



# Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects Environmental Statement

## **Volume 3**

## Appendix 20.6 – Initial Biodiversity Net Gain Assessment (Revision B) (Tracked)

### **Revision B**

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



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

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## LIST OF ACRONYMS

BCT	Bat Conservation Trust
BNG	Biodiversity Net Gain
CP	Civil Parish
DCO	Development Consent Order
DEP	Dudgeon Extension Project
DM	Dalcour Maclaren
EP1HS	Extended Phase 1 Habitat Survey
GIS	Geographic Information System
INNS	Invasive Non-Native Species
JNCC	Joint Nature Conservation Committee
Km	Kilometre
MAGIC	Multi-Agency Geographic Information for the Countryside
NBIS	Norfolk Biodiversity Information Service
NFI	National Forest Inventory
PEIR	Preliminary Environmental Information Report
PHI	Priority Habitat Inventory
RWCS	Realistic Worst-Case Scenario
SEP	Sheringham Shoal Extension Project
UK Hab	United Kingdom Habitat Classification
WFE	Wild Frontier Ecology Ltd.

## GLOSSARY OF TERMS

Term	Definition
DCO boundary / Order Limits	The area subject to the application for development consent, including all permanent and temporary works for SEP and DEP.
Dudgeon Offshore Wind Farm Extension Project (DEP)	The Dudgeon Offshore Wind Farm Extension onshore and offshore sites including all onshore and offshore infrastructure.
DEP onshore site	The Dudgeon Offshore Wind Farm Extension onshore area consisting of the DEP onshore substation site, onshore cable corridor, construction compounds, temporary working areas and onshore landfall area.
European site	Sites designated for nature conservation under the Habitats Directive and Birds Directive. This includes candidate Special Areas of Conservation, Sites of Community Importance, Special Areas of Conservation and Special Protection Areas, and is defined in regulation 8 of the Conservation of Habitats and Species Regulations 2017.
Evidence Plan Process (EPP)	A voluntary consultation process with specialist stakeholders to agree the approach, and information to support, the EIA and HRA for certain topics.
Expert Topic Group (ETG)	A forum for targeted engagement with regulators and interested stakeholders through the EPP.
Horizontal directional drilling (HDD) zones	The areas within the onshore cable route which would house HDD entry or exit points.
Jointing bays	Underground structures constructed at regular intervals along the onshore cable route to join sections of cable and facilitate installation of the cables into the buried ducts.
Landfall	The point at the coastline at which the offshore export cables are brought onshore, connecting to the onshore cables at the transition joint bay above mean high water
Onshore cable corridor	The area between the landfall and the onshore substation sites, within which the onshore cable circuits will be installed along with other temporary works for construction.
Onshore export cables	The cables which would bring electricity from the landfall to the onshore substation. 220 – 230kV.
Onshore Substation	Compound containing electrical equipment to enable connection to the National Grid.
PEIR boundary	The area subject to survey and preliminary impact assessment to inform the PEIR.
Sheringham Shoal Offshore Wind Farm Extension Project (SEP)	The Sheringham Shoal Offshore Wind Farm Extension onshore and offshore sites including all onshore and offshore infrastructure.
SEP onshore site	The Sheringham Shoal Wind Farm Extension onshore area consisting of the SEP onshore substation site, onshore cable corridor, construction compounds, temporary working areas and onshore landfall area.
Study area	Area where potential impacts from the project could occur, as defined for each individual Environmental Impact Assessment (EIA) topic.
The Applicant	Equinor New Energy Limited

## EXECUTIVE SUMMARY

Wild Frontier Ecology Ltd. (WFE) was commissioned by Equinor New Energy Ltd. to complete an Extended Phase 1 Habitat Survey (EP1HS) and UK Habitat Classification (UK Hab) survey of the onshore grid connection cable corridor associated with the Sheringham Shoal and Dudgeon Offshore Wind Farm Extension Projects. The EP1HS/UK Hab survey involved walkover surveys by ecologists to identify and map habitats within the onshore cable corridor where landowner permission had been obtained. The survey was extended to include an appraisal of the suitability of habitats for protected or notable species. The survey also aimed to record any occurrence of invasive non-native species (INNS). As part of the UK Hab survey, the surveys also recorded relevant information on habitat condition, any damage and other relevant factors.

The majority of the survey was completed between March and September 2020. A small number of landholdings which had not been accessible in 2020 were subsequently surveyed in January and September 2021. The surveys initially covered the Preliminary Environmental Information Report (PEIR) boundary, which was an early iteration of the Order Limits of the onshore grid connection cable corridor. This boundary was refined throughout 2020 and 2021, by drawing on the ecological survey data (and data from other surveys) underway at the time, to avoid and minimise impacts on sensitive features as they were identified. In June 2021, the site selection process had refined the Order Limits to become the preliminary Development Consent Order (DCO) boundary, which was subject to further, minor refinements based on additional consultation and survey results, to become the finalised, fixed DCO boundary in early 2022. This report presents information relating to the final DCO boundary only; data collected on areas which is now outside the DCO boundary is not relevant as such areas would not be impacted by SEP and DEP.

The 2020 and 2021 surveys recorded a range of habitats. The DCO boundary passes through a predominantly arable landscape with field boundaries comprised of hedgerows (many of which have trees) and occasional ditches. There are also occasional grasslands within the DCO boundary, most of which are small, improved or poor semi-improved grassland fields used for grazing livestock. There are occasional ponds within the boundary, with higher densities in the south and far north. The DCO boundary passes through a small number of woodlands including semi-natural broad-leaved woodlands and various (deciduous, conifer and mixed) plantations. Between Bodham/Weybourne and the landfall location, the DCO boundary passes through a swathe of woodland habitat including Bodham Wood, Weybourne Wood and Hundred Acre Wood. There are also some coastal habitats (intertidal shingle, soft cliffs, coastal grassland and semi-improved neutral grassland) at the landfall location.

The DCO boundary passes through six river corridors, bisecting the river channels and/or tributaries of the rivers Bure, Wensum, Tud, Yare, Tiffey and Intwood Stream (listed from north to south). The DCO boundary also runs very close to the headwaters of the River Glaven at Bodham. The Wensum and Glaven are both chalk rivers, a rare and ecologically sensitive ecosystem.

The results of the 2020 and 2021 EP1HS/UK Hab surveys have been used to inform the habitats impact assessment. The survey results have also been used to complete Biodiversity Net Gain (BNG) baseline calculations of 'Habitat Units', 'Hedgerow Units' and 'River Units' within the DCO boundary. This has used the Defra Metric 3.0, which was the industry standard and current metric at the time data input and analysis began in early 2022 (there have subsequently been minor updates to the metric). The BNG baseline calculations have helped inform the site selection process to determine which

habitats and features should be retained, as well as identifying initial opportunities for habitat restoration enhancement and/or creation.

The survey and assessment were constrained by restricted landowner access. In total, approximately 90% of the area of the DCO boundary has been surveyed. Habitats within the remaining 10% have not been surveyed. However, a data search with the Norfolk Biodiversity Information Service (NBIS) obtained habitat classifications for the un-surveyed areas via the Norfolk Living Map; this data has been used to classify inaccessible and un-surveyed parts of the DCO boundary. However, this data is not sufficiently detailed to be incorporated into the BNG calculations, meaning this initial BNG assessment relates only to the 90% of the DCO boundary which was accessible for surveys in 2020 and/or 2021.

The initial BNG assessment has calculated anticipated losses to habitats based on realistic worst-case scenarios for construction; the construction parameters for SEP and DEP will be finalised post-consent so these baseline calculations will be refined in the future, nearer the time construction works are due to commence and when more detailed information is available. The initial BNG calculations have also considered anticipated biodiversity gains based on likely habitat reinstatement and enhancement. These are also based on preliminary assumptions because actual enhancement of habitats will need to be agreed in detail with landowners and other stakeholders in the future, and once construction details are more clearly defined. Therefore, this is an initial BNG assessment which will be updated in due course. Preliminary habitat enhancements are outlined in the Outline Landscape Management Plan (document reference 9.18).

The initial BNG assessment has identified minor losses to Habitat Units and River Units, with minor gains to Hedgerow Units. As this has been based upon a realistic worst-case scenario it is considered likely that a final BNG assessment will be more favourable once impacts have been further refined.

There are widespread opportunities for enhancement of habitats throughout the DCO boundary, although many of these will require agreement with landowners. Where relevant, these opportunities have been highlighted, and include improved management of retained habitats to improve condition and replacing removed habitats with higher distinctiveness (such as creation of other neutral grassland in place of removed modified grassland). Where some of these opportunities are taken and where impacts are further refined, it is considered feasible for the project to achieve a positive Biodiversity Net Gain.

The Initial BNG assessment also shows that the majority of high value habitats (both high distinctiveness habitats and those in good condition) will be avoided through the adoption of trenchless crossing techniques, i.e. Horizontal Directional Drilling (HDD). This includes all major watercourses, most woodlands and high-quality grasslands. This has significantly reduced impacts to biodiversity throughout the DCO boundary.

## 1. BACKGROUND

Equinor New Energy Limited (hereafter Equinor) is proposing to extend the existing operational Sheringham Shoal Offshore Wind Farm and Dudgeon Offshore Wind Farm, named the Sheringham Shoal Extension Project (SEP) and Dudgeon Extension Project (DEP). SEP and DEP will consist of a number of offshore and onshore elements including the offshore wind turbines, offshore export cables and offshore substation(s). The offshore export cables will connect to shore on the North Norfolk coast, with onshore infrastructure connecting the offshore wind farms to the National Grid, which will comprise underground cables from landfall to an onshore substation and National Grid connection at Norwich Main. A full description of SEP and DEP is provided within **ES Chapter 4 Project Description** (document reference 6.1.4).

SEP and DEP has a voluntary commitment to achieve a positive net gain in biodiversity, as measured using the Defra Biodiversity Net Gain metric 3.0. The BNG assessment process is a standard for measuring and quantifying outcomes for biodiversity resulting from development. The BNG metric calculates the baseline ‘value’ of a site (in this case, the DCO boundary), based on the type, size and condition of all habitats within it. The metric assigns each habitat a number of baseline units which relate to its biodiversity value. The metric also calculates the post-development value of the site, taking account of changes to land-use, any losses of habitats incurred during construction works, any mitigation/compensation measures, and any new habitat creation or enhanced habitats. By comparing the pre- and post-development values the metric reveals a quantifiable ‘change’ in the Habitat Units resulting from a development; a positive change is considered a biodiversity net gain.

The BNG process follows the Mitigation Hierarchy. This involves ensuring that anticipated impacts to habitats must, in sequential order of priority, be firstly avoided, then mitigated (ameliorated) and finally compensated for. Standalone ecological enhancements (which do not compensate for an impact, such as planting a new hedgerow where no hedgerow habitat has been impacted) are considered separately from the Mitigation Hierarchy as they do not necessarily relate to addressing or mitigating for an impact.

In January 2020, WFE was commissioned by Equinor to undertake an Extended Phase 1 Habitat Survey (EP1HS) of the habitats within the onshore grid connection cable corridor associated with the onshore grid connection for SEP and DEP. The onshore components comprise a c.60 kilometre (km) route with landfall location around Weybourne on the North Norfolk coast, with the onshore cable route then running southwards and eventually eastwards around the west and south sides of Norwich, where it is to connect with a proposed onshore electricity substation, feeding into the National Grid near Norwich Main Substation.

The surveys took place between 2020 and 2021, at the same time as the ongoing site selection process. The survey area was initially based on the PEIR boundary. This boundary was refined throughout 2020 and 2021, by drawing on incoming survey data on various constraints (including ecological) to ensure the cable corridor could avoid or minimise impacts on any particularly sensitive areas and features which the surveys identified. By June 2021 the PEIR boundary had been refined to become the narrower preliminary DCO boundary. This boundary was subject to further refinement, drawing on consultation responses and additional survey data, and the final DCO boundary was fixed in early 2022. This report presents information on the EP1HS surveys which covered the DCO boundary only. Survey data collected on areas which are now outside the DCO boundary are not included in this report although this information has previously been used to refine the Order Limits to ensure potential impacts on

particularly sensitive or valued habitats and features can be avoided, minimised and/or compensated for.

As part of the EP1HS, habitats within the DCO boundary were also classified according to the UK Habitat Classification System (UK Hab), which has informed an initial BNG assessment. The data collected during the EP1HS and UK Hab survey has allowed for the baseline calculation stage of the BNG assessment to be completed. The full BNG process involves also calculating the post-development 'value' of the habitats. However, it should be noted that SEP and DEP does not currently have a fully defined construction programme so the second stage of the BNG calculation (relating to post-construction unit calculations) cannot be fully completed. However, to produce an indicative BNG assessment, an anticipated construction programme has been used to estimate the likely post-construction habitat calculations. This exercise has been precautionary, so has assumed a Realistic Worst-Case Scenario (RWCS), whereby impacts are anticipated to be greater than may transpire, especially as, in reality, construction works will have some scope to avoid the most valued habitats encountered throughout the DCO boundary, such as by micro-siting specific works. The assessment is also precautionary in that opportunities for habitat mitigation and enhancement have been assumed to be minimal, given that landowners and other key stakeholders have not yet been consulted on such opportunities. Therefore, the outputs of these initial BNG calculations (outlined in this report) are likely to be less favourable than those of the updated BNG assessment, which will be completed once precise construction impacts are defined (which are likely to be less than currently estimated) and opportunities for habitat avoidance, reinstatement, enhancement and creation can be fully realised (and will likely be greater than are currently estimated).

