
<p>Unnamed woodland to the north of Moorhouse Farms Ltd.</p> <p>GR: TM 07189 29089</p>	<p>Other woodland, mixed, plantation (w1h6 36)</p> <p>A narrow strip of planted woodland in rows containing, conifers (mostly), cypress sp., conifer sp., silver birch <i>Betula pendula</i>, field maple, hazel, ash, cherry, poplar sp. Conifers make up most of the tree cover. Trees are young - semi-mature with diameters at breast height (DBH) between 10-45cm. Understorey comprises predominantly bare ground with a few scattered grasses and bramble. Pheasant pen present.</p>
<p>Unnamed woodland to the north of Moorhouse Farms Ltd</p> <p>GR: TM 07163 29055</p>	<p>Other woodland, mainly broadleaved, secondary (w1h5 38)</p> <p>This area appears to have once been part of a landscaped garden, bordered by mature trees with a few individual trees in the centre. Broad-leaved trees make up most of the tree cover. Species include; hazel, sycamore, cypress sp., horse chestnut <i>Aesculus hippocastanum</i>, pine/conifer sp., silver birch, sweet chestnut <i>Castanea sativa</i>, oak, yew <i>Taxus baccata</i>, goat willow <i>Salix caprea</i>, gorse <i>Ulex europaeus</i>, elm sp., blackthorn, bramble, and hawthorn. Dead wood is present on the ground. The clearings comprise of grasses and scrub. Species include; Yorkshire fog, rough meadow-grass, perennial rye-grass, false oat-grass, Perforate St John's wort, white dead nettle, common nettle, common bent, common ragwort, toadflax, white campion, garlic mustard <i>Alliaria petiolata</i> and bramble.</p>
<p>Unnamed woodland to the west of Moorshour Farms Ltd.</p> <p>GR: TM 07106 29058</p>	<p>Lowland mixed deciduous woodland, secondary (w1f7 38)</p> <p>Small triangular block of woodland containing mature oak, holm oak <i>Quercus ilex</i>, with young sycamore, holly, and rose sp. The understorey is predominantly bare ground with occasional grasses and herbs; Yorkshire fog, cock's-foot, honeysuckle, cleavers, ivy and bramble. Connected to a hedgerow on either side with a dry ditch running through it closest to the roadside.</p>
<p>Unnamed woodland to the south of Moorhouse Farms Ltd</p>	<p>Other woodland, mixed, mainly broadleaved, secondary (w1h5 38)</p> <p>The woodland contains mature oaks &gt;1m DBH, horse chestnut,</p>

Woodland Name and Location	Description
GR: TM 07238 28828	standing deadwood, sycamore, elder, ash, cypress sp., silver birch, holly, hazel, sweet chestnut, lime, willow sp., some standing dead wood and a few piles of brash and compost heaps presumably taken in from the footpath off the main road and discarded there. The understorey and ground flora included; bramble, elder, tree seedlings, garlic mustard, broad-leaved willowherb, common nettles, hedge woundwort, ivy and non-native small balsam. Broad-leaved trees make up most of the tree cover. A dry ditch runs through the woodland and connects to a pond in the northwest corner.
<p>Unnamed woodland to the south of Moorhouse Farms Ltd.</p> <p>GR: TM 07285 28876</p>	<p>Other woodland, mixed, mainly broadleaved, plantation (w1h5 36)</p> <p>Planted woodland in rows with an older line of trees along the western side, which appears to have been a hedgerow before the woodland was planted. Based on aerial images trees were planted post 2000 and species include; ash, oak, sycamore, sweet chestnut, spruce sp., blackthorn, silver birch, hazel. Broad-leaved trees make up most of the tree cover. The understorey includes; bramble, tree seedlings, ivy, bare ground, cow parsley, common ragwort, common nettle, cleavers, rose sp. and occasional grasses including; cock's-foot, false oat-grass and Yorkshire fog.</p>
<p>Unnamed woodland to the west of Hungerdown Lane</p> <p>GR: TM 07542 29374</p>	<p>Other woodland, mixed, mainly broadleaved, plantation (w1h5 36) and other lowland mixed deciduous woodland, coppice (w1f7 51)</p> <p>This comprises of a series of adjoining planted woodland strips including a small section of planted hazel coppice at one end. Based on aerial images they were planted up post 2000 and before that there were only a few lines of poplar sp. trees and hedgerow. Species include; cherry, silver birch, cypress/pine sp., oak, ash, rose sp., blackthorn, bramble, field maple, dog rose <i>Rosa canina</i>, hawthorn, hazel, blackthorn, sycamore, horse chestnut, oak, poplar sp., Prunus sp., and ash. Most of the trees are between 15-25cm DBH, with fewer trees 30-40 DBH. The understorey is sparse, and the ground flora is mainly grassy tracks. Species include; cow parsley, common nettle, red fescue, cock's-foot, rough meadow-grass, false oat-grass, and common ragwort. Very few seedlings/saplings. Broad-leaved trees make up most of the tree cover.</p>
<p>Unnamed woodland south of the Ardleigh Road</p> <p>GR: TM 08231 28135</p>	<p>Other woodland, mixed, mainly broadleaved, secondary (w1h5 38)</p> <p>Very small triangular area of woodland which was previously two parallel hedgerows and trees have self-set in the middle creating a small woodland. Species include mature oak, silver birch, blackthorn, elder, conifer sp., hazel, and bramble. The ground flora includes cock's-foot, false oat-grass, Yorkshire fog, common nettles, and</p>

Woodland Name and Location	Description
	bracken. Broad-leaved trees make up most of the tree cover.
Unnamed woodland adjacent to the Grange Road  GR: TM 08260 29325	Other lowland mixed deciduous woodland, secondary (w1f7 38)  Small area of woodland with trees only just reaching the 5m height criteria. Species include; cheery, elm, hawthorn and elder. The understorey and ground flora include; bramble, rough meadow-grass, cock's-foot, Yorkshire fog, common nettle, cow parsley and grape hyacinth <i>Muscari</i> sp. Woodland present on aerial maps in 2000, unknown beforehand.
Unnamed woodland adjacent to Church Road  GR: TM 09445 27807	Other woodland, mixed, mainly broadleaved, secondary (w1h5 38)  Very small block of woodland. There was no access, but it was small enough to view from the outside. Species include; ash, conifer sp., oak, prunus sp., hawthorn, lime sp., sycamore, horse chestnut, sweet chestnut seedling and bramble. Tree ages range from 10-50cm DBH. Broad-leaved trees make up most of the tree cover.
Unnamed woodland east of the Bentley Road  GR: TM 10935 27749	Other woodland; broadleaved, young trees self-set (w1g7 57)  Small area of woodland along an arable field edge with young trees self -set. Species include; hawthorn, field maple, ash, and cherry laurel. Ground flora includes grasses and a few herbs including foxglove. The area is used for game rearing.
Unnamed woodland east of the Bentley Road  GR: TM 11129 27631	Other woodland; broadleaved, secondary (w1g7 38)  Small area of woodland along the northern boundary of a semi-natural pond and on an arable field edge. Species include goat willow in the pond with ash and oak on the northern boundary which resembles a hedgerow. To the east is a section of blackthorn.
Unnamed woodland north of the A120 at an intersection of the Holland Brook.  GR: TM 11728 27349	Other woodland; broadleaved, secondary (w1g7 38)  Small area of woodland in between ditch (north) & hedgerow. Species include; hawthorn, elm, oak and elder with bramble understorey.
Unnamed woodland adjacent to a tributary of the Holland Brook.  GR: TM 11106 27429	Other woodland; broadleaved, secondary (w1g7 38)  Small group of trees with elder, bramble, holly, field maple, ash, and oak with a common nettle understorey. Possibly a result of two merging hedgerows.

Woodland Name and Location	Description
Mulley's Wood  GR: TM 11025 28358	Other woodland; broadleaved, plantation (w1g7 36)  Mulley's Wood consists primarily of planted mature hybrid poplar trees in the centre, surrounded by a diversity of trees in the perimeter including mature pedunculate oak, ash, holly, willow, and alder. The understorey was predominantly comprised of common nettle and bramble, with occasional laurel bushes also present. A large pheasant pen is located in the centre.
Unnamed woodland to the east of Mulley's Wood GR: TM 11283 28353	Other woodland; broadleaved, plantation (w1g7 36)  This area consists of small blocks of planted semi-mature aspen <i>Populus tremula</i> and ash with obvious planting lines. The understorey comprised predominantly tall ruderal species such as common nettle and cow parsley.

Lines of trees occur occasionally across the survey area and include two lines of poplar *Populus* sp. (Photograph 3.30) and a line of young trees with; ash, oak and field maple (Photograph 3.31). Semi-natural lines of trees are however the most numerous and are frequently associated with remnant hedgerow where the hedgerows have become damaged or removed leaving behind mature trees; predominantly oak (Photograph 3.32). Other species recorded include; mature hawthorns, holly, ash, field maple and willow *salix* sp. There is also a short section of three mature hazel trees which qualified as it was at least 20 m in length. All lines of trees are indicated on the habitat plan at Drawing 1.



**Photograph 3.30: Line of mature poplar trees *Populus sp.*, East of Hungerdown Lane**



**Photograph 3.31: Recently planted line of trees, North of Grange Road**



**Photograph 3.32: Line of mature oak and ash trees, South of Mulley’s Wood**



## 3.2 Species

### 3.2.1 Notable species

Whilst detailed surveys for specific species have not been undertaken (though special attention was made to seek hogs fennel), a small range of notable plant species has been recorded within the Survey Area during the field survey. The species are mainly associated with lowland meadows and arable field margins habitats; specific records are shown in Table 3.2, but should not be considered exhaustive.