As the onshore elements of SEP and DEP will largely involve temporary impacts to terrestrial ecological receptors (during construction only), most habitat impacts would be temporary. The only notable exception is the onshore substation which will be a permanent above-ground feature and so impacts associated with it would be considered permanent.

Maps showing the survey area (i.e. the DCO boundary) are provided in [Figure 1](#) ~~Figure 4~~ to [Figure 42](#) ~~Figure 42~~, below.

This report outlines the aims, methods and results of the UK Hab surveys and initial BNG calculations completed to date. The intention will be to refine the post-development metric calculations when construction parameters are more clearly defined, which is likely to be closer to the time when construction works are scheduled to commence. At that stage in the future, the BNG metric will reveal an accurate figure for the Biodiversity Net Gain associated with SEP and DEP.



## 2. RELEVANT LEGISLATION AND POLICY

### 2.1. Plants

Schedule 8 of the Wildlife and Countryside Act (WCA), 1981, lists plant species which are afforded special protection. It is an offence to pick, uproot or destroy any species listed on Schedule 8 without prior authorisation, and all plants are protected from unauthorised uprooting (i.e. without the landowner's permission) under Schedule 13 of the WCA 1981.

A Vascular Plant Red List for England<sup>1</sup> provides a measure of the current state of England's flora measured against standardised IUCN criteria. Any taxon that is Threatened (Critically Endangered [CR], Endangered [EN], Vulnerable [VU]) or Near Threatened (NT) does not have statutory protection but should be regarded as a priority for conservation in England. It should be noted that 'threat' is not synonymous with 'rarity'; some of the species concerned are relatively common and widespread.

It is an offence to plant or cause to spread in the wild of certain plant species under Schedule 9 of the WCA 1981. Plant species relevant to the East of England are as follows:

- Himalayan balsam *Impatiens glandulifera*
- Variegated yellow archangel *Lamiastrum galeobdolon* ssp. *argentatum*
- Virginia creeper *Parthenocissus quinquefolia*
- False acacia *Robinia pseudoacacia*
- Water fern *Azolla filiculoides*
- Giant hogweed *Heracleum mantegazzianum*
- Knotweed species including Japanese knotweed *Fallopia japonica*
- Parrot's feather *Myriophyllum aquaticum*
- Floating pennywort *Hydrocotyle ranunculoides*
- Rhododendron *Rhododendron ponticum*
- Giant rhubarb *Gunnera tinctoria*
- New Zealand pigmyweed *Crassula helmsii*
- Waterweeds *Elodea* spp.

All waste containing Japanese knotweed comes under the control of Part II of the Environmental Protection Act 1990, and is classified as controlled waste.

### 2.2. Priority Species and Habitats

Other priority species and habitats are a consideration under the National Planning Policy Framework (NPPF) 2021<sup>2</sup>, placing responsibility on local authorities to aim to

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<sup>1</sup> Stroh P.A., Leach S.J., August T.A., Walker K.J., Pearman D.A., Rumsey F.J., Harrower C.A., Fay M.F., Martin J.P., Pankhurst T., Preston C.D. & Taylor I. (2014). *A Vascular Plant Red List for England*. Botanical Society of Britain and Ireland, Bristol.

<sup>2</sup> MHCLG (2021). National Planning Policy Framework. UK Government.

conserve and enhance biodiversity and to encourage biodiversity in and around developments. There is a general biodiversity duty in the Natural Environment and Rural Communities (NERC) Act 2006 (Section 40) which requires every public body in the exercising of its functions to ‘have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity’. Biodiversity, as covered by the Section 40 duty, includes all biodiversity, not just the Habitats and Species of Principal Importance.

Section 41 of the NERC Act lists a number of species and habitats as being Species/Habitats of Principal Importance. These are species/habitats in England (also known as Priority Habitats/ Species) which had been identified as requiring action under the UK BAP, and which continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework. The protection of either Priority Species or Habitats is not statutory, but “specific consideration”<sup>3</sup> should be afforded by Local Planning Authorities when dealing with them in relation to planning and development control. Also, there is an expectation that public bodies would refer to the Section 41 list when complying with the Section 40 duty.

Widespread Priority Habitats in East Anglia include:

- Arable field margins
- Traditional orchards
- Hedgerows
- Eutrophic standing waters
- Ponds
- Rivers
- Lowland calcareous grassland
- Lowland dry acid grassland
- Lowland meadows
- Lowland fen
- Coastal and floodplain grazing marsh
- Reedbeds
- Lowland mixed deciduous woodland
- Wet woodland
- Wood-pasture and parkland

### 2.3. Local Species and Habitat Designations

The Norfolk Biodiversity Partnership (NBP) has published Habitat and Species Action Plans for selected species occurring within Norfolk. Each Action Plan lists current actions and defines objectives and targets.

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<sup>3</sup> JNCC (2015) UK BAP priority species and habitats

<http://www.naturalengland.org.uk/ourwork/conservation/biodiversity/protectandmanage/habsandspecieimportance.aspx>

The NBP has also published a Biodiversity Supplementary Planning Guidance for Norfolk. This document sets out the key considerations relating to wildlife and biodiversity that should be taken into account for all Norfolk development proposals.

## 2.4. Policy

The overarching policy guidance for biodiversity is included within the NPPF. Section 15 of this document (Conserving and Enhancing the Natural Environment) outlines the approach that Local Authorities should adopt when considering ecological issues within the planning framework, including the principles of the Mitigation Hierarchy. This espouses that in addressing impacts on valued features, avoidance should be the first option considered, followed by mitigation (minimising negative impacts). Where avoidance and mitigation are not possible, compensation for loss of features can be used as a last resort.

Paragraph 180(d) of the NPPF requires opportunities to incorporate biodiversity improvements in and around development as part of the design, especially where this can secure measurable **net gains** for biodiversity or enhance public access to nature where this is appropriate. Paragraph 179 specifies that plans should identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including locally designated sites (such as County Wildlife Sites). It also promotes the conservation, restoration and enhancement of priority habitats and ecological networks and the protection and recovery of priority species.

The principle of net gain has been enshrined in law within the Environment Act 2021. There will be a two-year transitional period before net gain becomes mandatory; this is expected to mean implementation in winter 2023. However, the Act will only apply to Nationally Significant Infrastructure Projects such as SEP and DEP from 2025. Therefore, net gain is currently an optional, voluntary means of quantifying the overall biodiversity impact of a scheme. The Act sets the minimum net gain at 10%, and makes provision for offsetting both on and off site. Sites where activity occurs, without planning permission, which lowers the biodiversity value of a site between 30<sup>th</sup> January 2020 and the implementation date will be expected to rely on the site's value prior to that activity. This is to avoid destruction of biodiverse sites in anticipation of the implementation of net gain. Calculations of net gain rely on a metric provided by Defra.

## 3. SURVEY METHODS

### 3.1. Background

During the Terrestrial Ecology and Ornithology Expert Topic Group (ETG) meeting on 28<sup>th</sup> January 2020, attended by Natural England, the Environment Agency, Norfolk County Council, Broadland District Council, North Norfolk District Council and South Norfolk District Council, it was discussed and agreed that the onshore grid connection cable corridor, which at the time was the PEIR boundary, should be subject to an EP1HS.

In February and March 2020, land agents at Dalcour Maclaren Ltd. (DM) commenced arranging access for various surveys, including the EP1HS, with relevant landowners along the DCO boundary. Access agreements were gradually obtained over the following 19 months, and surveys of accessible land parcels were subsequently completed as access became available.

### 3.2. UK Hab Survey

From July 2020 until September 2021, each accessible land parcel within the DCO boundary was visited by a team of two WFE ecologists. These surveyors walked-over accessible parts of the land parcels and categorised all observed habitats and features to prescribed UK Hab classifications, contained in the Defra Metric 3.0<sup>4</sup> (which was the most current Defra Metric at the time of survey). For habitats such as hedgerows, grasslands and woodlands, the survey involved recording plant species and noting structural conditions to refine habitat classifications; for example, hedgerows are classified according to whether they are species-rich (containing five or more ‘woody’ species), whether they contain distinct trees and whether they are intact or defunct (for the purposes of this survey, a defunct hedgerow was one in which gaps amounted to 10% or more of the length of the hedgerow). Any indicators of poor habitat quality or habitat damage were also noted. The prevalence of plant species within each habitat was recorded using the DAFOR scale (where, D: dominant, A: abundant, F: frequent, O: occasional and R: rare). The above information was recorded on paper forms by surveyors when in the field.

The ecological surveyors photographed each habitat, other than arable fields or built features (roads, buildings etc.).

Further detail on the timing, surveyors and survey coverage is provided in **Appendix 20.1: Extended Phase 1 Habitat Survey Technical Appendix** (document number 6.3.20.1); the UK Hab surveys were combined with the EP1HS in the field, in the interests of efficiency and to minimise disturbance to landowners.

#### 3.2.1. Desk Study

Determination of Priority Habitats within the DCO boundary was partly informed using the Multi-Agency Geographic Information for the Countryside (MAGIC) website<sup>5</sup>, which lists habitats included on the Priority Habitats Inventory (PHI). The MAGIC website was

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<sup>4</sup> Natural England. Access to Evidence – The Biodiversity Metric 3.0 (JP039). Available at:

<sup>5</sup> <https://magic.defra.gov.uk/magicmap.aspx>

also used to help inform certain habitat classifications, such as by using the National Forest Inventory (NFI).

Access to survey approximately 10% of the DCO boundary area could not be arranged with landowners, meaning these areas have not been visited and surveyed. The Norfolk Biodiversity Information Service (NBIS) has provided 'Norfolk Living Map' data on these areas, which provides broad habitat classifications (such as 'arable', 'woodland' or 'improved grassland'). While this information allows for the un-surveyed areas to have a broad habitat classification applied, the mapping data is not sufficiently detailed to inform the BNG calculations. Therefore, this Initial BNG Assessment report relates only to the c.90% of the DCO boundary which has been fully surveyed.

### 3.3. GIS Digitising

The field notes and maps were transcribed and digitised in Quantum GIS (QGIS), a GIS software programme. Metadata was incorporated within each relevant mapped feature, such as plant species, structure, surveyors and other notes recorded (meaning each hedgerow, grassland, woodland etc. has its data related to the mapped polygon or polyline). Each feature had a unique reference assigned, such as H0001, H0002 etc. for hedgerows. This mapping software was also used to measure extents of habitat features such as areas of a habitat type or length of a hedgerow.

### 3.4. Initial BNG Calculations

The Defra BNG Metric 3.0 was used to calculate baseline habitat unit values for areas of habitat (this gives Habitat Units - HU) and separately for hedgerow habitats (Hedgerow Units - HeU) and watercourses (River Units - RU). The metric calculations commenced early in 2022 and since this time, there have been subsequent updates to the metric (with an updated version (3.1) now available) but as significant data input and analysis had been completed using metric 3.0, it was decided to proceed with the initial BNG calculations using that metric. This was agreed during an ETG meeting with Natural England to discuss the BNG approach, held in June 2022.

## 4. RESULTS

### 4.1. Construction Assumptions

The DCO boundary, within which all direct construction-related impacts and land-take impacts will be concentrated, is generally 60 metres (m) wide. Within this area, the onshore grid connection cables will be installed using open trenches. There are wider sections such as at the landfall and at the onshore substation site, where specialist construction processes require a wider working footprint. There are also wider sections along the DCO boundary where the onshore grid cables will be installed using trenchless crossing techniques (i.e. Horizontal Directional Drilling (HDD)) rather than open-cut trenches. These sections are wider than 60m to allow flexibility for final cable design, which depending on ground conditions and length of the drill may require a wider area for cable installation; consequently the HDD compounds (drilling site and reception pits) may vary in size and their precise placement is not yet defined, meaning the whole section is sufficiently wide to accommodate cable installation and drill compounds wherever they are needed throughout these sections. Indicative compound locations have been provided by engineers, and these have been used to estimate impacts.

Trenchless crossing has been the main mitigation technique adopted by SEP and DEP within the DCO boundary to avoid impacts to sensitive ecological areas. As a result, direct construction impacts to most of the valued habitats within the DCO boundary such as Weybourne Woods, all major rivers and streams, County Wildlife Sites and various other valued habitats, will be largely avoided.

#### 4.1.1. Habitat Unit Assumptions

Arable fields have been omitted from [Table 1](#) ~~Table 1~~ due to their relatively low ecological value. The majority of arable fields are in open cut areas within the DCO boundary, and so will be removed and reinstated on completion of works in those areas. There are 404.38 hectares (ha) of cropland habitats within the DCO boundary (82% of the 491.84ha within the DCO boundary), contributing 813.38 Habitat Units (BU) (62% of a total 1319.24 BU within the DCO boundary). Following the construction of SEP and DEP, 387.43ha of cropland will be reinstated, providing 756.16 BU. The remaining 16.95ha will be replaced with other habitats, primarily around the onshore substation south of Norwich.

Urban habitats with 'Very Low' distinctiveness have also been omitted as they contribute no BU. This includes areas of hardstanding and buildings.

Opportunities for enhancement have been noted in [Table 1](#) ~~Table 1~~, but these would rely on agreements with landowners and ongoing management to ensure improved condition is maintained. Specific details on how habitats could be improved would depend on the results of pre-construction surveys, following agreement with landowners, and would be specified in the future within a management plan to be provided alongside the final BNG assessment. As these suggestions are indicative they have not been factored into calculations.

[Table 1](#) ~~Table 1~~ lists features from north to south throughout the DCO boundary. The individual feature references are not shown on the Figures 1-42 because this would excessively overpopulate the figures and would likely be unreadable. Figure references are provided as embedded metadata within the corresponding GIS data for the Phase 1 maps, but Defra metric 3.0 mapping tools (using UK Hab classifications) for the baseline

BNG assessment (which has been used to produce the maps in this report) does not allow individual feature identifiers to be applied.

**Table 1: Habitat Unit RWCS Impact Assumptions**

WFE Habitat Feature Ref:	UK Hab Classification	RWCS Impact	Opportunities
SHING001	Littoral coarse sediment	Rollers will be utilised to tow the cable into the sea, temporary impacts lasting around one day. Due to the use of rollers, it has been assumed that there will not be significant impacts to the beach habitat.	No realistic opportunities currently anticipated.
SWAMP0001	Ponds (non-priority habitat)	Assumed retained - edge of DCO boundary	No realistic opportunities currently anticipated.
CG0001	Coastal sand dunes	Majority retained, but 0.39ha will be lost to provide a construction compound. This area will be reinstated following construction.	No realistic opportunities currently anticipated.
PSIG0022	Coastal sand dunes	Assumed retained as habitat forms part of the verge of the access track and existing access track will be used.	No realistic opportunities currently anticipated.
SS0005	Coastal sand dunes	Assumed retained as part of the verge of the access track. Assumed existing access track will be used.	No realistic opportunities currently anticipated.
SS0006	Coastal sand dunes	Assumed retained as part of the verge of the access track. Assumed existing access track will be used.	No realistic opportunities currently anticipated.
SS0006	Other neutral grassland	Assumed retained as part of the verge of the access track. Assumed existing access track will be used.	No realistic opportunities currently anticipated.
SIG0008	Other neutral grassland	Assumed retained as part of the verge of the access track. Assumed existing access track will be used.	No realistic opportunities currently anticipated.
IG0032	Modified grassland	Assumed retained as part of the verge of the access track. Assumed existing access track will be used.	No realistic opportunities currently anticipated.



WFE Habitat Feature Ref:	UK Hab Classification	RWCS Impact	Opportunities
DS0008	Bramble scrub	Majority retained, 0.08ha removed to provide construction compound. Reinstated following construction.	Replant area with mixed scrub rather than bramble scrub and maintain in better condition. Could also thin retained bramble scrub and replant with additional species to improve species diversity and achieve mixed scrub habitat type.
SIG0007	Other neutral grassland	Assumed retained as part of the verge of the access track. Assumed existing access track will be used.	No realistic opportunities currently anticipated.
IG0031	Modified grassland	Assumed retained as part of the verge of the access track. Assumed existing access track will be used.	No realistic opportunities currently anticipated.
SIG0006	Other neutral grassland	Assumed retained as part of the verge of the access track. Assumed existing access track will be used.	No realistic opportunities currently anticipated.
PSIG0021	Modified grassland	Retained.	Improve condition e.g. by altering management. Could also sow with additional species to improve diversity, or this will improve over time with altered management.
IG0030	Modified grassland	Retained.	Improve condition e.g. by altering management. Could also sow with additional species to improve diversity, or this will improve over time with altered management.
PMW0006	Other mixed woodland	Retained.	Improve condition by altering management.
RUD0008	Ruderal/ephemeral	Retained.	No realistic opportunities currently anticipated.
BG0004	Derelict land (old railway)	Retained.	No realistic opportunities currently anticipated.
RUD0007	Ruderal/ephemeral	Retained.	No realistic opportunities currently anticipated.
PBLW0017	Other broadleaved woodland	Retained.	Improve condition by altering management.
PCW0006	Other conifer woodland	Retained.	Potential condition improvements.

WFE Habitat Feature Ref:	UK Hab Classification	RWCS Impact	Opportunities
PCW0005	Other conifer woodland	Retained.	Potential condition improvements.
PMW0005	Other mixed woodland	Majority retained, small area lost for construction compound.	Improve condition by replanting and altering management.
PCW0004	Other conifer woodland	Majority retained, small area lost for construction compound. Area lost for compound will be replanted with mixed scrub.	Potential condition improvements to retained woodland.
PCW0003	Other conifer woodland	Retained.	Improve condition by replanting and altering management.
IG0028	Modified grassland	Majority open cut or lost for construction compound, with a small area retained by HDD. Reinstated following construction.	Area could be sown with a more diverse mixture of species and managed more appropriately, improving habitat distinctiveness and condition.
SS0004	Mixed scrub	Retained.	Improve condition by altering management.
IG0027	Modified grassland	Retained.	Improve condition by altering management, this may also improve distinctiveness in the long term.
DS0007	Bramble scrub	Retained.	Thin out and replant with more diverse species to improve habitat distinctiveness. Alter habitat management to improve condition.
RUD0006	Ruderal/ephemeral	Retained.	Replant with more distinctive habitat (e.g. wildflower grassland).
DS0006	Mixed scrub	Retained.	No realistic opportunities currently anticipated.
SNMW0003	Other mixed woodland	Retained.	No realistic opportunities currently anticipated.
PSIG0019	Floodplain wetland mosaic	Retained.	Potential condition improvements.
IG0026	Floodplain wetland mosaic	Retained.	Potential condition improvements.

WFE Habitat Feature Ref:	UK Hab Classification	RWCS Impact	Opportunities
PSIG0018	Floodplain wetland mosaic	Retained.	No realistic opportunities currently anticipated.
RUD0005	Ruderal/ephemeral	Retained.	Replant with more distinctive habitat (e.g. wildflower grassland).
PBLW0016	Other broadleaved woodland	Retained.	No realistic opportunities currently anticipated.
PSIG0017	Modified grassland	Retained.	No realistic opportunities currently anticipated.
IG0024	Modified grassland	Some retained, some lost to provide construction compound. Reinstated following construction.	Replant area lost with species-rich mixture to improve habitat distinctiveness. Alter ongoing management to retain good condition and improve habitat distinctiveness.
IG0023	Modified grassland	Lost through open cut. Reinstated following construction.	Replant with a more diverse species mix to improve habitat distinctiveness.
SNBLW0018	Other mixed woodland	Retained.	No realistic opportunities currently anticipated.
PSIG0016	Modified grassland	Lost for access track. Reinstated following construction.	Replant with a more diverse species mix to improve habitat distinctiveness.
A0083	Ruderal/ephemeral	Some lost for access track and open cut. Reinstated following construction. Some retained.	Replant with a more diverse species mix to improve habitat distinctiveness (but may be part of cropland rotation).
PSIG0015	Modified grassland	Lost for access track. Reinstated following construction.	Replant with a more diverse species mix to improve habitat distinctiveness.
PSIG0014	Modified grassland	Retained.	No realistic opportunities currently anticipated.
PSIG0013	Modified grassland	Retained.	No realistic opportunities currently anticipated.
PMW0004	Other mixed woodland	Retained.	No realistic opportunities currently anticipated.
PSIG0012	Modified grassland	Retained.	No realistic opportunities currently anticipated.
SNBLW0017	Wet woodland	Retained.	No realistic opportunities currently anticipated.

WFE Habitat Feature Ref:	UK Hab Classification	RWCS Impact	Opportunities
IG0022	Modified grassland	Retained.	No realistic opportunities currently anticipated.
SS0003	Mixed scrub	Retained.	Alter management to improve condition.
DS0003	Mixed scrub	Retained.	Alter management to improve condition.
PBLW0015	Other broadleaved woodland	Retained.	Alter management to improve condition.
BG0003	Bare ground	Retained.	N/A
PBLW0014	Other broadleaved woodland	Retained.	Alter management to improve condition.
IG0021	Modified grassland	Retained.	Alter management to improve condition, this may also improve habitat distinctiveness in the long term.
AG0001	Modified grassland	Retained.	Alter management to improve condition.
IG0020	Modified grassland	Retained.	Alter management to improve condition.
IG0019	Modified grassland	Retained.	Alter management to improve condition.
IG0022	Floodplain wetland mosaic	Retained.	Alter management to improve condition.
PBLW0013	Other broadleaved woodland	Retained.	No realistic opportunities currently anticipated.
SIG0005	Floodplain wetland mosaic	Some retained, some lost to provide construction compound.	Alter management to improve condition.
PBLW0012	Other broadleaved woodland	Retained.	Alter management to improve condition.
SNBLW0016	Other broadleaved woodland	Retained.	No realistic opportunities currently anticipated.
PSIG0011	Modified grassland	Retained.	No realistic opportunities currently anticipated.
BG0002	Bare ground	Used for access track.	Replant with wildflower and grass mixture to improve habitat distinctiveness, unless required for farm access.
SNBLW0015	Other broadleaved woodland	Retained.	Alter management to improve condition.

WFE Habitat Feature Ref:	UK Hab Classification	RWCS Impact	Opportunities
IG0018	Modified grassland	Lost to open cut.	Alter management to improve condition, possibly reseed with a more diverse species mix to improve habitat distinctiveness.
EPH0004	Ruderal/ephemeral	Some lost to construction compound, some retained.	Replant with wildflower and grass mixture to improve habitat distinctiveness.
SNMW0002	Other mixed woodland	Retained.	No realistic opportunities currently anticipated.
PSIG0010	Other neutral grassland	Lost to open cut.	Replant with diverse species mixture and alter management to improve condition.
SNBLW0014	Other broadleaved woodland	Retained.	No realistic opportunities currently anticipated.
PSIG0009	Modified grassland	Some lost to access track, construction compound and open cut, some retained.	Replant with more diverse species mix to improve habitat distinctiveness.
IG0017	Modified grassland	Retained.	No realistic opportunities currently anticipated.
IG0016	Modified grassland	Retained.	No realistic opportunities currently anticipated.
PBLW0011	Other broadleaved woodland	Retained.	Alter management to improve condition.
SNBLW0013	Other broadleaved woodland	Retained	Alter management to improve condition.
PBLW0010	Other broadleaved woodland	Lost to open cut.	Replant with a diverse species mixture and instate management regime to achieve better condition than baseline.
DS0005	Mixed scrub	Lost to access track.	Replant with diverse mixture of species and manage to achieve better condition than baseline.
IG0015	Modified grassland	Lost to access track.	Replant with diverse mixture of species and manage to achieve better condition than baseline.
PBLW0009	Other broadleaved woodland	Retained.	No realistic opportunities currently anticipated.

WFE Habitat Feature Ref:	UK Hab Classification	RWCS Impact	Opportunities
DS0004	Dense scrub	Retained.	Alter management to improve condition.
PBLW0008	Other broadleaved woodland	Retained.	Alter management to improve condition.
PBLW0007	Other mixed woodland	Retained.	Alter management to improve condition.
SIG0004	Other neutral grassland	Partially lost to open cut and construction compound, partially retained by HDD.	Replant with species rich mixture and alter management to improve condition.
SNBLW0012	Wet woodland	Retained.	No realistic opportunities currently anticipated.
IG0013	Modified grassland	Retained.	Alter management to improve condition.
IG0012	Modified grassland	Lost to access track.	Replant with species rich mixture and alter management to improve condition.
RUD0003	Ruderal/ephemeral	Retained.	Alter management to improve condition.
EPH0003	Modified grassland	Partially lost to open cut and construction compound, partially retained by HDD.	Replant with species rich mixture to improve habitat distinctiveness and alter management to improve condition.
PSIG0008	Modified grassland	Partially lost to open cut and construction compound, partially retained by HDD.	Replant with species rich mixture to improve habitat distinctiveness and alter management to improve condition.
SNBLW0011	Other broadleaved woodland	Retained.	No realistic opportunities currently anticipated.
MG0002	Modified grassland	Retained.	No realistic opportunities currently anticipated.
PX016	Ponds (non-priority habitat)	Retained.	No realistic opportunities currently anticipated.
PX017	Ponds (non-priority habitat)	Retained.	No realistic opportunities currently anticipated.
SIG0003	Other neutral grassland	Retained.	No realistic opportunities currently anticipated.
PBLW0006	Other broadleaved woodland	Retained.	No realistic opportunities currently anticipated.
FEN0001	Fens (upland and lowland)	Retained.	No realistic opportunities currently anticipated.

WFE Habitat Feature Ref:	UK Hab Classification	RWCS Impact	Opportunities
PSIG0007	Modified grassland	Partially retained, partially lost to construction compound.	Replant with species rich mixture to improve habitat distinctiveness and alter management to improve condition.
PCW0002	Other conifer woodland	Retained.	No realistic opportunities currently anticipated.
IG0012	Modified grassland	Partially retained, partially lost to access track and construction compound.	Replant with species rich mixture to improve habitat distinctiveness and alter management to improve condition.
PCW0001	Other conifer woodland	Partially retained, partially lost to access track and construction compound.	Replant with species rich mixture to improve habitat distinctiveness and alter management to improve condition (may not be possible if going back into forestry rotation).
PMW0003	Other broadleaved woodland	Retained.	No realistic opportunities currently anticipated.
BLP0001	Modified grassland	Retained.	Alter management to improve condition.
IG0010	Modified grassland	Retained.	Alter management to improve condition.
PN0006	Ponds (non-priority habitat)	Retained.	Alter management to improve condition.
SNBLW0010	Other broadleaved woodland	Retained.	No realistic opportunities currently anticipated.
SNBLW0009	Lowland mixed deciduous woodland	Retained (access to construction compound through existing gate).	No realistic opportunities currently anticipated.
PMW0002	Other mixed woodland	Retained.	No realistic opportunities currently anticipated.
IG0008	Modified grassland	Lost to open cut.	Replant with species rich mixture to improve habitat distinctiveness and alter management to improve condition.
IG0007	Modified grassland	Majority lost to open cut and construction compound, some retained through HDD.	Replant with species rich mixture to improve habitat distinctiveness and alter management to improve condition.