**Table 3.2**  
**Notable plant species**

Species	Habitat	Location Coordinates	Status
Common cudweed	Cropland	TM 08229 27659	GB Red listing based on 2001 IUCN guidelines (from 2018): Near Threatened, England Red listing based on 2001 IUCN guidelines (from 2014): Near Threatened
Corn spurrey	Cropland	TM 07983 29070	GB Red listing based on 2001 IUCN guidelines (from 2018): Vulnerable,  England Red listing based on 2001 IUCN guidelines (from 2014): Vulnerable

Species	Habitat	Location Coordinates	Status
Sea holly	Cropland	TM 07888 27225	England Red listing based on 2001 IUCN guidelines (from 2014): Near Threatened  Essex Red List
Chicory	Cropland	TM 08528 27626	England Red listing based on 2001 IUCN guidelines (from 2014): Vulnerable
Field scabious	Neutral grassland	TM 08199 30155	England Red listing based on 2001 IUCN guidelines (from 2014): Near Threatened
Pyramidal orchid	Lowland meadow	TM 08910 27487	Essex Red List

### 3.2.2 Invasive Non-native Species

Occasional neophytes and garden escapes were recorded throughout the survey, including:

- Snowberry *Symphoricarpos albus* within a hedgerow at TM 09460 27804 adjacent to Church Road;
- Small balsam *Impatiens parviflora* within woodland south of Moorhouse Farms Ltd at TM 07250 28815; and
- An ornamental St John's wort *Hypericum sp.* shrub was recorded within scrub adjacent to the Barlon Road at TM 08777 27420.

Two invasive species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) were recorded:

- Water fern *Azolla filiculoides* within one of the ditches to the south of Ardleigh Road with the highest concentration at TM 08268 28225; and
- A species of rhododendron *Rhododendron sp* (not considered to be *R. ponticum*, but potentially a hybrid) at TM 09485 27729 along the vegetated garden perimeter of the Old Rectory, Church Road.

No other non-native invasive species were recorded during the habitat survey, although it is possible that additional species may be present in areas which were not accessible during the survey or died-off due to the prolonged periods of hot and dry weather.

## 4.0 Hedgerow assessment

None of the assessed hedgerows were found to be “Important” on wildlife and landscape ground (irrespective of animal species they may support<sup>9</sup>). Further details are provided below.

A total of 29 hedgerows were subject to further assessment initially comprising an estimation of age and species present within 30 m as detailed in Table 4.1, with locations shown on Drawing 3. Only one hedgerow warranted detailed assessment, the results of which are shown in Table 4.2.

**Table 4.1**  
**Hedgerows subject to assessment**

Survey Date	Hedgerow Number on Plan	At least 30 years old?	4 woody species present in 30m	Detailed assessment required?
2022-08-18	417	No	No	No
2022-08-18	418	No	No	No
2022-08-18	415	No	Yes	No
2022-08-18	262	Yes	No	No
2022-08-18	286	Yes	No	No
2022-08-18	410	No	No	No
2022-08-18	411	No	No	No
2022-08-18	412	No	No	No
2022-08-18	409	No	No	No
2022-08-18	413	No	No	No
2022-08-18	414	Yes	Yes	Yes
2022-08-18	298	Yes	No	No
2022-08-18	408	Yes	No	No
2022-08-18	299	No	No	No
2022-08-18	416	Yes	No	No
2022-08-18	297	No	No	No
2022-08-18	302	Yes	No	No
2022-08-18	303	No	No	No
2022-08-18	304	No	No	No

<sup>9</sup> A review of the findings of ongoing protected species field surveys will be undertaken once they are completed, so as to identify any additional hedgerows that are of known value to protected species, and which may therefore qualify as “Important” under that criterion. If necessary, this report will be updated accordingly.

Survey Date	Hedgerow Number on Plan	At least 30 years old?	4 woody species present in 30m	Detailed assessment required?
2022-08-18	416	Yes	No	No
2022-08-17	335	Yes	No	No
2022-08-17	336	Yes	No	No
2022-08-17	374	Yes	No	No
2022-08-17	339	Yes	No	No
2022-08-17	355	Yes	No	No
2022-08-17	379	Yes	No	No
2022-08-17	384	Yes	No	No
2022-08-17	359	Yes	No	No
2022-08-17	350	Yes	No	No

**Table 4.2**  
**Hedgerow 414 Detailed Assessment Results**

Hedgerow feature		Survey Result
Dimensions	Height (m)	10
	Width (m)	2
	Length (m)	150
	Number of 30m sections	5
Features Present	Bank or wall present?	No
	% length that comprises a gap	10
	Number of trees in total length	6
	Ditch along at least one half present?	Yes
	Public Right of Way adjacent?	No
	Parallel hedge within 15m?	Yes
Schedule 3 species average per 30m section	Section 1	Beech, blackthorn, pedunculate oak
	Section 2	Ash, beech, blackthorn, field maple, pedunculate oak
	Section 3	Beech, blackthorn, field maple, pedunculate oak
	Section 4	Beech, blackthorn, field maple, pedunculate oak

Hedgerow feature		Survey Result
	Section 5	Beech, blackthorn, field maple, pedunculate oak
Schedule 2 species present in entire length of hedgerow		None
Number of connections		3
Signs of notable fauna		None

To summarise, hedgerows 414 supports an average of four Schedule 3 species per 30 m section and four features as follows:

- Gaps which aggregate do not exceed 10% of length of hedgerow;
- Where the length of the hedgerow exceeds 100m, such number of standard trees (within any part of its length) as would when averaged over its total length amount at least one for each 50 m;
- A ditch along at least one half of the length of the hedgerow; and
- A parallel hedge within 15 m of the hedgerow.

It therefore does not qualify as an “important” under the Hedgerow Regulations 1997.

## 5.0 Important ecological features

### 5.1.1 Habitats

Whilst the majority of the Survey Area comprises agricultural crop land used for growing cereal and which is of limited ecological importance, the following habitats of Principal Importance (i.e., those included under Section 41 of Natural Environment and Rural Communities (NERC) Act 2006) are confirmed to be present and are shown on Drawing 2. In all cases the reference definition for each habitat type has been taken from UK Biodiversity Action Plan Priority Habitat Descriptions<sup>10</sup>.

- None of the woodland within the Survey Area is listed as ancient woodland (ASNW and/or PAWS), in the Ancient Woodland Inventory. Three large stands (described in Table 3.1) have been identified that are considered to meet the definition of lowland mixed deciduous woodland.
- Hedgerows (h2a) – most of the hedgerows within the Survey Area meet the S41 definition, which states:

*“A hedgerow is defined as any boundary line of trees or shrubs over 20m long and less than 5m wide, and where any gaps between the trees or shrub species are less than 20m wide. Any bank, wall, ditch or tree within 2m of the centre of the hedgerow is considered to be part of the hedgerow habitat, as is the herbaceous vegetation within 2m of the centre of the hedgerow. All hedgerows consisting predominantly (i.e. 80% or more cover) of at least one woody UK native species are covered by this priority habitat, where each UK country can define the list of woody species native to their respective country”.*

None of the hedgerows were assessed as “important” according to the ecological requirements of the Hedgerow Regulations 1997.

- Lowland Meadows (g3a) – Two species-rich grassland habitats were identified during the UK Habitat Survey that meet the S41 definition<sup>7</sup>. The definition for this habitat type is:

*“A wide-ranging approach is adopted in this plan to lowland grasslands treated as lowland meadows. They are taken to include most forms of unimproved neutral grassland across the enclosed lowland landscapes of the UK. In terms of National Vegetation Classification plant communities, they primarily embrace each type of Cynosurus cristatus - Centaurea nigra grassland, Alopecurus pratensis - Sanguisorba officinalis floodplain meadow and Cynosurus cristatus - Caltha palustris flood-pasture. The plan is not restricted to grasslands cut for hay, but also takes into account unimproved neutral pastures where livestock grazing is the main land use. On many farms in different parts of the UK, use of particular fields for grazing pasture and hay cropping changes over time, but the characteristic plant community may persist with subtle changes in floristic composition”.*

- Reedbeds (f2e) – one small reedbed on the banks of an angling lake to the north of Welham’s Farm, Little Bentley, as well as in limited locations within the ditch/drain network elsewhere and are considered to meet the S41 description:

*“Reedbeds are wetlands dominated by stands of the common reed Phragmites australis, wherein the water table is at or above ground level for most of the year. They tend to incorporate areas of open water*

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<sup>10</sup> Section 41 Habitat definitions align with the UK Biodiversity Action Plan Priority Habitat Descriptions published in 2008 and updated in 2011, available at <https://data.jncc.gov.uk/data/2728792c-c8c6-4b8c-9ccd-a908cb0f1432/UKBAP-PriorityHabitatDescriptions-Rev-2011.pdf>

*and ditches, and small areas of wet grassland and carr woodland may be associated with them.”*

- Arable field margins (c1a6 and c1a8) – This habitat was identified at several locations during the habitat survey; some may have been managed to specifically provide benefit to wildlife<sup>11</sup>Error! Bookmark not defined.. The definition for this S41 habitat type is:

*“Arable field margins are herbaceous strips or blocks around arable fields that are managed specifically to provide benefits for wildlife. The arable field must be in a crop rotation which includes an arable crop, even if in certain years the field is in temporary grass, set-aside or fallow. Arable field margins are usually sited on the outer 2-12m margin of the arable field, although when planted as blocks they occasionally extend further into the field centre.”*

Given the above definition, it is possible this habitat may be lost from its current locations, and/or be found in new locations in future, depending on agricultural management practice.