WFE Habitat Feature Ref:	UK Hab Classification	RWCS Impact	Opportunities
SIG0002	Other neutral grassland	Lost to access track.	No realistic opportunities currently anticipated.
PSIG0005	Modified grassland	Lost to access track.	Replant with species rich mixture to improve habitat distinctiveness and alter management to improve condition.
IG0006b	Other neutral grassland	Retained.	No realistic opportunities currently anticipated.
SNBLW0008	Other broadleaved woodland	Retained.	No realistic opportunities currently anticipated.
IG0006a	Modified grassland	Retained.	No realistic opportunities currently anticipated.
SNMW0001	Other mixed woodland	Retained.	No realistic opportunities currently anticipated.
EPH0002	Ruderal/ephemeral	Partially lost to open cut and access compound, partially retained through HDD.	Replant with species rich mixture to improve habitat distinctiveness and alter management to improve condition.
PMW0001b	Other mixed woodland	Retained.	Alter management to improve condition.
PMW0001a	Other conifer woodland	Retained.	Alter management to improve condition.
SNBLW0007	Other broadleaved woodland	Retained.	No realistic opportunities currently anticipated.
PSIG0004	Floodplain wetland mosaic	Retained.	No realistic opportunities currently anticipated.
MG0001	Floodplain wetland mosaic	Retained.	No realistic opportunities currently anticipated.
SNBLW0006	Wet woodland	Retained.	No realistic opportunities currently anticipated.
PSIG0004	Floodplain wetland mosaic	Retained.	No realistic opportunities currently anticipated.
IG0004	Floodplain wetland mosaic	Retained.	No realistic opportunities currently anticipated.
IG0003	Modified grassland	Lost to open cut.	Replant with species rich mixture to improve habitat distinctiveness and alter management to improve condition.



WFE Habitat Feature Ref:	UK Hab Classification	RWCS Impact	Opportunities
DS0001	Bramble scrub	Lost to construction compound and open cut.	Replant with species rich mixture to improve habitat distinctiveness and alter management to improve condition.
SNBLW0005	Other broadleaved woodland	Retained.	Alter management to improve condition.
PS09	Ponds (non-priority habitat)	Retained.	Alter management to improve condition.
PSIG0003	Modified grassland	Retained.	Alter management to improve condition.
SNBLW0003	Other broadleaved woodland	Retained.	Alter management to improve condition.
SIG0001	Other neutral grassland	Possibly lost for construction of new substation.	Replant with species rich mixture to improve habitat distinctiveness and alter management to improve condition.
PBLW0002	Other broadleaved woodland	Retained.	Alter management to improve condition.
PBLW0003	Other broadleaved woodland	Retained.	Alter management to improve condition.
PBLW0004	Other broadleaved woodland	Retained.	Alter management to improve condition.
PBLW0005	Other broadleaved woodland	Retained.	Alter management to improve condition.
RUD0001	Ruderal/ephemeral	Retained.	Alter management to improve condition.
SNBLW0002	Other broadleaved woodland	Retained.	No realistic opportunities currently anticipated.
EPH0001	Ruderal/ephemeral	Lost to access track.	Replant with species rich mixture to improve habitat distinctiveness and alter management to improve condition.
PSIG0001	Modified grassland	Lost to access track.	Replant with species rich mixture to improve habitat distinctiveness and alter management to improve condition.
SS0001	Modified grassland	Retained.	Alter management to improve condition.
PSIG0002	Modified grassland	Retained.	Alter management to improve condition.

WFE Habitat Feature Ref:	UK Hab Classification	RWCS Impact	Opportunities
IG0002	Modified grassland	Lost to access track.	Replant with species rich mixture to improve habitat distinctiveness and alter management to improve condition.
PBLW0001	Other broadleaved woodland	Retained.	Alter management to improve condition.
IG0001	Modified grassland	Partially retained and partially lost to construction compound.	Replant with species rich mixture to improve habitat distinctiveness and alter management to improve condition.
SNBLW0001	Other broadleaved woodland	Retained (use existing access track).	No realistic opportunities currently anticipated.

#### 4.1.2. Hedgerow Unit Assumptions

[Table 2](#)~~Table-2~~, below, outlines anticipated RWCS impacts on linear features such as hedgerows within the DCO boundary. In general, the DCO boundary is 60m wide and crossings of linear features will be able to adopt a reduced working corridor of 20m wide (or one third of the total width of the DCO boundary). When applying this narrowing to linear features to calculate the lengths of features which would be removed, it is rarely the case that 20m (i.e. one third of 60m) of a linear habitat would be removed because this would assume that the linear habitat crosses the DCO boundary at a directly perpendicular angle. In the majority of cases, linear habitats cross the DCO boundary at more acute or oblique angles and therefore have a longer total length within the DCO boundary; for example, a hedgerow which crosses the DCO boundary at an angle of 45° will have a total length of approximately 85m inside the DCO boundary. In order to calculate the length of linear habitat removal likely to be required, the following table gives a figure of one third of the total length of the given feature within the DCO boundary because this will correspond with the narrowed construction footprint as it bisects the linear feature along the course of the DCO boundary. Where assumptions have had to be made regarding the location of hedgerow removal, a RWCS approach has been taken.

Hedgerows which are within un-surveyed areas of the DCO boundary (i.e. where landowner access was not granted) have been omitted from Table 2.

**Table 2: Linear Unit RWCS Impact Assumptions**

WFE Linear Feature Ref:	Crossing ID no.	Crossing ref.	UK Hab Classification	RWCS Impact
H0235	5	RDX001	Species-rich, intact hedgerow with trees	Avoided - HDD
H0234	12	HRX001	Species-poor, defunct hedgerow with trees	Remove 20m of hedgerow
H0233	13	HRX002	Species-poor, defunct hedgerow with trees	Remove up to 22m of hedgerow (although hedgerow may be entirely avoidable)
H0232	n/a	n/a	Species-poor, intact hedgerow	Remove c.11m of hedgerow at access bell-mouth
H0231	14	RDX002	Species-poor, intact hedgerow	Avoided - HDD
H0230	15	RDX002	Species-rich, intact hedgerow with trees	Avoided - HDD
H0229	16	RDX002	Species-poor, intact hedgerow with trees	Avoided - HDD
H0228	16	RDX002	Species-rich, intact hedgerow with trees	Avoided - HDD
H0227	18	DKX001	Species-poor, defunct hedgerow with trees	Avoided - HDD
H0226	20	RDX003	Species-poor, intact hedgerow	Avoided - HDD
H0225	25	RDX003	Species-poor, intact hedgerow with trees	Avoided - HDD
H0224	27	RLX001	Species-poor, defunct hedgerow	Remove 20m of hedgerow (assumed western section will be removed)
H0223	29	RLX001	Species-poor, defunct hedgerow	Remove 20m of hedgerow (assumed western section will be removed)
H0222	34	WDX018	Species-poor, defunct hedgerow with trees	Avoided - HDD
H0221	35	HRX003	Species-rich, intact hedgerow with trees	Remove approximately 24m of hedgerow (assumed eastern section will be removed)
H0220	36	HRX004	Species-rich, intact hedgerow with trees	Remove approximately 21m of hedgerow (assumed northern section will be removed)
H0219	37	HRX005	Species-poor, defunct hedgerow with trees	Remove approximately 28m of hedgerow
H0218	39	HRX006	Species-poor, intact hedgerow	Remove approximately 30m of hedgerow

WFE Linear Feature Ref:	Crossing ID no.	Crossing ref.	UK Hab Classification	RWCS Impact
H0217	40	HRX007	Species-rich, defunct hedgerows with trees	Remove approximately 33m of hedgerow
H0216	n/a	n/a	Species-rich, intact hedgerow	Retained (section of H0217 removed instead)
H0215	42	n/a	Species-rich, intact hedgerow with trees	Remove approximately 30m of hedgerow
H0214	n/a	n/a	Species-rich intact hedgerow	Avoided - no removal necessary
H0213	45	RDX004	Species-rich, defunct hedgerow with trees	Avoided - HDD
H0212	53	RDX004	Species-poor, intact hedgerow with trees	Avoided - HDD
H0211	n/a	n/a	Species-rich intact hedgerow with trees	Avoided - HDD
H0210	54	n/a	Species-rich, intact hedgerow with trees	Avoided - no removal necessary
H0209	n/a	n/a	Species-rich defunct hedgerow with trees	Avoided - no removal necessary
H0208	58	RDX005	Species-poor, defunct hedgerow with trees	Avoided - HDD
H0207	n/a	n/a	Species-rich intact hedgerow with trees	Avoided - no removal necessary
H0206	67	RDX006	Species-rich, defunct hedgerow with trees	Remove approximately 20m of hedgerow
H0205	73	HRX008	Species-rich, intact hedgerow with trees	Remove approximately 21m of hedgerow (assumed central section with trees removed)
H0204	75	RDX007	Species-poor, intact hedgerow	Remove approximately 20m of hedgerow (although hedgerow may be entirely avoidable)
H0203	76	HRX009	Species-poor, defunct hedgerow with trees	Remove 20m of hedgerow
H0202	77	HRX010	Species-poor, defunct hedgerow with trees	Remove approximately 43m of hedgerow (assumed north section)
H0201	n/a	n/a	Species-poor hedgerow with trees	Avoided - HDD
H0200	n/a	n/a	Species-poor hedgerow with trees	Avoided - HDD
H0199	n/a	RDX008	Species-poor, defunct hedgerow with trees	Avoided - HDD
H0198	n/a	n/a	Species-rich intact hedgerow with trees	Avoided - HDD

WFE Linear Feature Ref:	Crossing ID no.	Crossing ref.	UK Hab Classification	RWCS Impact
H0197	78	RDX008	Species-rich, intact hedgerow with trees	Avoided - HDD
H0196	79	RDX008	Species-rich, intact hedgerow with trees	Avoided - HDD
H0195	81	RDX009	Species-rich, intact hedgerow with trees	Remove approximately 20m of hedgerow
H0194	83	RDX009	Species-rich, intact hedgerow	Remove approximately 20m of hedgerow
H0193	n/a	n/a	Species-poor, intact hedgerow	Remove c.8m of hedgerow for access track bell-mouth
H0192	84	HRX011	Species-rich, intact hedgerow	Remove approximately 26m of hedgerow
H0191	85	HRX012	Species-rich, intact hedgerow with trees	Remove approximately 25m of hedgerow
H0190	86	RDX010	Species-rich, defunct hedgerow with trees	Remove approximately 20m of hedgerow and c.1m of hedgerow at access bell-mouth
H0189	89	RDX010	Species-rich, intact hedgerow	Remove approximately 20m of hedgerow
H0188	92	HRX013	Species-rich, intact hedgerow	Remove approximately 30m of hedgerow
H0187	94	PRoW001	Species-poor, intact hedgerow	Remove approximately 32m of hedgerow
H0186	95	HRX014	Species-poor, intact hedgerow	Remove approximately 30m of hedgerow
H0185	96	HRX015	Priority Hedge (ISP)	Remove approximately 20m of hedgerow
LOT0021	98	RDX011	Line of broadleaved trees	Avoided - HDD
LOT0020	98	RDX011	Line of broadleaved trees	Avoided - HDD
H0184	103	HRX017	Species-poor, intact hedgerow with trees	Remove approximately 36m of hedgerow
LOT0019	107	RDX012	Line of broadleaved trees	Remove 20m of treeline unless being HDD (although trees may be avoidable)
H0183	n/a	n/a	Species-poor defunct hedgerow with trees	Avoided - no removal necessary
H0182	108	HRX018	Species-rich, intact hedgerow with trees	Remove approximately 21m of hedgerow
H0181	n/a	n/a	Species-poor defunct hedgerow with trees	Avoided - no removal necessary

WFE Linear Feature Ref:	Crossing ID no.	Crossing ref.	UK Hab Classification	RWCS Impact
H0180	110	RDX013	Species-rich, intact hedgerow with trees	Remove approximately 20m of hedgerow
H0179	112	RDX013	Species-rich, intact hedgerow with trees	Remove approximately 20m of hedgerow
H0178	121	RDX015	Species-rich, intact hedgerow with trees	Remove approximately 33m of hedgerow
H0177	122	HRX019	Species-rich, intact hedgerow with trees	Remove approximately 35m of hedgerow
H0176	123	PRoW003	Species-poor, intact hedgerow	Remove approximately 33m of hedgerow
H0175	128	HRX020	Species-rich, intact hedgerow	Remove approximately 30m of hedgerow
H0174	130	RDX016	Species-rich, intact hedgerow with trees	Remove approximately 36m of hedgerow
H0173	131	RDX016	Species-rich, intact hedgerow with trees	Remove approximately 42m of hedgerow
H0172	135	UTX016	Species-rich, intact hedgerow with trees	Remove approximately 21m of hedgerow
H0171	n/a	n/a	Species-rich, intact hedgerow with trees	Avoided - no removal necessary
H0170	137	HRX021	Species-rich, defunct hedgerow with trees	Remove approximately 28m of hedgerow
H0169	139	RDX017	Species-poor, intact hedgerow with trees	Avoided - HDD
H0168	147	RDX017	Species-rich, intact hedgerow with trees	Avoided - HDD
H0167	148	HRX022	Species-rich, intact hedgerow with trees	Remove approximately 37m of hedgerow
H0165	155	HRX024	Species-rich, defunct hedgerow with trees	Remove approximately 24m of hedgerow
H0164	157	RDX018	Species-rich, intact hedgerow with trees	Avoided - HDD
H0163	162	RDX018	Species-rich, intact hedgerow with trees	Avoided - HDD
H0162	159	RDX018	Species-rich, defunct hedgerow	Avoided - HDD
H0161	161	RDX018	Species-rich, defunct hedgerow with trees	Avoided - HDD
H0160	163	RVX001	Species-poor, intact hedgerow with trees	Avoided - HDD
n/a	167	HRX025	No hedgerow	Open cut (no hedgerow loss)

WFE Linear Feature Ref:	Crossing ID no.	Crossing ref.	UK Hab Classification	RWCS Impact
H0159	n/a	n/a	Species-poor, intact hedgerow with trees	Avoided - HDD
H0157	169	RDX019	Species-rich, intact hedgerow with trees	Avoided - HDD
H0156	173	RDX019	Species-rich, intact hedgerow with trees	Avoided - HDD
H0155	176	HRX026	Species-rich, intact hedgerow	Remove approximately 20m of hedgerow
H0154	183	WDX001	Species-rich, defunct hedgerow with trees	Avoided - HDD
H0153	185	WDX001	Species-rich, intact hedgerow with trees	Avoided - HDD
H0152	187	HRX027	Species-rich, intact hedgerow	Remove 20m of hedgerow
H0151	189	HRX028	Species-rich, defunct hedgerow	Remove approximately 20m of hedgerow
LOT0017	193	TRX001	Line of broadleaved trees	Remove approximately 28m of treeline
H0150	194	INF001	Species-rich, defunct hedgerow with trees	Avoided - HDD
H0149	196	INF001	Species-rich, defunct hedgerow with trees	Avoided - HDD
H0148	n/a	INF001	Species-rich, defunct hedgerow with trees	Avoided - HDD
H0147	200	INF001	Species-rich, intact hedgerow with trees	Avoided - HDD
H0146	200	INF001	Species-rich, intact hedgerow with trees	Avoided - HDD
H0145	201	RDX020	Species-rich, intact hedgerow with trees	Avoided - HDD
H0144	205	RDX020	Species-rich, intact hedgerow with trees	Avoided - HDD
H0143	206	INF002	Species-rich, defunct hedgerow with trees	Remove approximately 60m of hedgerow to accommodate drill compound
H0142	209	RDX021	Species-poor, defunct hedgerow with trees	Avoided - HDD
H0141	213	RDX021	Species-rich, defunct hedgerow with trees	Avoided - HDD
H0140	215	RDX022	Species-rich, intact hedgerow with trees	Remove approximately 20m of hedgerow



WFE Linear Feature Ref:	Crossing ID no.	Crossing ref.	UK Hab Classification	RWCS Impact
H0139	217	RDX022	Species-poor, intact hedgerow with trees	Remove approximately 20m of hedgerow
H0138	219	HRX029	Species-poor, intact hedgerow with trees	Remove approximately 27m of hedgerow
LOT0015	220	TRX002	Line of broadleaved trees	Remove approximately 20m of treeline
H0135	221	HRX030	Species-rich, defunct hedgerow with trees	Remove approximately 20m of hedgerow
H0134	224	HRX031	Species-rich, defunct hedgerow	Remove approximately 27m of hedgerow
LOT0014	226	RDX023	Line of broadleaved trees	Avoided - HDD
LOT0013	n/a	UTX024	Line of broadleaved trees	Remove approximately 20m of treeline (although all trees may be avoidable)
H0133	235	HRX032	Species-poor, defunct hedgerow	Remove approximately 20m of hedgerow (although hedgerow may be entirely avoidable)
H0130	236	PRoW007	Species-rich, intact hedgerow with trees	Remove approximately 29m of hedgerow
H0129	240	RDX025	Species-rich, intact hedgerow with trees	Avoided - HDD
H0128	249	HRX034	Species-poor, defunct hedgerow with trees	Remove approximately 20m of hedgerow
LOT0012	253	RDX027	Line of broadleaved trees	Remove approximately 20m of treeline (although all trees may be avoidable)
LOT0011	253	RDX027	Line of broadleaved trees	Remove approximately 20m of treeline (although all trees may be avoidable)
H0127	259	HRX035	Species-rich, intact hedgerow	Remove approximately 21m of hedgerow
H0126	260	HRX036	Species-poor, intact hedgerow with trees	Remove approximately 20m of hedgerow
H0125	261	RDX028	Species-rich, intact hedgerow	Remove approximately 21m of hedgerow
H0124	263	RDX028	Species-rich, defunct hedgerow with trees	Remove approximately 21m of hedgerow
H0123	264	WDX002	Species-poor, intact hedgerow	Avoided - HDD
H0122	n/a	n/a	Species-rich, intact hedgerow with trees	Remove c.10m of hedgerow for access track

WFE Linear Feature Ref:	Crossing ID no.	Crossing ref.	UK Hab Classification	RWCS Impact
H0121	n/a	n/a	Species-rich, intact hedgerow with trees	Remove c.5m of hedgerow for access track
H0118	267	PRoW008	Species-rich, intact hedgerow with trees	Remove c.15m of hedgerow for access track and 20m for open trench
H0117	269	IDB001	Species-rich, intact hedgerow with trees	Avoided - HDD
H0116	270	IDB001	Species-poor, defunct hedgerow	Avoided - HDD
H0115	274	IDB001	Species-rich, defunct hedgerow	Avoided - HDD
H0114	280	RDX029	Species-rich, intact hedgerow	Remove approximately 33m of hedgerow
H0113	282	RDX029	Species-rich, defunct hedgerow with trees	Remove approximately 34m of hedgerow
H0112	284	PRoW009	Species-rich, intact hedgerow	Remove approximately 32m of hedgerow
H0111	286	HRX037	Species-rich, defunct with trees	Remove approximately 33m of hedgerow
H0110	290	RDX030	Species-rich, intact hedgerow	Remove approximately 39m of hedgerow
H0109	292	RDX030	Species-poor, defunct hedgerow	Remove approximately 38m of hedgerow
H0108	293	HRX038	Species-poor, intact hedgerow	Remove approximately 37m of hedgerow plus approximately 35m to accommodate drilling compound
H0107	n/a	PRoW011	Species-rich, defunct hedgerow with trees	Avoided - HDD
H0106	297	RDX031	Species-rich, intact hedgerow	Remove approximately 23m of hedgerow
H0105	299	RDX031	Species-rich, intact hedgerow	Remove approximately 22m of hedgerow
H0104	303	RDX032	Species-rich, defunct hedgerow with trees	Avoided - HDD
H0103	304	RDX032	Species-rich, intact hedgerow	Avoided - HDD
LOT0010		UTX027	Line of broadleaved trees	Remove approximately 22m of treeline
H0102	319	HRX039	Species-rich, defunct hedgerow with trees	Remove approximately 20m of hedgerow
n/a	320	HRX040	No hedgerow	No hedgerow removal required

WFE Linear Feature Ref:	Crossing ID no.	Crossing ref.	UK Hab Classification	RWCS Impact
H0101	322	HRX041	Species-rich, defunct hedgerow with trees	Remove approximately 31m of hedgerow
H0100	325	RDX033	Species-rich, defunct hedgerow with trees	Avoided - HDD
H0099	327	RDX033	Species-rich, intact hedgerow with trees	Avoided - HDD
H0098	340	RDX036	Species-rich, defunct hedgerow with trees	Remove approximately 20m of hedgerow (although hedgerow may be entirely avoidable)
H0097	345	TRX006	Species-rich, defunct hedgerow with trees	Remove approximately 21m of hedgerow
H0096	346	RDX037	Species-rich, intact hedgerow with trees	Avoided - HDD
H0095	349	RDX037	Species-rich, intact hedgerow with trees	Avoided - HDD
H0094	350	TRX007	Species-rich, intact with trees	Remove approximately 21m of hedgerow
H0093	353	HRX042	Species-poor, intact hedgerow	Remove approximately 27m of hedgerow
H0092	354	RVX003	Species-rich, intact hedgerow	Avoided - HDD
H0091	357	HRX043	Species-rich, intact with trees	Remove approximately 33m of hedgerow
H0090	358	RDX038	Species-rich intact hedgerow	Avoided - HDD
H0089	360	RDX038	Species-rich, defunct hedgerow with trees	Avoided - HDD
H0087	362	RDX039	Species-rich, intact hedgerow	Remove approximately 22m of hedgerow
H0086	364	RDX040	Species-rich, intact hedgerow	Remove approximately 20m of hedgerow
H0085	366	RDX040	Species-rich, intact hedgerow with trees	Remove approximately 20m of hedgerow
H0084	367	HRX044	Species-rich, intact hedgerow with trees	Remove approximately 21m of hedgerow
H0083	368	HRX045	Species-rich, defunct hedgerow with trees	Remove approximately 22m of hedgerow
H0082	371	WDX007	Species-rich, intact hedgerow with trees	Avoided - HDD
H0081	373	WDX008	Species-rich, defunct hedgerow	Avoided - HDD

WFE Linear Feature Ref:	Crossing ID no.	Crossing ref.	UK Hab Classification	RWCS Impact
H0080	374	RDX041	Species-rich, intact hedgerow with trees	Avoided - HDD
H0079	378	RDX041	Species-rich, defunct hedgerow with trees	Avoided - HDD
H0078	381	HRX046	Species-rich, defunct hedgerow with trees	Remove approximately 20m of hedgerow (although hedgerow may be entirely avoidable)
H0077	381	HRX046	Species-rich, defunct hedgerow with trees	Remove approximately 29m of hedgerow (although hedgerow may be entirely avoidable)
LOT0007	382	HRX046	Line of broadleaved trees	Remove approximately 37m of treeline (although all trees may be avoidable)
H0076	387	n/a	Species-poor, intact hedgerow with trees	Avoided - HDD
H0075	392	HRX067	Species-poor, defunct hedgerow with trees	Remove approximately 20m of hedgerow
H0073	n/a	n/a	Species-rich, defunct hedgerow with trees	Remove c.10m of hedgerow for access track
H0072	395	RDX042	Species-poor defunct hedgerow with trees	Avoided - HDD
H0071	396	RDX042	Species-rich, intact hedgerow with trees	Avoided - HDD
H0068	n/a	UTX039	Species-poor, intact hedgerow	Remove approximately 20m of hedgerow
H0066	n/a	RVX005	Species-poor, intact hedgerow with trees	Avoided - HDD
H0065	402	RVX005	Species-poor, intact hedgerow	Avoided - HDD
H0064	402	RVX005	Species-rich, intact hedgerow with trees	Avoided - HDD
H0063	403	RDX043	Species-poor, intact hedgerow	Avoided - HDD
H0062	406	RDX043	Species-rich, defunct hedgerow with trees	Avoided - HDD
H0061	408	WDX010	Species-rich, defunct hedgerow with trees	Avoided - HDD
H0058	411	RDX044	Species-rich, intact hedgerow with trees	Remove approximately 27m of hedgerow
H0057	413	RDX044	Species-poor, defunct hedgerow	Remove approximately 33m of hedgerow
H0056	418	DRX004	Species-rich, intact hedgerow with trees	Remove approximately 20m of hedgerow

WFE Linear Feature Ref:	Crossing ID no.	Crossing ref.	UK Hab Classification	RWCS Impact
H0055	420	HRX047	Species-rich, intact hedgerow with trees	Remove approximately 20m of hedgerow
H0054	423	RDX045	Species-poor, intact hedgerow with trees	Remove approximately 20m of hedgerow
H0053	424	RDX045	Species-poor, intact hedgerow with trees	Remove approximately 32m of hedgerow
H0052	425	DKX005	Species-rich, intact hedgerow with trees	Remove approximately 39m of hedgerow
H0051	426	HRX048	Species-rich, intact hedgerow with trees	Remove approximately 34m of hedgerow
H0050	428	DKX006	Species-rich, intact hedgerow with trees	Remove approximately 33m of hedgerow
LOT0007	430	RDX046	Line of broadleaved trees	Avoided - HDD
LOT0006	430	RDX046	Line of broadleaved trees	Avoided - HDD
H0049	434	HRX049	Species-rich, intact hedgerow with trees	Remove approximately 20m of hedgerow
H0048	433	HRX049	Species-rich, defunct hedgerow with trees	Remove approximately 34m of hedgerow
H0047	435	HRX050	Species-rich, defunct hedgerow with trees	Remove approximately 24m of hedgerow
H0046	436	HRX051	Species-rich, defunct hedgerow with trees	Remove approximately 32m of hedgerow
H0045	437	WDX011	Species-rich, defunct hedgerow with trees	Avoided - HDD
H0044	437	WDX011	Species-rich, defunct hedgerow with trees	Avoided - HDD
H0043	441	DKX008	Species-rich, intact hedgerow with trees	Remove approximately 20m of hedgerow
H0042	443	HRX042	Species-rich, intact hedgerow with trees	Remove approximately 28m of hedgerow
LOT0005	449	RDX047	Line of broadleaved trees	Avoided - HDD
H0041	n/a	n/a	Species-rich, intact hedgerow with trees	Remove c.3m of hedgerow for access track
H0040	449	RDX047	Species-poor, intact hedgerow	Avoided - HDD
H0039	453	HRX053	Species-rich, defunct hedgerow	Remove approximately 30m of hedgerow
LOT0004	453	HRX053	Line of broadleaved trees	Remove approximately 30m of treeline