- Rivers (r2b) – The Holland Brook and its tributaries within the site are considered likely to meet the definition by virtue of supporting other protected and/or Section 41 species such as water vole rather than for habitat type/quality *per se*. Remaining water courses within the survey area are not considered to meet the definition, but if S41 41 or protected species are later found to use them then this report will be updated accordingly; and
- Ponds (UKHab secondary code 19); Ponds, for the purpose of priority habitat classification, ponds are defined as permanent and seasonal standing water bodies up to 2 ha in extent which meet one or more criteria pertaining to notable or protected species. Most ponds in the area are likely to meet the Section 7 definition by supporting Section 41 or Red Data Book species; all ponds are shown on Figure 3 and are concluded to be important ecological features.

None of the habitats are part of, or assist towards, Natural England Habitat Network Areas<sup>11</sup>.

### 5.1.2 Plant species

A range of notable plant species has been recorded within the Survey Area during the field survey; the species are mainly associated with two areas of lowland meadow and several cropland margins, which are already identified as important ecological features. The species are:

- Common cudweed;
- Corn spurrey;
- Sea holly;

---

<sup>11</sup> Habitat Networks (England) is a spatial dataset that describes the geographic extent and location of Habitat Networks for 18 priority habitats based primarily, but not exclusively, on the priority habitat inventory with additional data added in relation to habitat restoration-creation, restorable habitat, plus fragmentation action, and network enhancement and expansion zones. The Habitat Network Maps provide spatial guidance to plan and develop local ecological networks and may be used to help target action to build greater ecological resilience for habitats across England.

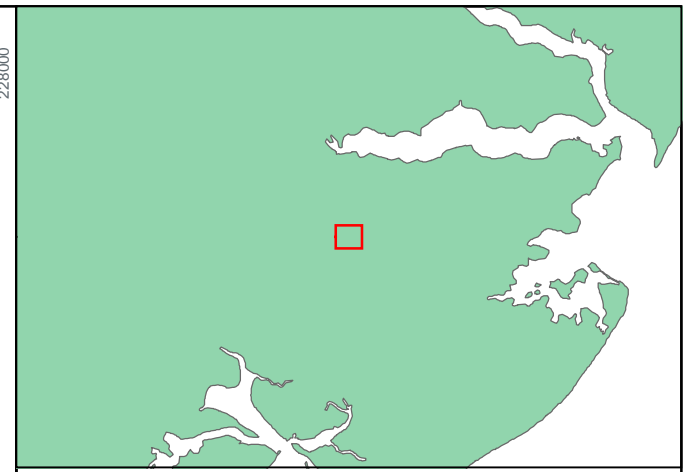
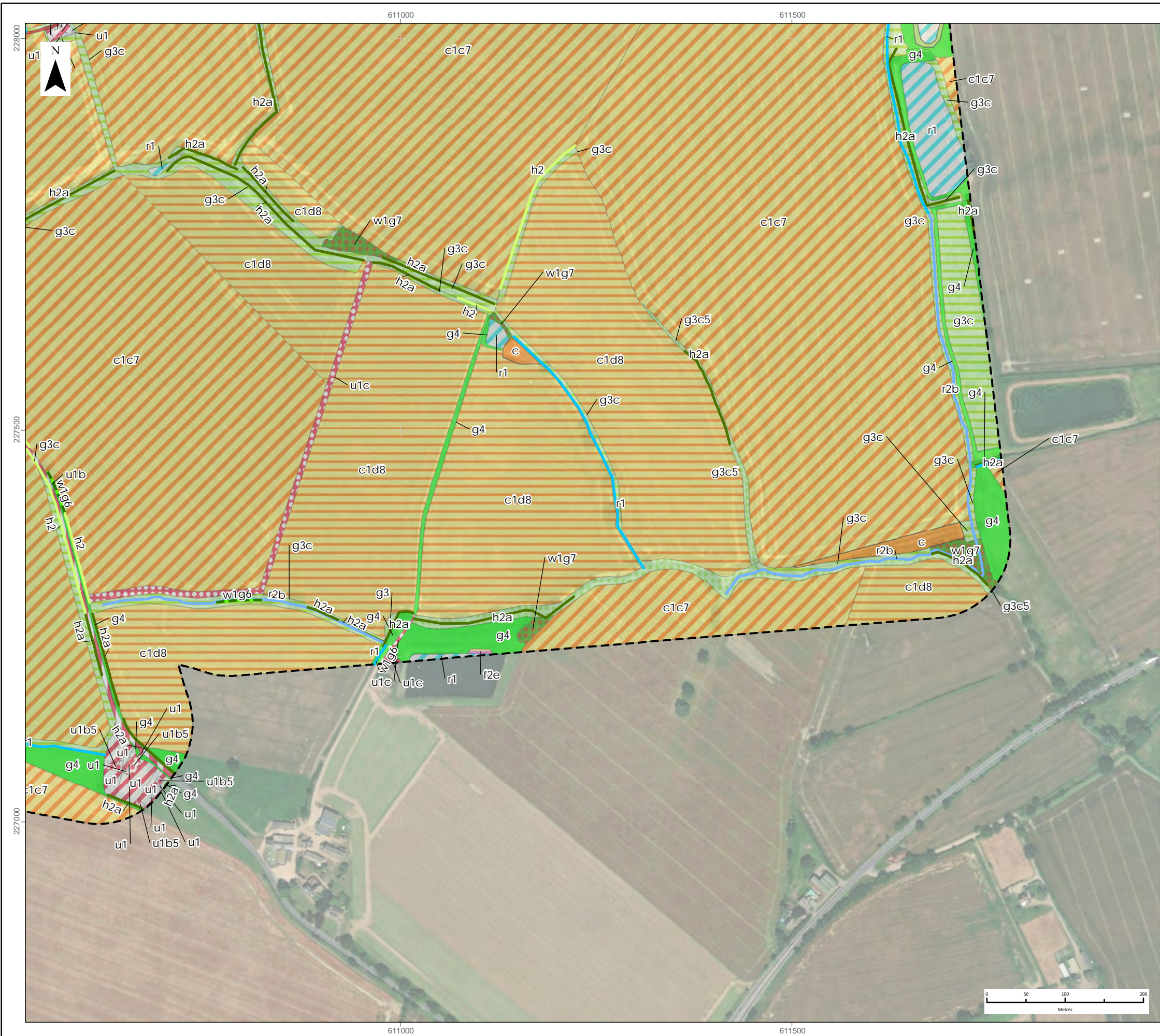


- Chicory;
- Field scabious; and
- Pyramidal orchid.

Two invasive non-native species listed on Schedule 9 were recorded; water fern was recorded in one of the ditches to the south of Ardleigh Road and a species of Rhododendron at a vegetated garden perimeter of the Old Rectory, Church Road. Other invasive species, neophytes or garden escapes not listed on Schedule 9 have also been recorded at a limited number of locations within the survey area, but in no locations were found to dominate.

## FIGURE 1

### Habitat Plan



**LEGEND**

**Habitat Survey Area (2022)**

**UKHab Classification: Linear Features**

- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- r1 - Standing Open Water and Canals
- r2b - Other River and Stream
- w1g6 - Line of Trees

**UKHab Classification: Area Features**

- c - Cropland
- c1c7 - Other Cereal Crops
- c1d8 - Other Non-Cereal Crops
- f2e - Reedbeds
- g - Grassland
- g3 - Neutral Grassland
- g3c - Other Neutral Grassland
- g3c5 - Arrhenatherum Neutral Grassland
- g4 - Modified Grassland
- r1 - Standing Open Water and Canals

**UKHab Classification: Linear Features (continued)**

- u1 - Built-up Areas and Gardens
- u1b - Developed Land, Sealed Surface
- u1b5 - Buildings
- u1c - Artificial Unvegetated Unsealed Surface
- u1e - Built Linear Features
- w1g7 - Other Broadleaved Woodland Types