WFE Linear Feature Ref:	Crossing ID no.	Crossing ref.	UK Hab Classification	RWCS Impact
H0038	455	HRX054	Species-rich, defunct hedgerow with trees	Remove approximately 25m of hedgerow
H0037	457	HRX055	Species-rich, intact hedgerow	Remove approximately 34m of hedgerow
LOT0003	n/a	n/a	Line of broadleaved trees	Remove approximately 23m of treeline
LOT0002	459	RDX048	Line of broadleaved trees	Avoided - HDD
H0036	461	RLX002	Species-rich, intact hedgerow	Avoided - HDD
H0034	463	TRX008	Species-rich, intact hedgerow	Remove approximately 20m of hedgerow
LOT0001	467	WDX012	Line of broadleaved trees	Avoided - HDD
H0033	476	HRX056	Species-rich, defunct hedgerow	Remove approximately 21m of hedgerow
H0032	478	RDX049	Species-rich, intact hedgerow with trees	Remove approximately 24m of hedgerow
H0031	480	RDX049	Species-rich, intact hedgerow	Remove approximately 24m of hedgerow
H0030	488	WDX015	Species-rich, defunct hedgerow	Avoided - HDD
H0029	494	TRX009	Species-rich, defunct hedgerow	Remove approximately 20m of hedgerow
H0028	500	HRX057	Species-rich, defunct hedgerow with trees	Remove approximately 20m of hedgerow
H0027	501	HRX058	Species-poor, intact hedgerow	Remove approximately 20m of hedgerow
H0026	506	RDX050	Species-rich, defunct hedgerow	Avoided - HDD
H0025	509	HRX059	Species-poor, intact hedgerow	Remove approximately 20m of hedgerow
H0024	510	RVX006	Species-poor, defunct hedgerow with trees	Avoided - HDD
H0023	514	RVX006	Species-rich, intact hedgerow with trees	Avoided - HDD
H0022	517	HRX060	Species-rich, intact hedgerow with trees	Remove approximately 25m of hedgerow
H0021	518	HRX060	Species-rich, intact hedgerow with trees	Remove approximately 20m of hedgerow
H0020	521	PRoW015	Species-rich, intact hedgerow with trees	Remove approximately 20m of hedgerow

WFE Linear Feature Ref:	Crossing ID no.	Crossing ref.	UK Hab Classification	RWCS Impact
H0019	523	RDX051	Species-rich, intact hedgerow	Avoided - HDD
H0018	526	RDX051	Species-poor, intact hedgerow	Avoided - HDD
H0017	532	HRX061	Species-rich, intact hedgerow with trees	Remove approximately 20m of hedgerow
H0016	533	HRX062	Species-rich, intact hedgerow with trees	Remove approximately 28m of hedgerow
H0015	535	PRoW016	Species-rich, intact hedgerow with trees	Remove approximately 22m of hedgerow
H0014	538	HRX063	Species-rich, defunct hedgerow with trees	Remove approximately 38m of hedgerow
H0013	540	RDX052	Species-rich, intact hedgerow with trees	Remove approximately 20m of hedgerow
H0012	544	HRX064	Species-rich, defunct hedgerow with trees	Remove approximately 20m of hedgerow
H0011	545	HRX065	Species-rich, intact hedgerow	Remove approximately 20m of hedgerow
H0010	549	HRX066	Species-poor, intact hedgerow	Remove approximately 20m of hedgerow
H0009	n/a	n/a	Species-rich, intact hedgerow	No removal required
H0008	n/a	n/a	Species-poor, intact hedgerow	No removal required
H0007	n/a	n/a	Species-rich, intact hedgerow with trees	No removal required (enhancement proposed)
H0006	n/a	n/a	Species-rich, intact hedgerow with trees	No removal required (enhancement proposed)
H0005	n/a	n/a	Species-rich, intact hedgerow with trees	No removal required (enhancement proposed)
H0004	554	n/a	Species-rich, defunct hedgerow with trees	Remove c.110m to accommodate onshore substation
H0003	n/a	n/a	Species-rich, defunct hedgerow with trees	No removal required
H0002	n/a	n/a	Species-rich, defunct hedgerow with trees	No removal required (enhancement proposed)
H0001	n/a	n/a	Species-poor, defunct hedgerow with trees	Remove c.12m of hedgerow for access track

Blue-shaded rows are those within the onshore substation area.

### 4.1.3. River Unit Assumptions

**Table 3** ~~Table 3~~, below, outlines anticipated RWCS impacts on watercourses within the DCO boundary. The same approach to calculating removal length has been taken for both watercourses and hedgerows, as is described in Section 4.1.2. Where assumptions have had to be made regarding the location of watercourse removal, a RWCS approach has been taken. The majority of watercourses, including all major watercourses, are being avoided through HDD. Watercourses which are within un-surveyed areas of the DCO boundary (where land access was not granted) have been omitted from Table 3.

**Table 3: Linear Unit RWCS Impact Assumptions**

WFE Linear Feature Ref:	Crossing ID no.	Crossing ref.	UK Hab Classification	RWCS Impact
STR001	17	DKX001	Wet ditch	Avoided - HDD
DD0014	62	UTX003	Dry ditch	Open cut through ditch - remove approximately 22m section
DD0013	67	RDX006	Dry ditch	Open cut through ditch - remove approximately 20m section
DD0012	n/a	n/a	Dry ditch	Avoided - on edge of DCO boundary
DD0011	n/a	RDX018	Dry ditch	Avoided - HDD
WD0021	163	RVX001	Flowing water	Avoided - HDD
WD0020	163	RVX001	Flowing water	Avoided - HDD
River Bure	165	RVX001	Priority Habitat	Avoided - HDD
DD010	179	WDX001	Dry ditch	Avoided - HDD
WD0019	180	WDX001	Wet ditch	Avoided - HDD
DD0009	182	WDX001	Dry ditch	Avoided - HDD
WD0018	275	IDB001	Wet ditch	Avoided - HDD
Stream	n/a	n/a	Other rivers and streams	Avoided - HDD
River Wensum	308	RVX002	Priority Habitat	Avoided - HDD
WD0017	n/a	n/a	Wet ditch	82m of ditch within construction compound
WD0016	314	WDX003	Wet ditch	Avoided - HDD
WD0015	314	WDX003	Wet ditch	Avoided - HDD
DD0008	368	RVX003	Dry ditch	Avoided - HDD
River Tud	368	RVX003	Priority habitat	Avoided - HDD
DD0007	368	RVX003	Dry ditch	Avoided - HDD
WD0014	399	WDX009	Wet ditch	Avoided - HDD
River Yare	400	RVX004	Priority habitat	Avoided - HDD
WD0013	401	DKX002	Wet ditch	Avoided - HDD



WFE Linear Feature Ref:	Crossing ID no.	Crossing ref.	UK Hab Classification	RWCS Impact
DD0006	416	RVX005	Dry ditch	Avoided - HDD
DD0005	416	RVX005	Dry ditch	Avoided - HDD
River Tiffey	416	RVX005	Priority habitat	Avoided - HDD
WD0012	442	DKX006	Wet ditch	Open cut through ditch - remove 37m section
WD0011	455	WDX011	Wet ditch	Avoided - HDD
WD0010	455	WDX011	Wet ditch	Avoided - HDD
WD0009	455	WDX011	Wet ditch	Avoided - HDD
WD0008	457	DKX008	Wet ditch	Open cut through ditch - remove approximately 20m section
WD0007	470	HRX053	Wet ditch	Open cut through ditch - remove approximately 30m section
WD0006	470	HRX053	Wet ditch	Open cut through ditch - remove approximately 30m section
WD0005	471	HRX054	Wet ditch	Open cut through ditch - remove approximately 25m section
WD0004	473	HRX055	Wet ditch	Open cut through ditch - remove approximately 35m
DD0004	n/a	n/a	Dry ditch	Open cut through ditch - remove approximately 34m section
DD0003	n/a	n/a	Dry ditch	Open cut through ditch - remove approximately 26m section
DD0002	489	WDX013	Dry ditch	Avoided - HDD
Unnamed stream	n/a	n/a	Other rivers and streams	Avoided - HDD
WD0003	528	RVX006	Wet ditch	Avoided - HDD
Unnamed stream	528	RVX006	Other rivers and streams	Avoided - HDD
WD0002	511	RVX006	Wet ditch	Avoided - HDD
WD0001	511	RVX006	Wet ditch	Avoided - HDD
Unnamed ditch	n/a	n/a	Dry ditch	Avoided - HDD
DD0001	572	WDX019	Dry ditch	Avoided

## 4.2. Initial Biodiversity Net Gain Assessment

The results of the UK Hab surveys are presented in **Figure 1** to **Figure 42** and show the baseline and proposed habitats for each area. Given the extensive size of the DCO boundary, a full description of all habitats (feature by feature) within the survey area is not provided in writing here. A summary of habitats within the DCO boundary is provided in **Appendix 20.1: Extended Phase 1 Habitat Survey Technical Appendix** (document number 6.3.20.1), where specific features of notable ecological value (e.g. woodland, rivers etc.) are listed and described.

GIS metadata is provided alongside this report and the Extended Phase 1 Habitat Survey Report, which includes a unique reference for each mapped feature (hedgerow, field, grassland, waterbody etc.) within the DCO boundary, along with relevant details on each feature such as condition, strategic significance etc. The Defra Biodiversity Auditing and Accounting spreadsheet is also provided alongside this report, containing full details of the initial BNG assessment.

The maps do not include protected species information denoting issues such as trees which have bat roost potential or signs of badger activity. Instead, individual protected species survey appendices are provided which outline in detail the results of all targeted protected species surveys completed to date.

A summary of the unit calculations is provided in [Table 4](#)~~Table 4~~. Only on-site options have been considered at this stage.

**Table 4: Summary of Biodiversity Metric\***

Metric component	Baseline units	Post-development units	Percentage change
Habitat Units	1309.79	1303.30	-0.50%
Hedgerow Units	221.16	227.84	3.02%
River Units	55.41	54.87	-0.98%

\*This table provides the summary figures as specified by the Defra Metric, but there are minor rounding errors (as metric 3.0 rounds figures to two decimal places at various stages of the calculations) which can lead to small discrepancies between the summary results outlined in [Table 4](#)~~Table 4~~, and the detailed results. This explains the minor differences between the numbers listed in [Table 4](#)~~Table 4~~ for Habitat Units and Hedgerow Units, and the detailed numbers given in [Table 5](#)~~Table 5~~ and

[Table 6](#)~~Table 6~~ respectively.

There are currently minor losses in both Biodiversity and River Units, while there are minor gains in Hedgerow Units. A RWCS has been used when undertaking the initial BNG assessment, so it is likely that the final calculations will be more favourable once impacts have been fully refined. There are widespread opportunities for ecological enhancement within the DCO boundary, although this will necessitate management and agreement with landowners.

A summary of changes in units by habitat type is provided in [Table 5](#)~~Table 5~~ for Habitat Units,

[Table 6](#)~~Table 6~~ for Hedgerow Units and [Table 7](#)~~Table 7~~ for River Units.

**Table 5: Habitat Units by Broad Habitat Type**

Habitat group	Baseline				Post development				Change	
	Existing area (ha)	% of total area	Existing value (BU)	% of total units	Proposed area (ha)	% of total area	Proposed value (BU)	% of total units	Area change (ha)	Onsite Unit change (BU)
Cropland	399.29	82.01	803.21	61.32	382.35	78.53	746.35	57.29	-16.94	-56.86
Grassland	46.43	9.54	251.77	19.22	53.53	11.00	291.89	22.41	7.11	40.12
Heathland and shrub	0.89	0.18	4.08	0.31	2.44	0.50	16.71	1.28	1.55	12.63
Lakes	0.11	0.02	0.85	0.06	0.11	0.02	0.85	0.07	0.00	0.00
Sparsely vegetated land	9.48	1.95	70.36	5.37	9.48	1.95	61.15	4.69	0.00	-9.22
Urban	1.33	0.27	0.59	0.05	7.57	1.55	0.00	0.00	6.24	-0.59
Wetland	0.07	0.01	1.19	0.09	0.07	0.01	1.19	0.09	0.00	0.00
Woodland and forest	28.27	5.81	164.54	12.56	30.32	6.23	171.37	13.16	2.05	6.84
Intertidal sediment	1.00	0.21	13.19	1.01	1.00	0.21	13.19	1.01	0.00	0.00
<b>Totals</b>	<b>486.87</b>	<b>100.00</b>	<b>1309.79</b>	<b>100.00</b>	<b>486.87</b>	<b>100.00</b>	<b>1302.71</b>	<b>100.00</b>	<b>0.00</b>	<b>-7.08</b>

**Table 6: Hedgerow Units by Habitat Type**

Hedgerow type	Baseline				Post development on site				Onsite Change	
	Existing length on-site (km)	% of existing length	Existing value (HU)	% of existing HU	Proposed length on-site (km)	% of proposed length	Proposed value on-site (HU)	% of proposed HU	On-site length change (km)	On-site Unit change (HU)
Native Species Rich Hedgerow with trees - Associated with bank or ditch	0.00	0.00	0.00	0.00	0.06	0.26	0.98	0.43	0.06	0.98
Native Species Rich Hedgerow with trees	11.10	49.84	144.86	65.50	13.08	57.70	161.07	70.69	1.98	16.21
Native Hedgerow with trees - Associated with bank or ditch	0.10	0.45	1.18	0.53	0.00	0.00	0.00	0.00	-0.10	-1.18
Native Species Rich Hedgerow	3.31	14.86	28.07	12.69	4.84	21.35	40.47	17.76	1.52	12.40
Native Hedgerow with trees	3.24	14.55	25.71	11.62	1.19	5.25	10.22	4.49	-2.06	-15.49
Line of Trees (Ecologically Valuable)	0.87	3.91	6.74	3.05	0.77	3.40	5.94	2.61	-0.10	-0.80
Native Hedgerow	3.02	13.56	12.95	5.86	1.33	5.87	5.97	2.62	-1.69	-6.98
Line of Trees	0.63	2.83	1.66	0.75	1.40	6.18	3.19	1.40	0.77	1.53
<b>Totals</b>	<b>22.27</b>	<b>100.00</b>	<b>221.17</b>	<b>100.00</b>	<b>22.67</b>	<b>100.00</b>	<b>227.84</b>	<b>100.00</b>	<b>0.38</b>	<b>6.67</b>

**Table 7: River Units by Habitat Type**

River type	Baseline				Post development on site				Onsite Change	
	Existing length (km)	% of existing length	Existing value (RU)	% of existing RU	Proposed length (km)	% of proposed length	Proposed value (RU)	% of proposed RU	length change (km)	Onsite Unit change (RU)
Priority Habitat	1.3	22.414	22.1	39.892	1.3	22.414	22.1	40.328	0	0
Other Rivers and Streams	0.8	13.793	12.2	22.022	0.8	13.793	12.2	22.263	0	0
Ditches	3.7	63.793	21.1	38.087	3.7	63.793	20.5	37.409	0	-0.5
<b>Totals</b>	<b>5.8</b>	<b>100</b>	<b>55.4</b>	<b>100</b>	<b>5.8</b>	<b>100</b>	<b>54.8</b>	<b>100</b>	<b>0</b>	<b>-0.5</b>

Approximately 10% of the DCO boundary could not be surveyed as landowner permission was not obtained. These areas have not been included in the initial BNG assessment as there is not sufficient information available to categorise habitats and their condition. A summary of the broad habitats within these areas has been obtained through NBIS Norfolk Living Map Data and is provided in [Table 8](#), below. The majority of these sections are arable land, with smaller areas of grassland, woodland and other habitats.