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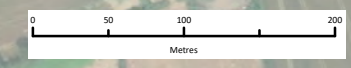
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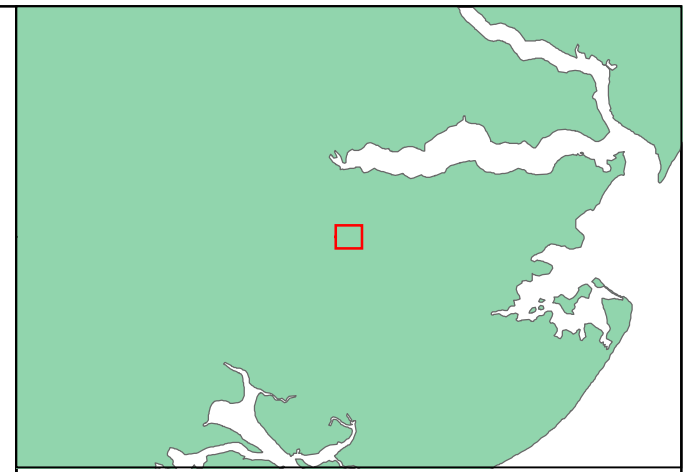
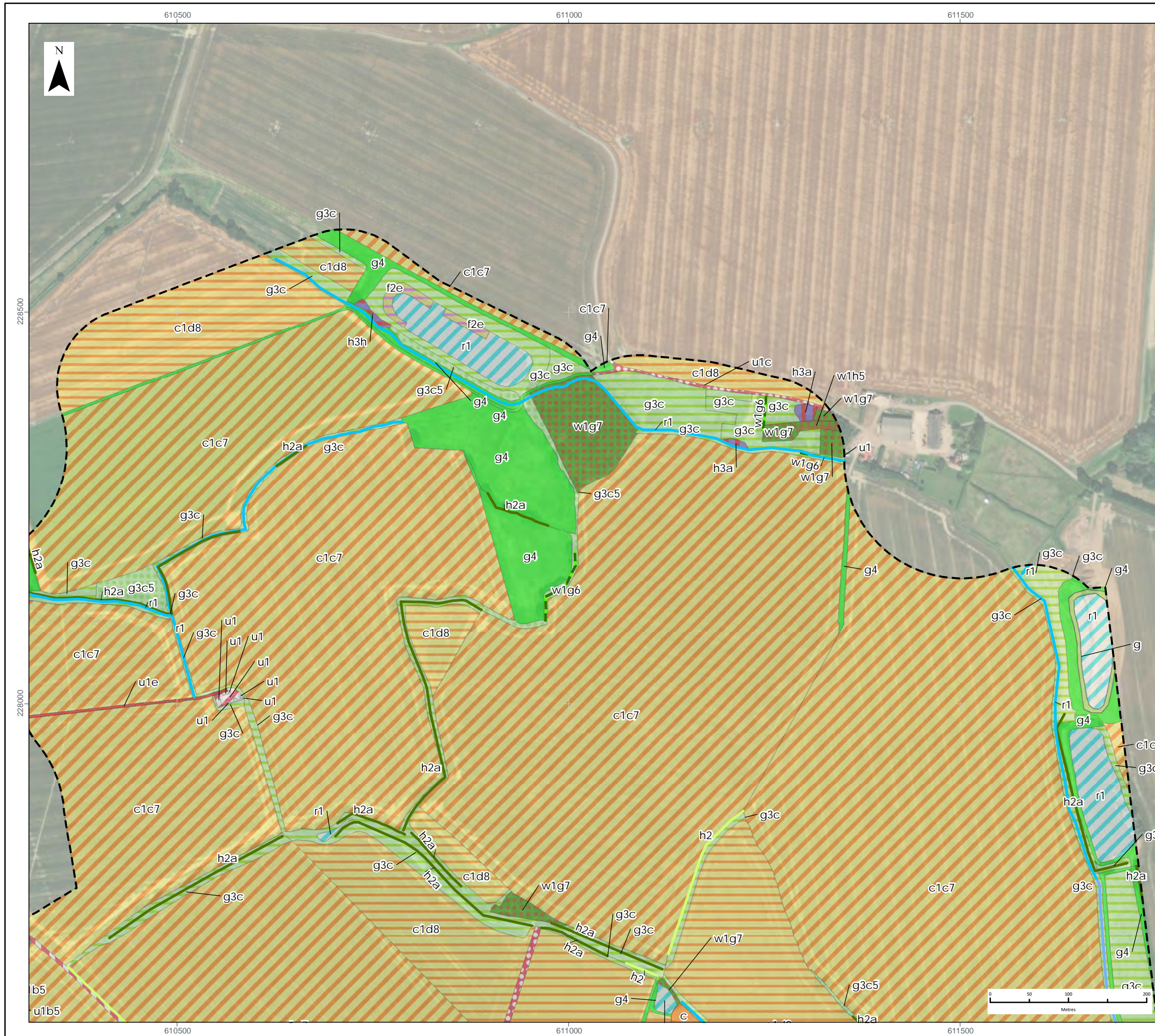
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**LEGEND**

**UKHab Classification: Linear Features**

- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- r1 - Standing Open Water and Canals
- r2b - Other River and Stream
- w1g6 - Line of Trees

**UKHab Classification: Area Features**

- c - Cropland
- c1c7 - Other Cereal Crops
- c1d8 - Other Non-Cereal Crops
- f2e - Reedbeds
- g - Grassland
- g3c - Other Neutral Grassland
- g3c5 - Arrhenatherum Neutral Grassland
- g4 - Modified Grassland
- h3a - Blackthorn scrub
- h3h - Mixed scrub
- r1 - Standing Open Water and Canals
- u1 - Built-up Areas and Gardens
- u1b - Developed Land, Sealed Surface
- u1c - Artificial Unvegetated Unsealed Surface
- u1e - Built Linear Features
- w1 - Broadleaved, Mixed and Yew Woodland
- w1g7 - Other Broadleaved Woodland Types
- w1h5 - Other Woodland: Mixed; Mainly Broadleaved

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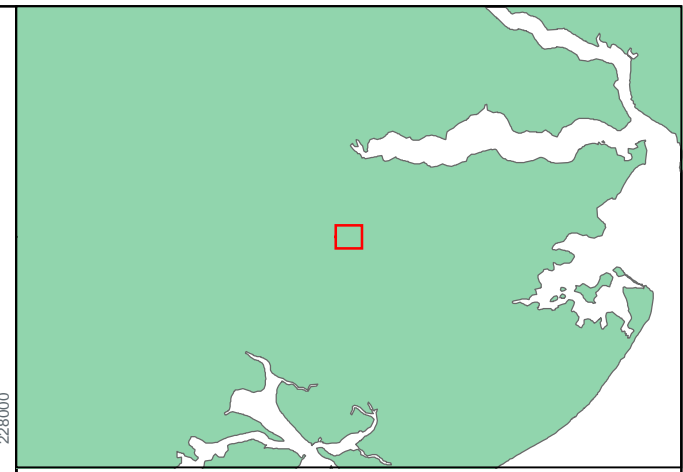
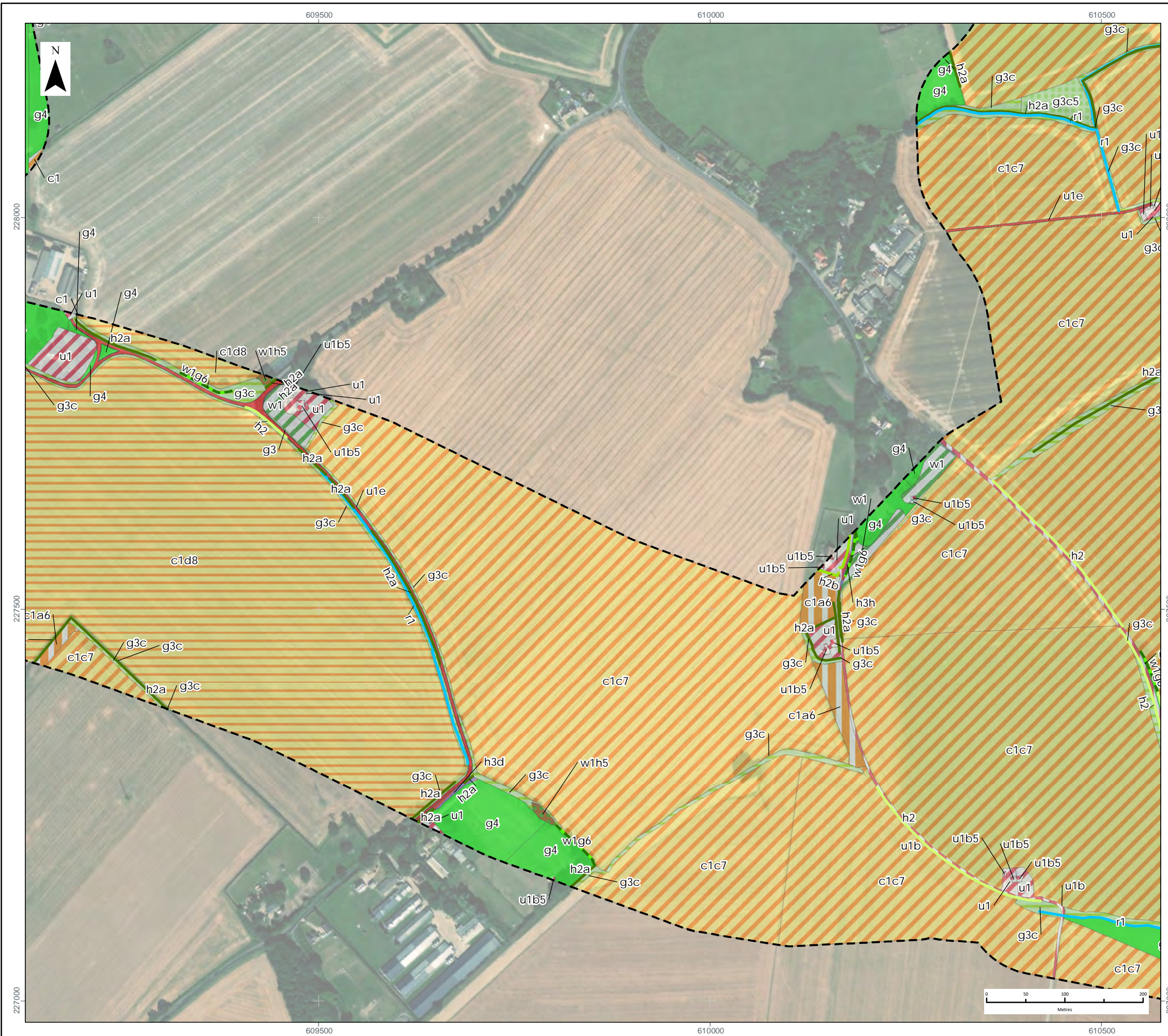
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**LEGEND**

**Habitat Survey Area (2022)**

**UKHab Classification: Linear Features**

- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- h2b - Other Hedgerow
- r1 - Standing Open Water and Canals
- w1g6 - Line of Trees
- u1 - Built-up Areas and Gardens
- u1b - Developed Land, Sealed Surface
- u1b5 - Buildings
- u1e - Built Linear Features
- w1 - Broadleaved, Mixed and Yew Woodland
- w1h5 - Other Woodland; Mixed; Mainly Broadleaved

**UKHab Classification: Area Features**

- c1 - Arable and Horticulture
- c1a6 - Arable Margins Sown with Wild Flowers or a Pollen and Nectar Mix
- c1c7 - Other Cereal Crops
- c1d8 - Other Non-Cereal Crops
- g3 - Neutral Grassland
- g3c - Other Neutral Grassland
- g3c5 - Arrhenatherum Neutral Grassland
- g4 - Modified Grassland
- h3d - Bramble Scrub
- h3h - Mixed scrub

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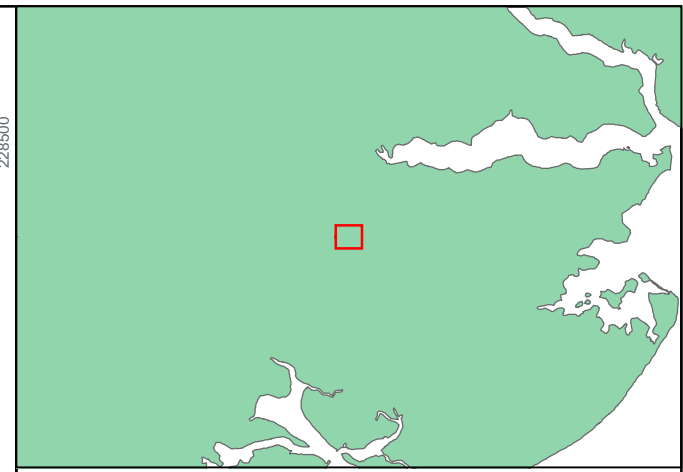
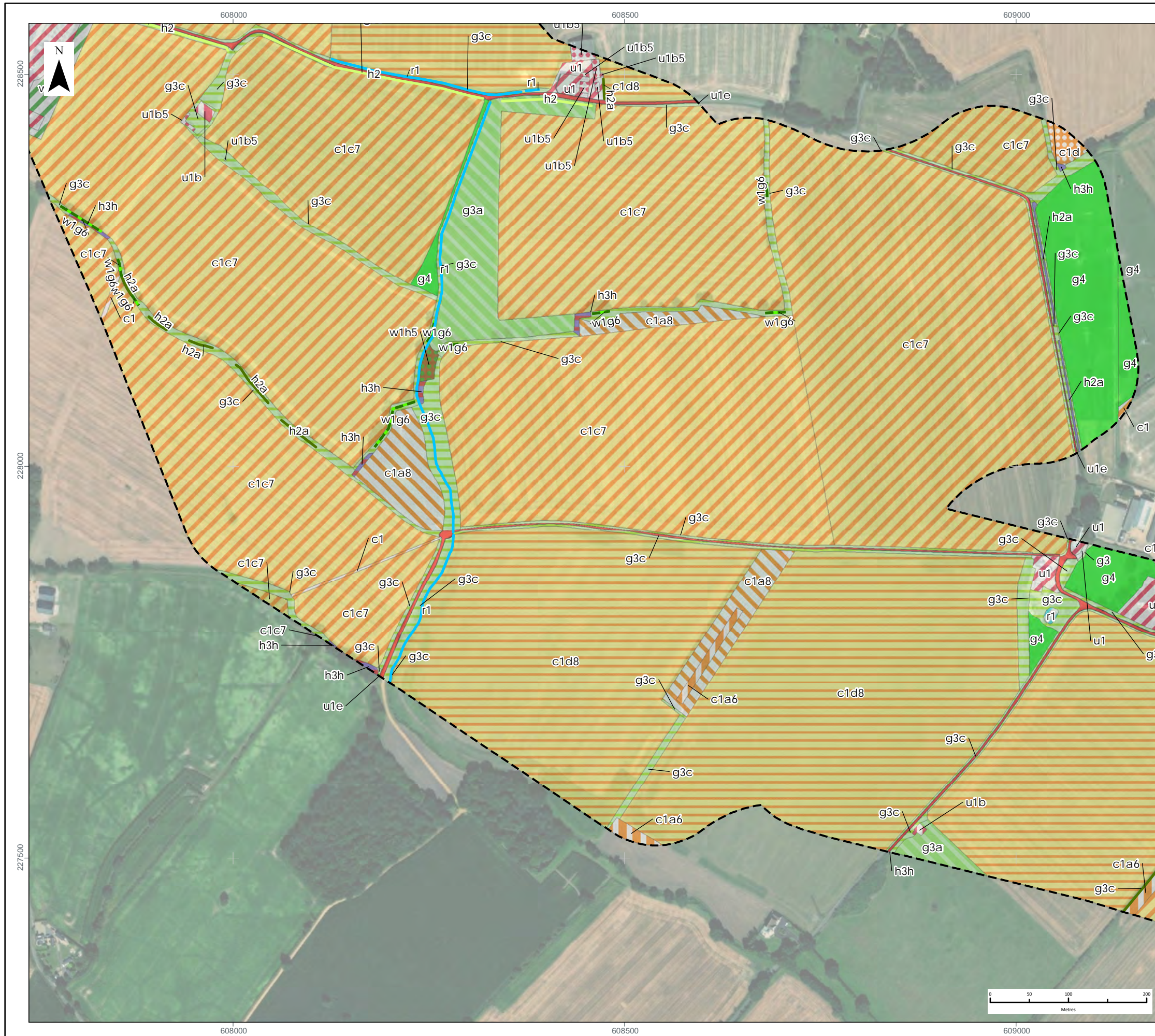
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**LEGEND**

**Habitat Survey Area (2022)**  
 UKHab Classification: Linear Features

- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- r1 - Standing Open Water and Canals
- w1g6 - Line of Trees

UKHab Classification: Area Features

- c1 - Arable and Horticulture
- c1a6 - Arable Margins Sown with Wild Flowers or a Pollen and Nectar Mix
- c1a8 - Game Bird Mix Strips and Corners
- c1c7 - Other Cereal Crops
- c1d - Non-Cereal Crops
- c1d8 - Other Non-Cereal Crops
- g3 - Neutral Grassland
- g3a - Lowland Meadows
- g3c - Other Neutral Grassland
- g4 - Modified Grassland
- h2a - Hedgerow (Priority Habitat)
- h3h - Mixed scrub
- r1 - Standing Open Water and Canals
- u1 - Built-up Areas and Gardens
- u1b - Developed Land, Sealed Surface
- u1b5 - Buildings
- u1e - Built Linear Features
- w1 - Broadleaved, Mixed and Yew Woodland
- w1h5 - Other Woodland; Mixed; Mainly Broadleaved

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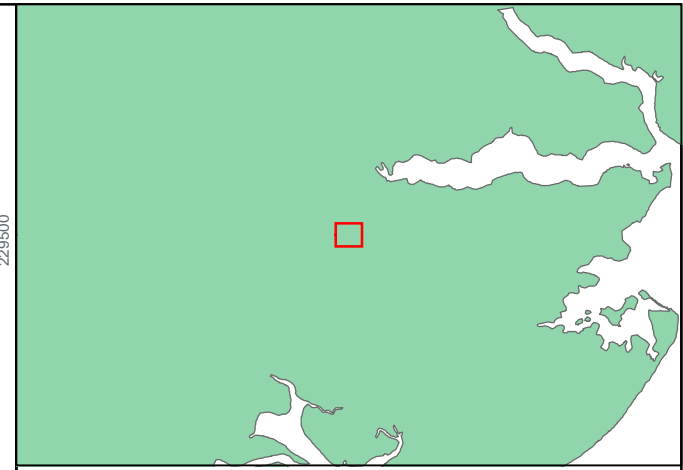
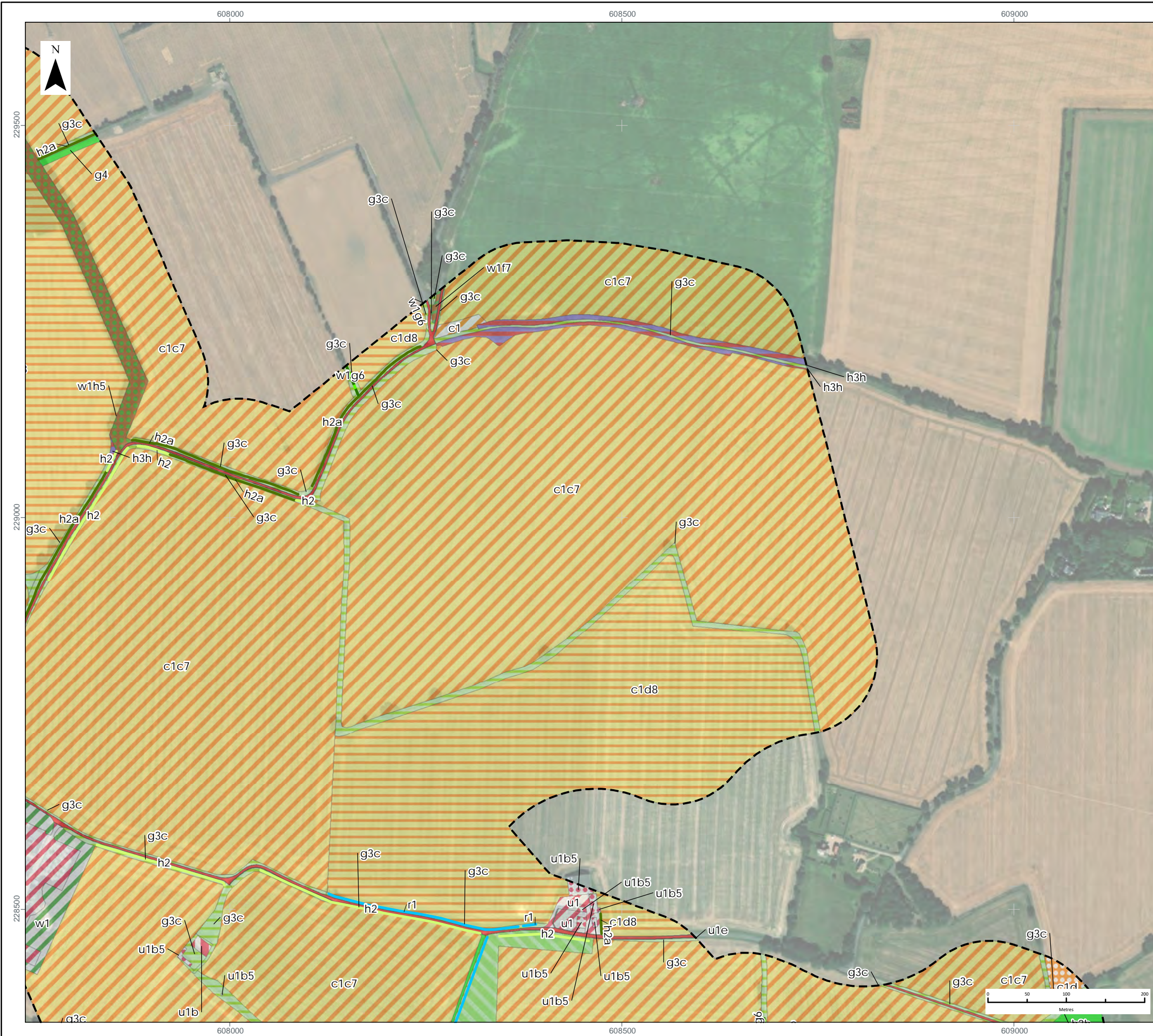
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**LEGEND**