**Table 8: Summary of Habitat Types and Areas Within the DCO Boundary as Provided by NBIS Norfolk Living Map Data**

NBIS Norfolk Living Maps Habitat Type	Total Area (square metres)	Percentage of NBIS Norfolk Living Maps-Covered DCO Boundary Covered by Habitat
Arable	437,822.51	84.27%
Improved grassland	29,042.72	5.59%
Semi-improved grassland	26,487.73	5.1%
Woodland	19,052.5	3.67%
Building	4,008.7	0.77%
Water	2,092.75	0.4%
Garden	584.25	0.11%
Scrub	475.46	0.09%

## 4.2 Ecological Opportunities

Examples of opportunities for habitat enhancement have been included in [Table 1](#), and include replacing lost habitats with higher distinctiveness habitats (e.g. replanting lost modified grassland areas with a native species-rich mixture to achieve neutral grassland habitat) or improving the condition of existing retained or reinstated habitats (e.g. through altered management). Opportunities not included in Table 1 include replacing arable land with other habitats of higher distinctiveness (e.g. scrub, grassland, woodland) or increasing arable margins, as well as restoration of ponds in the local area. All accessible ponds within 250m of the DCO boundary were surveyed as part of the assessment for great crested newts (GCN) and this information could be used to determine which ponds are suitable for enhancement. However, pond enhancement is already being delivered through great crested newt District Level Licensing, so any pond enhancement associated with BNG would need to be separate from this.

Areas of hedgerow removed will be replanted with a diverse mixture of species and will be managed to achieve at least ‘moderate’ condition. It has also been assumed that existing gaps in hedgerows will be infilled throughout the DCO boundary, to improve the species diversity and condition of retained hedgerows. Aside from this, there are opportunities for hedgerow planting throughout the route, particularly around the substation or in areas of arable land where there are not existing hedgerows. However, as with all enhancement and reinstatement opportunities, the commitment will need to be confirmed with landowners and other relevant stakeholders.

The majority of watercourses are being avoided by HDD, including all rivers and streams. There will be open cut through a small number of ditches, and it has been assumed that the ditch will be replaced in the same condition. Many of the ditches

within the DCO boundary are part of arable drainage systems and are in relatively poor ecological condition. There are opportunities to improve the condition of both reinstated and retained ditches, which would help to ensure a net biodiversity gain of River Units.



Figure 1: UK Hab Baseline Results Map 1 (Landfall to Weybourne Woods)

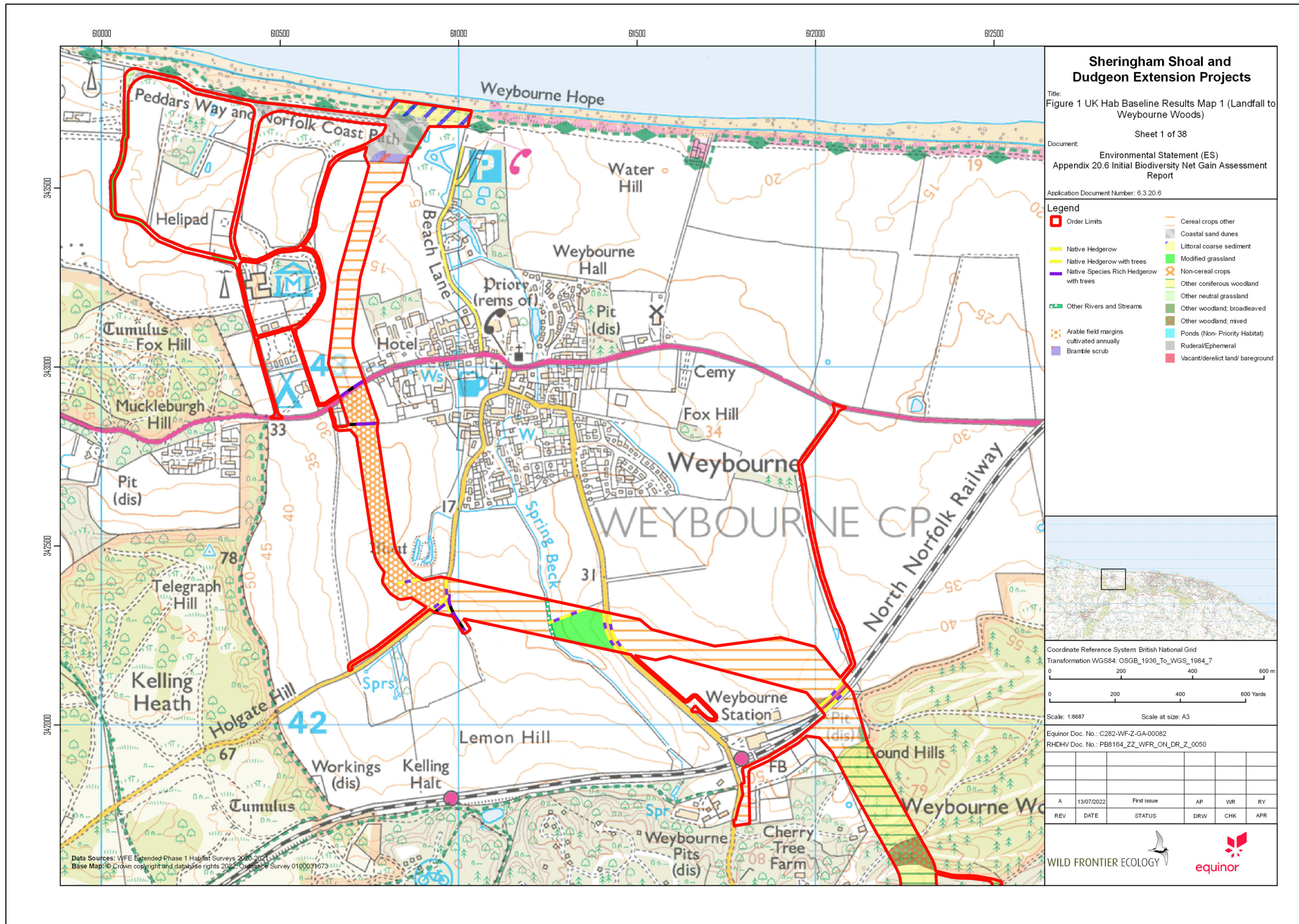


Figure 2: UK Hab Proposed Results Map 2 (Landfall to Weybourne Woods)

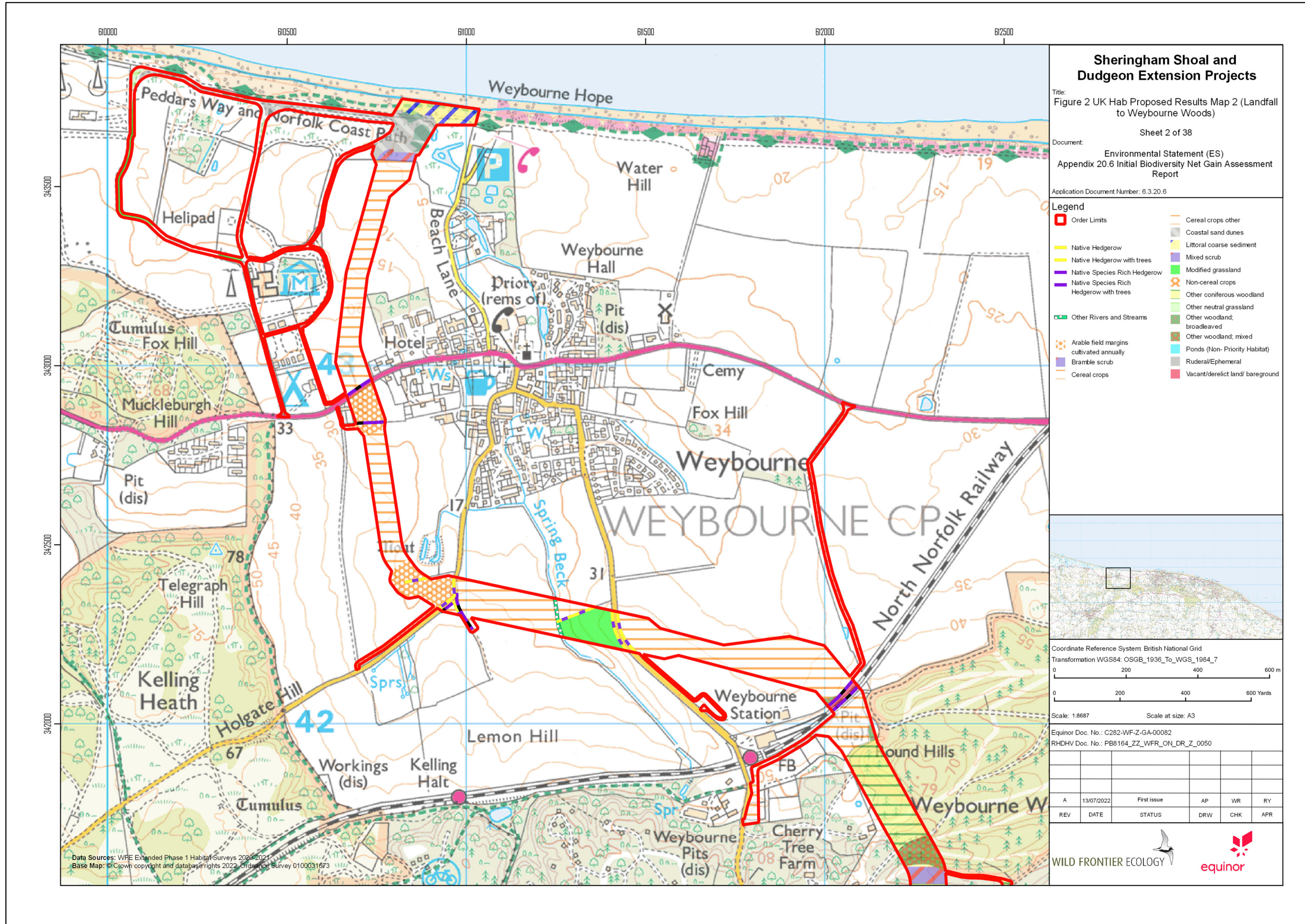


Figure 3: UK Hab Baseline Results Map 3 (Weybourne Woods to Bodham)

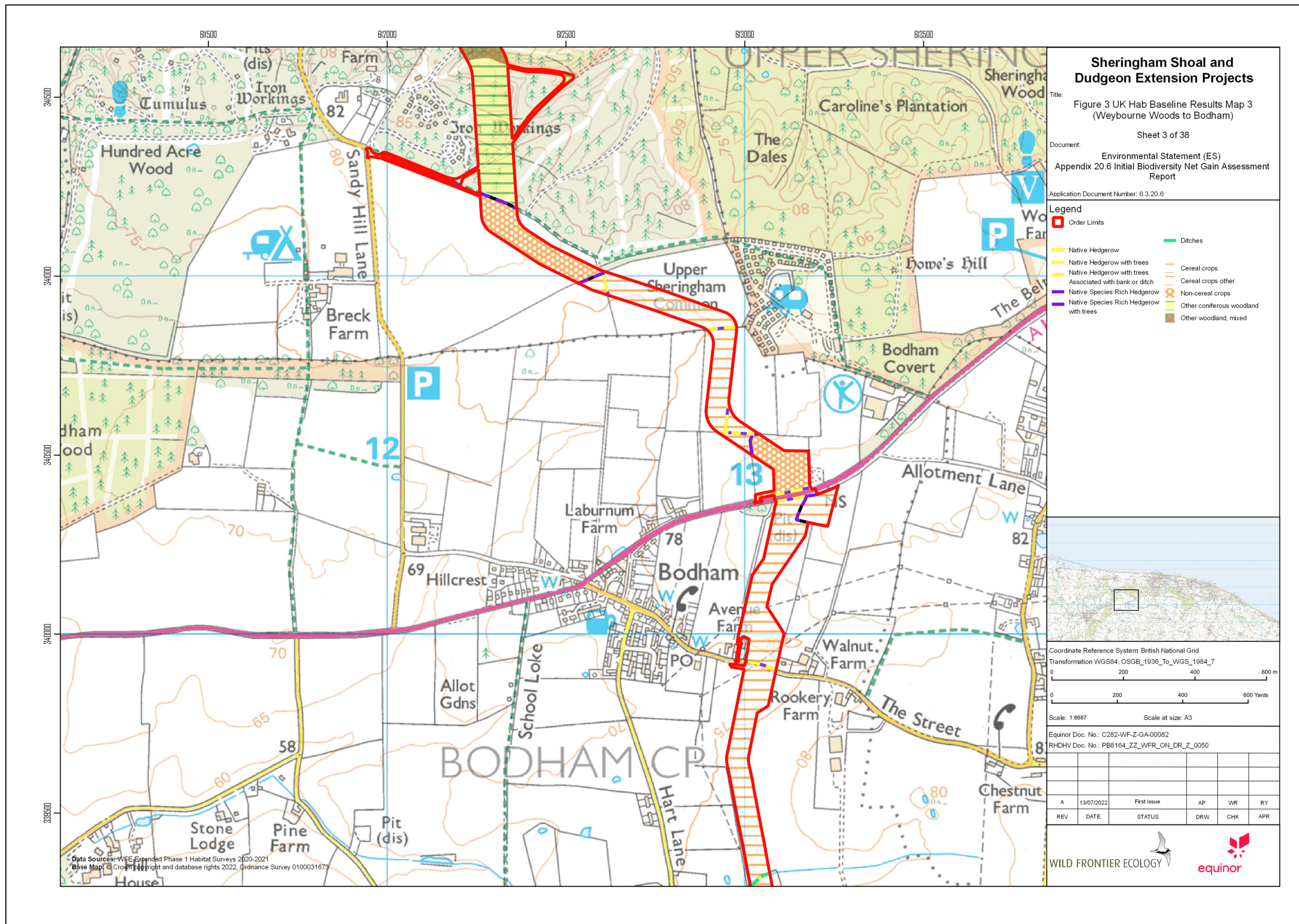


Figure 4: UK Hab Proposed Results Map 4 (Weybourne Woods to Bodham)