**Habitat Survey Area (2022)**

**UKHab Classification: Linear Features**

- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- r1 - Standing Open Water and Canals
- w1g6 - Line of Trees
- u1e - Built Linear Features
- w1 - Broadleaved, Mixed and Yew Woodland
- w1f7 - Other Lowland Mixed Deciduous Woodland
- w1h5 - Other Woodland; Mixed; Mainly Broadleaved

**UKHab Classification: Area Features**

- c1 - Arable and Horticulture
- c1c7 - Other Cereal Crops
- c1d - Non-Cereal Crops
- c1d8 - Other Non-Cereal Crops
- g3a - Lowland Meadows
- g3c - Other Neutral Grassland
- g4 - Modified Grassland
- h3h - Mixed scrub
- u1 - Built-up Areas and Gardens
- u1b - Developed Land, Sealed Surface
- u1b5 - Buildings

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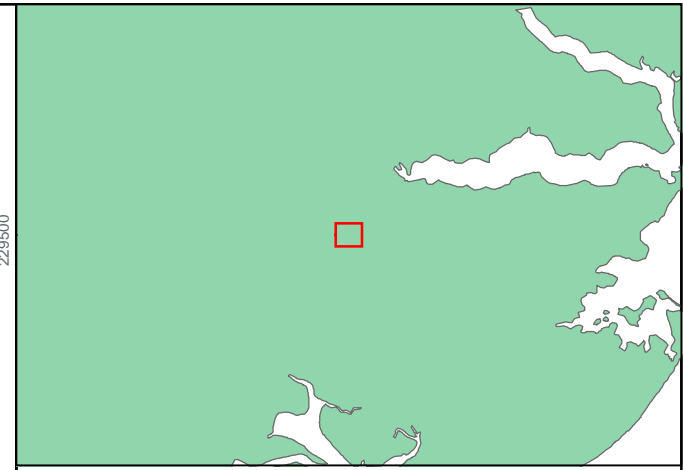
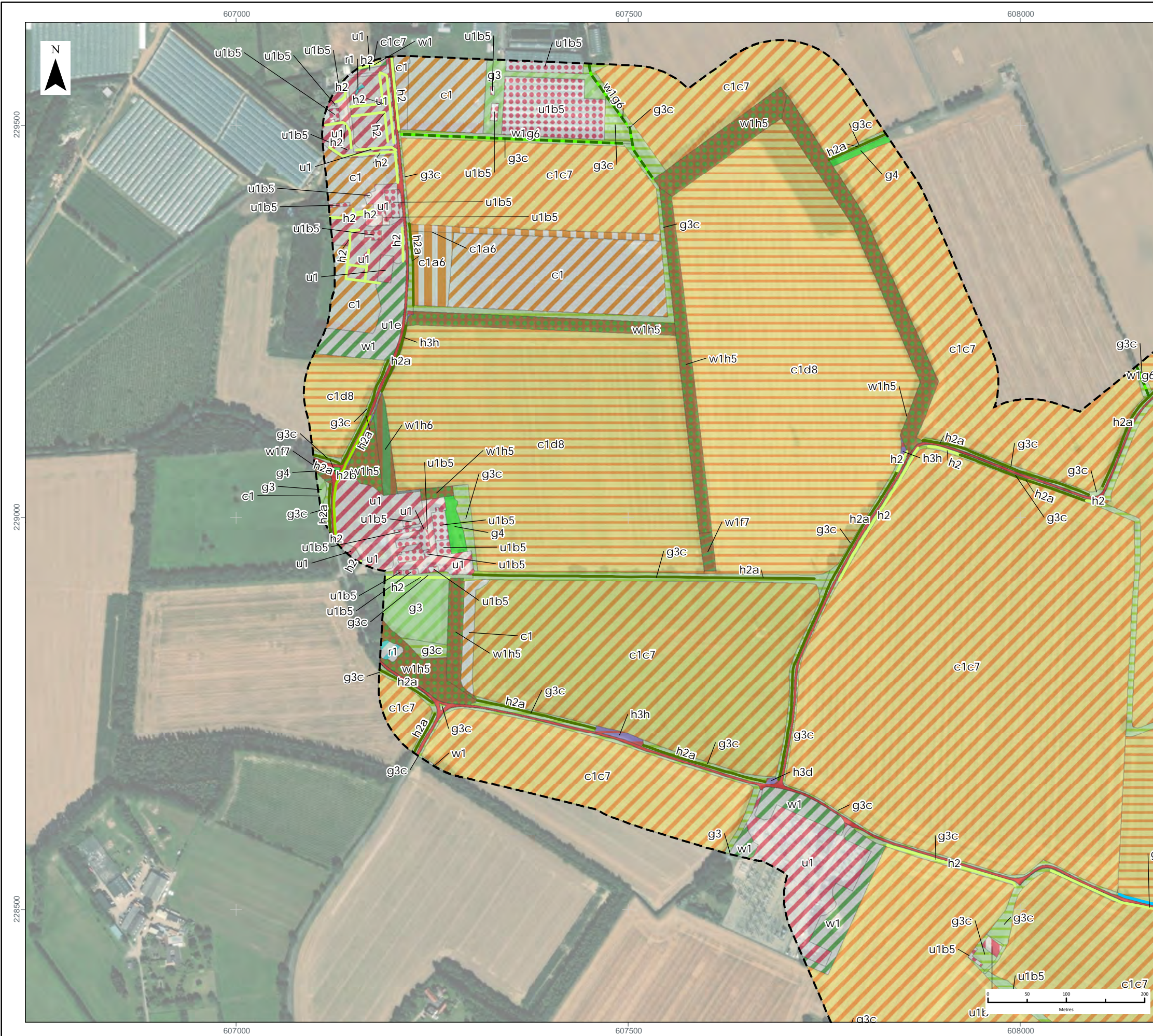
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**LEGEND**

**Habitat Survey Area (2022)**

**UKHab Classification: Linear Features**

- h2 - Hedgerow
- h2a - Hedgerow (Priority Habitat)
- h2b - Other Hedgerow
- r1 - Standing Open Water and Canals
- w1g6 - Line of Trees

**UKHab Classification: Area Features**

- c1 - Arable and Horticulture
- c1a6 - Arable Margins Sown with Wild Flowers or a Pollen and Nectar Mix
- c1c7 - Other Cereal Crops
- c1d8 - Other Non-Cereal Crops
- g3 - Neutral Grassland
- g3c - Other Neutral Grassland
- g4 - Modified Grassland
- h3d - Bramble Scrub
- h3h - Mixed scrub
- r1 - Standing Open Water and Canals

**UKHab Classification: Linear Features**

- u1 - Built-up Areas and Gardens
- u1b - Developed Land, Sealed Surface
- u1b5 - Buildings
- u1e - Built Linear Features
- w1 - Broadleaved, Mixed and Yew Woodland
- w1f7 - Other Lowland Mixed Deciduous Woodland
- w1h5 - Other Woodland: Mixed; Mainly Broadleaved
- w1h6 - Other Woodland: Mixed; Mainly Conifer

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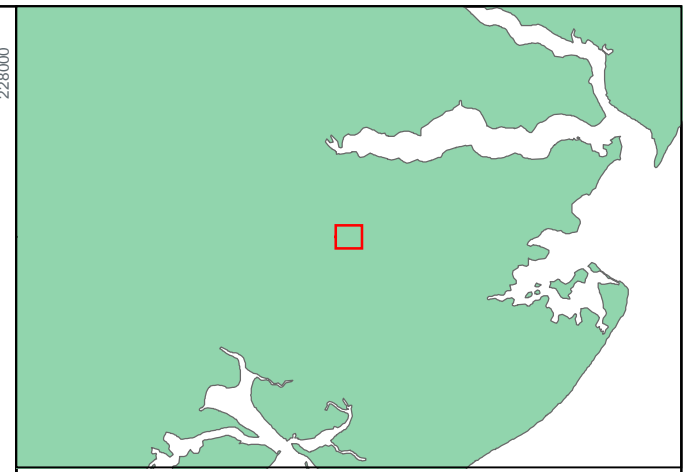
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**FIGURE 1**  
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SCALE: 1:5,000 | PLOT SIZE: A3 | DATUM: ODN | PROJECTION: British National Grid



## FIGURE 2

### Hedgerows Subject to Assessment



**LEGEND**

- Habitat Survey Area (2022)
- Hedgerow Subject to Hedgerow Assessment

**Note:**  
No "Important Hedgerows" were identified during surveys.

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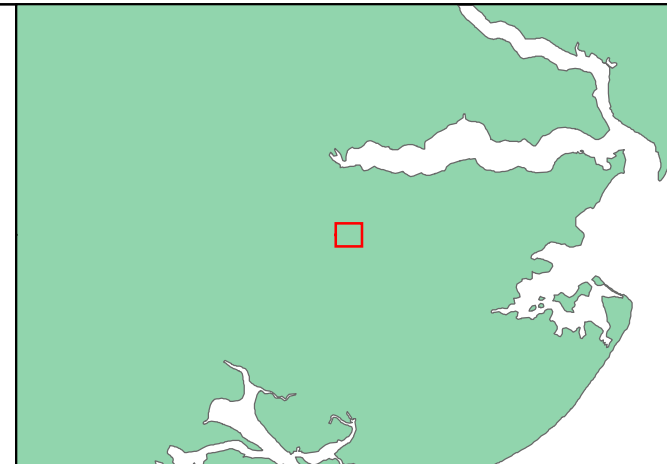
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Hedgerows Subject to Assessment

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**DRAWING NUMBER:**  
**FIGURE 3**  
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SCALE: 1:5,000    PLOT SIZE: A3    DATUM: ODN    PROJECTION: British National Grid





**LEGEND**

- Habitat Survey Area (2022)
- Hedgerow Subject to Hedgerow Assessment

Note:  
No "Important Hedgerows" were identified during surveys.

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PROJECT TITLE:  
*FIVE ESTUARIES OFFSHORE WINDFARM*

DRAWING TITLE:  
**Hedgerows Subject to Assessment**

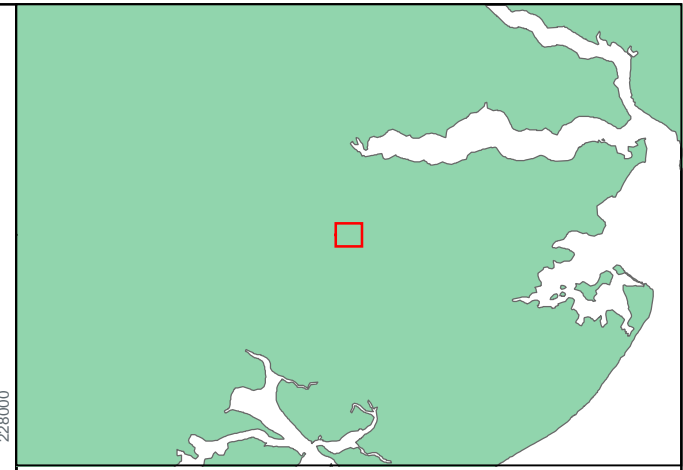
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**FIGURE 3**  
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SCALE: 1:5,000	PLOT SIZE: A3	DATUM: ODN	PROJECTION: British National Grid
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**LEGEND**

- Habitat Survey Area (2022)
- Hedgerow Subject to Hedgerow Assessment

**Note:**  
No "Important Hedgerows" were identified during surveys.

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PROJECT TITLE:  
*FIVE ESTUARIES OFFSHORE WINDFARM*

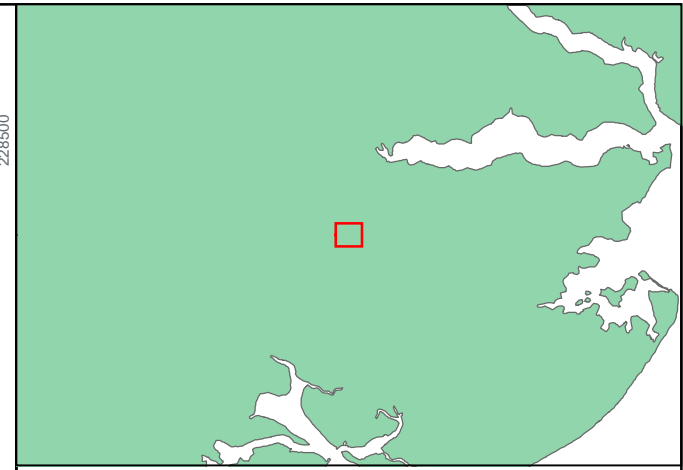
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**Hedgerows Subject to Assessment**

VER	DATE	REMARKS	Drawn	Checked
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DRAWING NUMBER:  
**FIGURE 3**  
Page 3 of 6

SCALE: 1:5,000    PLOT SIZE: A3    DATUM: ODN    PROJECTION: British National Grid





**LEGEND**

- Habitat Survey Area (2022)
- Hedgerow Subject to Hedgerow Assessment

**Note:**  
No "Important Hedgerows" were identified during surveys.

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PROJECT TITLE:  
*FIVE ESTUARIES OFFSHORE WINDFARM*

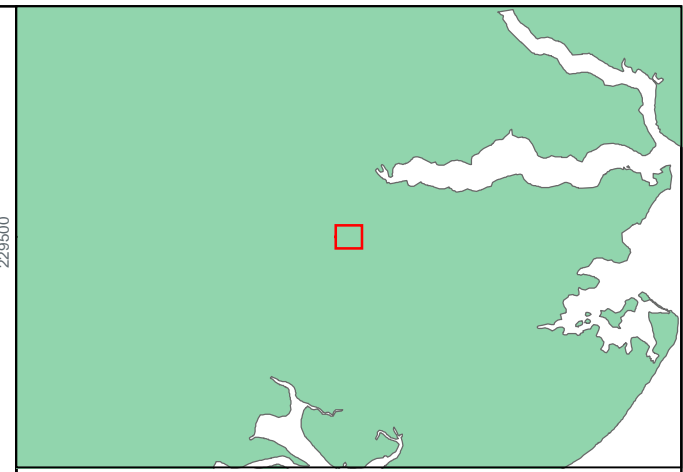
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**Hedgerows Subject to Assessment**

VER	DATE	REMARKS	Drawn	Checked
1	22/12/2022	For Issue	DB	JO

DRAWING NUMBER:  
**FIGURE 3**  
Page 4 of 6

SCALE: 1:5,000    PLOT SIZE: A3    DATUM: ODN    PROJECTION: British National Grid





**LEGEND**

- Habitat Survey Area (2022)
- Hedgerow Subject to Hedgerow Assessment

**Note:**  
No "Important Hedgerows" were identified during surveys.

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PROJECT TITLE:  
*FIVE ESTUARIES OFFSHORE WINDFARM*

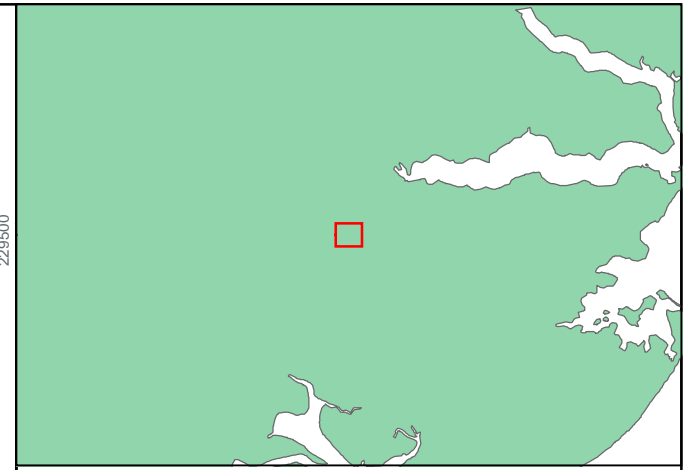
DRAWING TITLE:  
**Hedgerows Subject to Assessment**

VER	DATE	REMARKS	Drawn	Checked
1	22/12/2022	For Issue	DB	JO

DRAWING NUMBER:  
**FIGURE 3**  
Page 5 of 6

SCALE: 1:5,000    PLOT SIZE: A3    DATUM: ODN    PROJECTION: British National Grid





**LEGEND**

- Habitat Survey Area (2022)
- Hedgerow Subject to Hedgerow Assessment

**Note:**  
No "Important Hedgerows" were identified during surveys.

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Aerial Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

PROJECT TITLE:  
*FIVE ESTUARIES OFFSHORE WINDFARM*

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**FIGURE 3**  
Page 6 of 6

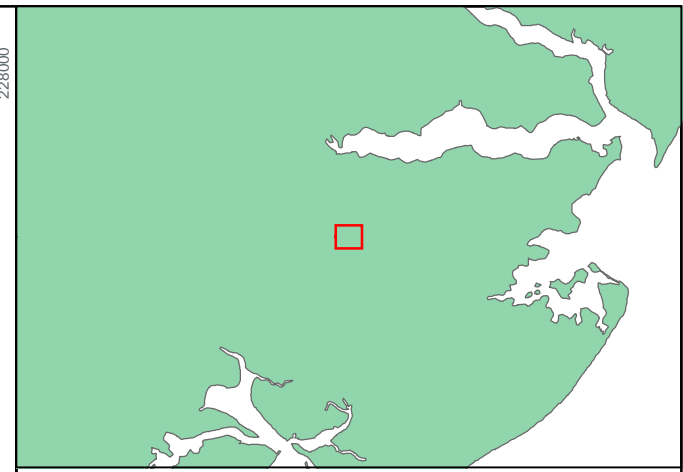
SCALE: 1:5,000    PLOT SIZE: A3    DATUM: ODN    PROJECTION: British National Grid



## FIGURE 3

### Important Habitats





- LEGEND**
- Habitat Survey Area (2022)
  - UKHab Classification: Linear Features**
  - h2a - Hedgerow (Priority Habitat)
  - UKHab Classification: Area Features**
  - f2e - Reedbeds
  - r1 - Standing Open Water and Canals

- Secondary Codes:**
- |                               |                              |
|-------------------------------|------------------------------|
| 10 - Scattered Scrub          | 117 - Dry                    |
| 11 - Scattered Trees          | 140 - Anthills               |
| 16 - Tall Herb                | 148 - Flower Forage Abundant |
| 17 - Ruderal/Ephemeral        | 160 - Sward Type Mosaic      |
| 19 - Ponds (Priority Habitat) | 161 - Tall or Tussocky Sward |
| 56 - Young Trees - Planted    | 190 - Hedgerow with Trees    |
| 73 - Bare Ground              | 1011 - Pasture or Meadow     |

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 Aerial Imagery: Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

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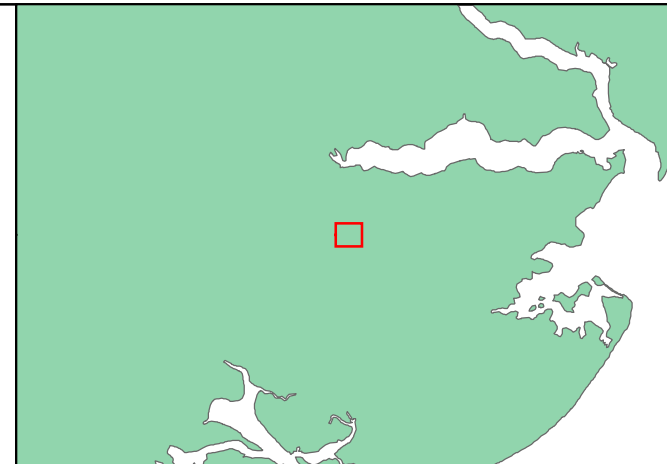
DRAWING TITLE:  
**Important Habitats**

VER	DATE	REMARKS	Drawn	Checked
1	20/01/2023	For Issue	DB	JO

DRAWING NUMBER:  
**FIGURE 2**  
 Page 1 of 6

SCALE: 1:5,000    PLOT SIZE: A3    DATUM: ODN    PROJECTION: British National Grid





**LEGEND**

- Habitat Survey Area (2022)
- UKHab Classification: Linear Features**
- h2a - Hedgerow (Priority Habitat)
- UKHab Classification: Area Features**
- f2e - Reedbeds
- r1 - Standing Open Water and Canals

- Secondary Codes:**
- |                               |                              |
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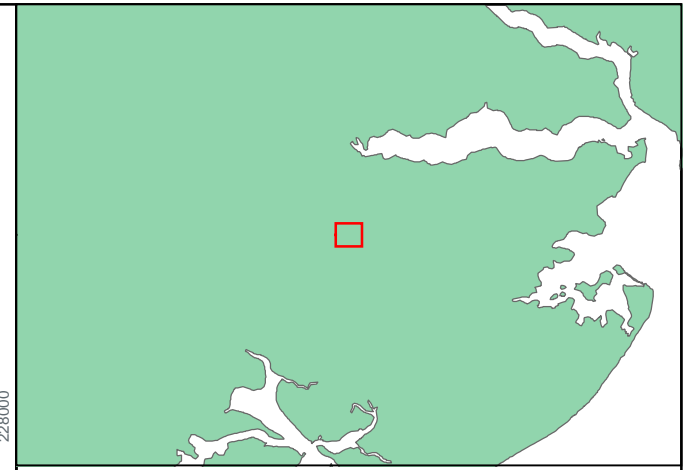
DRAWING TITLE:  
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VER	DATE	REMARKS	Drawn	Checked
1	20/01/2023	For Issue	DB	JO

DRAWING NUMBER:  
**FIGURE 2**  
 Page 2 of 6

SCALE: 1:5,000    PLOT SIZE: A3    DATUM: ODN    PROJECTION: British National Grid





**LEGEND**

Habitat Survey Area (2022)

UKHab Classification: Linear Features

h2a - Hedgerow (Priority Habitat)

UKHab Classification: Area Features

c1a6 - Arable Margins Sown with Wild Flowers or a Pollen and Nectar Mix

**Secondary Codes:**

10 - Scattered Scrub	117 - Dry
11 - Scattered Trees	140 - Anthills
16 - Tall Herb	148 - Flower Forage Abundant
17 - Ruderal/Ephemeral	160 - Sward Type Mosaic
19 - Ponds (Priority Habitat)	161 - Tall or Tussocky Sward
56 - Young Trees - Planted	190 - Hedgerow with Trees
73 - Bare Ground	1011 - Pasture or Meadow

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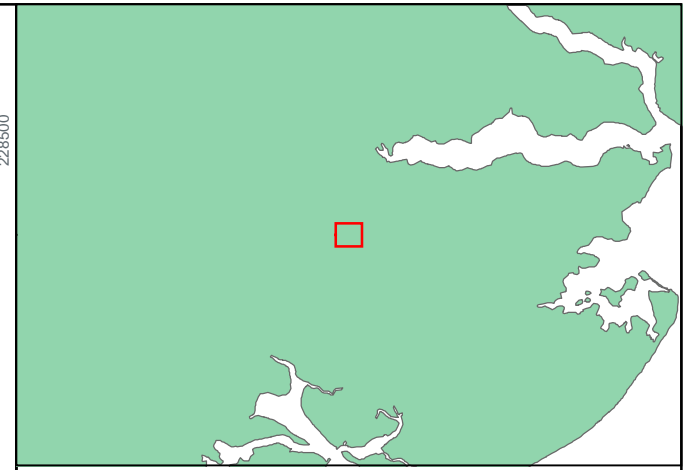
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DRAWING NUMBER:  
**FIGURE 2**  
 Page 3 of 6

SCALE: 1:5,000    PLOT SIZE: A3    DATUM: ODN    PROJECTION: British National Grid





**LEGEND**

Habitat Survey Area (2022)

UKHab Classification: Linear Features

- h2a - Hedgerow (Priority Habitat)

UKHab Classification: Area Features

- c1a6 - Arable Margins Sown with Wild Flowers or a Pollen and Nectar Mix
- c1a8 - Game Bird Mix Strips and Corners
- g3a - Lowland Meadows
- h2a - Hedgerow (Priority Habitat)

Secondary Codes:

10 - Scattered Scrub	117 - Dry
11 - Scattered Trees	140 - Anthills
16 - Tall Herb	148 - Flower Forage Abundant
17 - Ruderal/Ephemeral	160 - Sward Type Mosaic
19 - Ponds (Priority Habitat)	161 - Tall or Tussocky Sward
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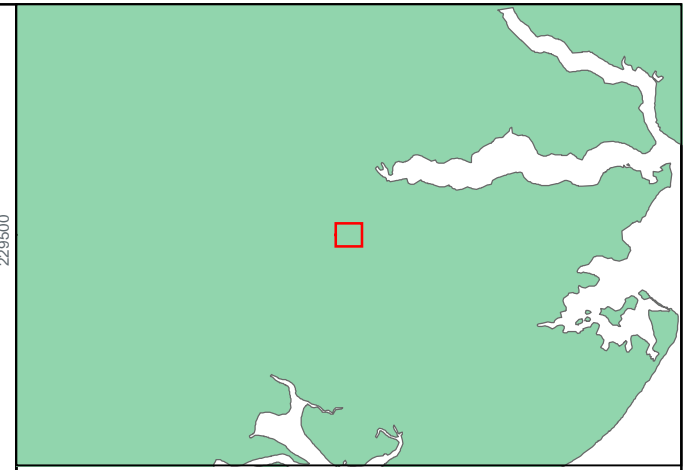
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DRAWING NUMBER:  
**FIGURE 2**  
 Page 4 of 6

SCALE: 1:5,000    PLOT SIZE: A3    DATUM: ODN    PROJECTION: British National Grid



**LEGEND**

Habitat Survey Area (2022)

UKHab Classification: Linear Features

h2a - Hedgerow (Priority Habitat)

UKHab Classification: Area Features

g3a - Lowland Meadows

Secondary Codes:

10 - Scattered Scrub	117 - Dry
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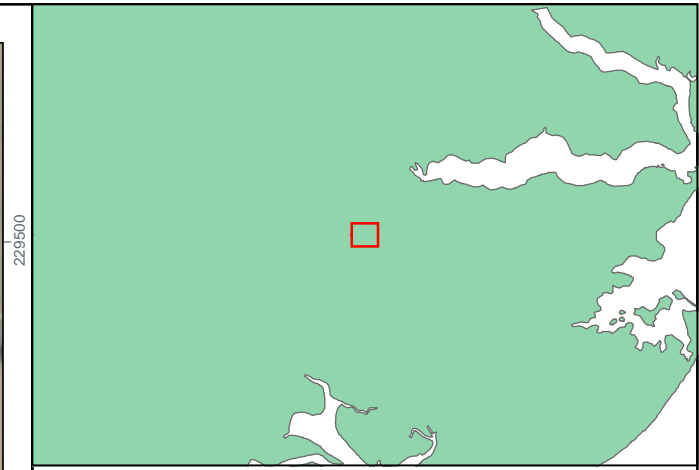
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**FIGURE 2**  
 Page 5 of 6

SCALE: 1:5,000    PLOT SIZE: A3    DATUM: ODN    PROJECTION: British National Grid





**LEGEND**

Habitat Survey Area (2022)

UKHab Classification: Linear Features

h2a - Hedgerow (Priority Habitat)

UKHab Classification: Area Features

c1a6 - Arable Margins Sown with Wild Flowers or a Pollen and Nectar Mix

Secondary Codes:

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**FIGURE 2**  
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