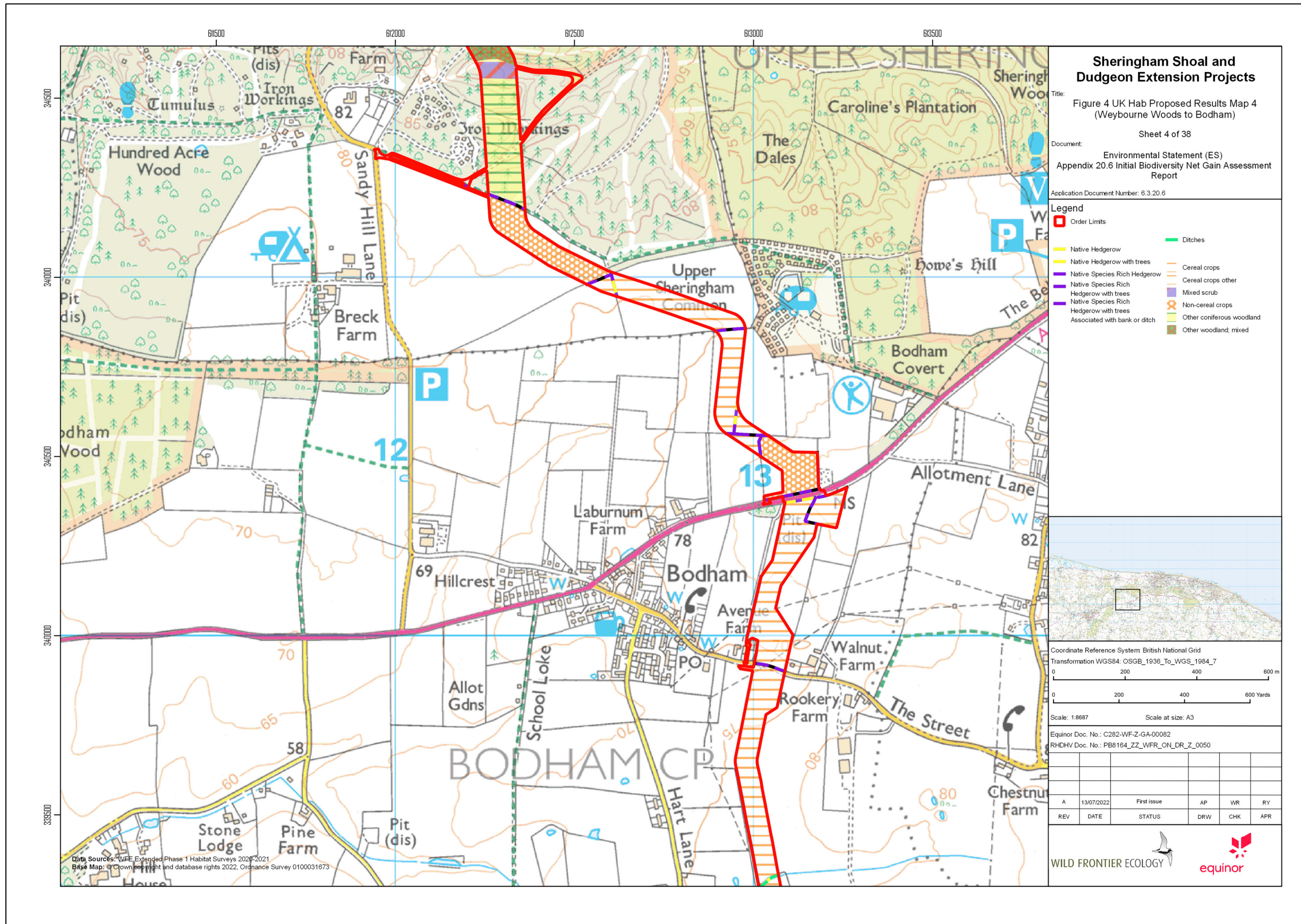


Figure 5: UK Hab Baseline Results Map 5 (Bodham to Baconsthorpe)

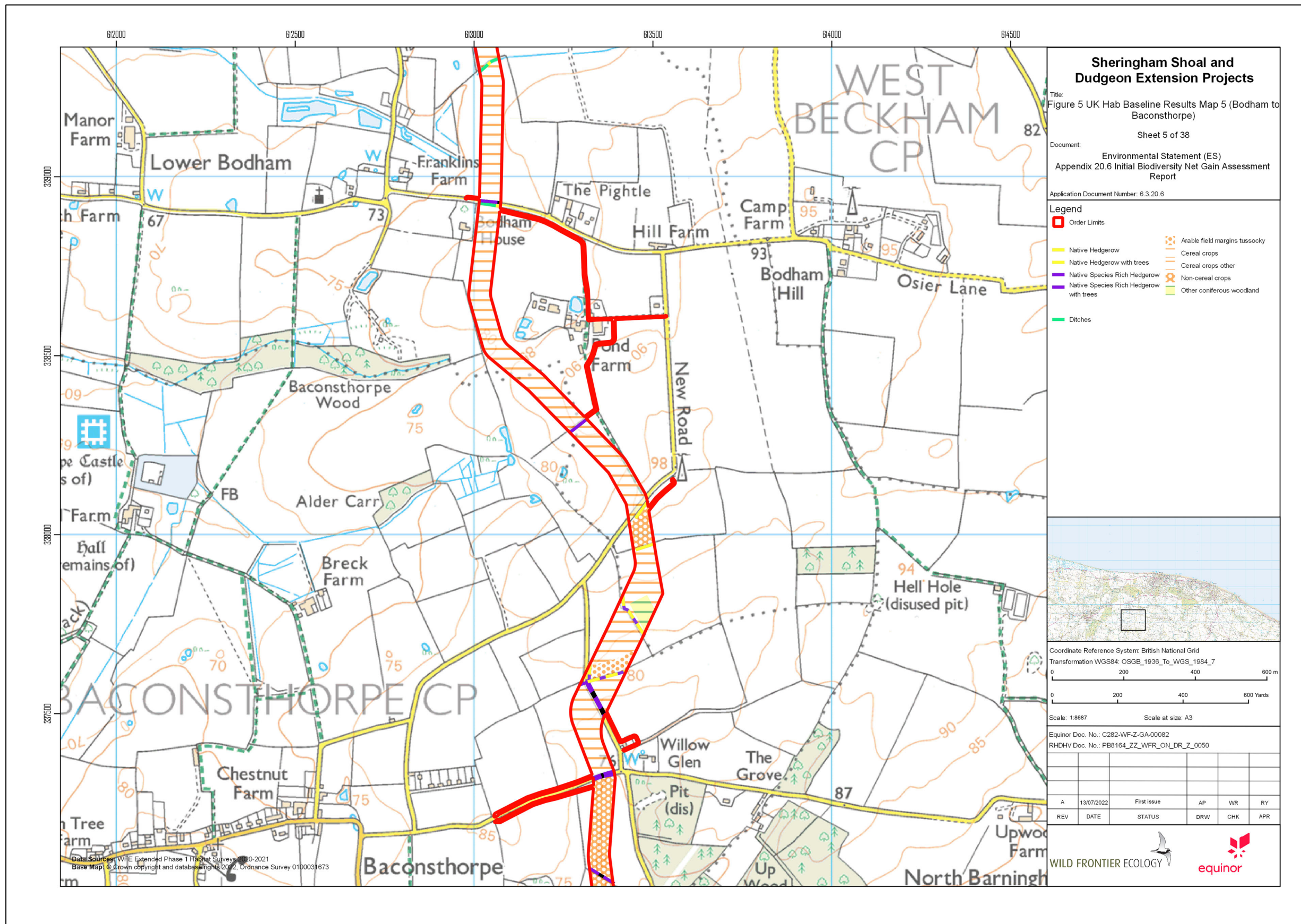


Figure 6: UK Hab Proposed Results Map 6 (Bodham to Baconsthorpe)

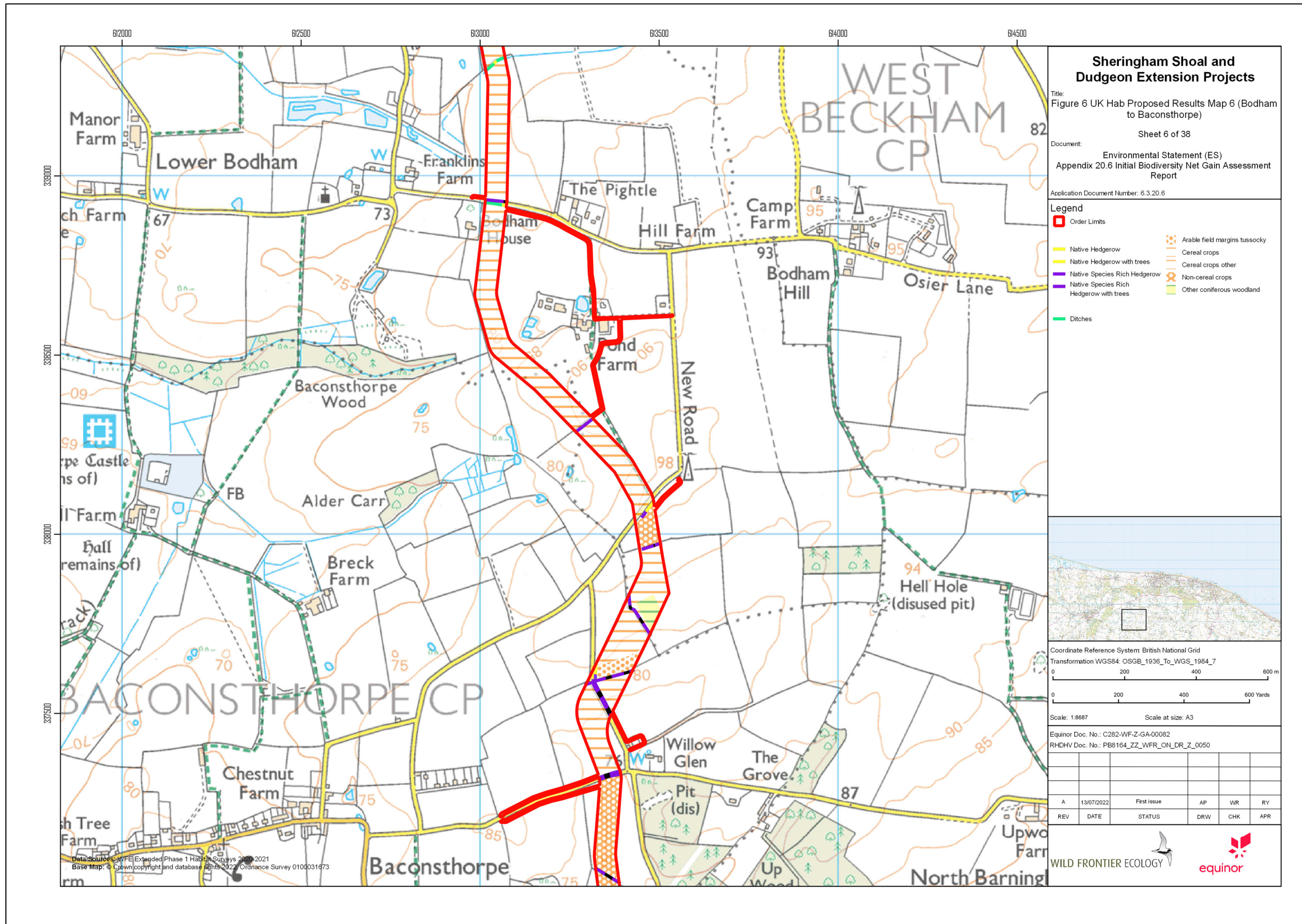


Figure 7: UK Hab Baseline Results Map 7 (Baconsthorpe to Plumstead)

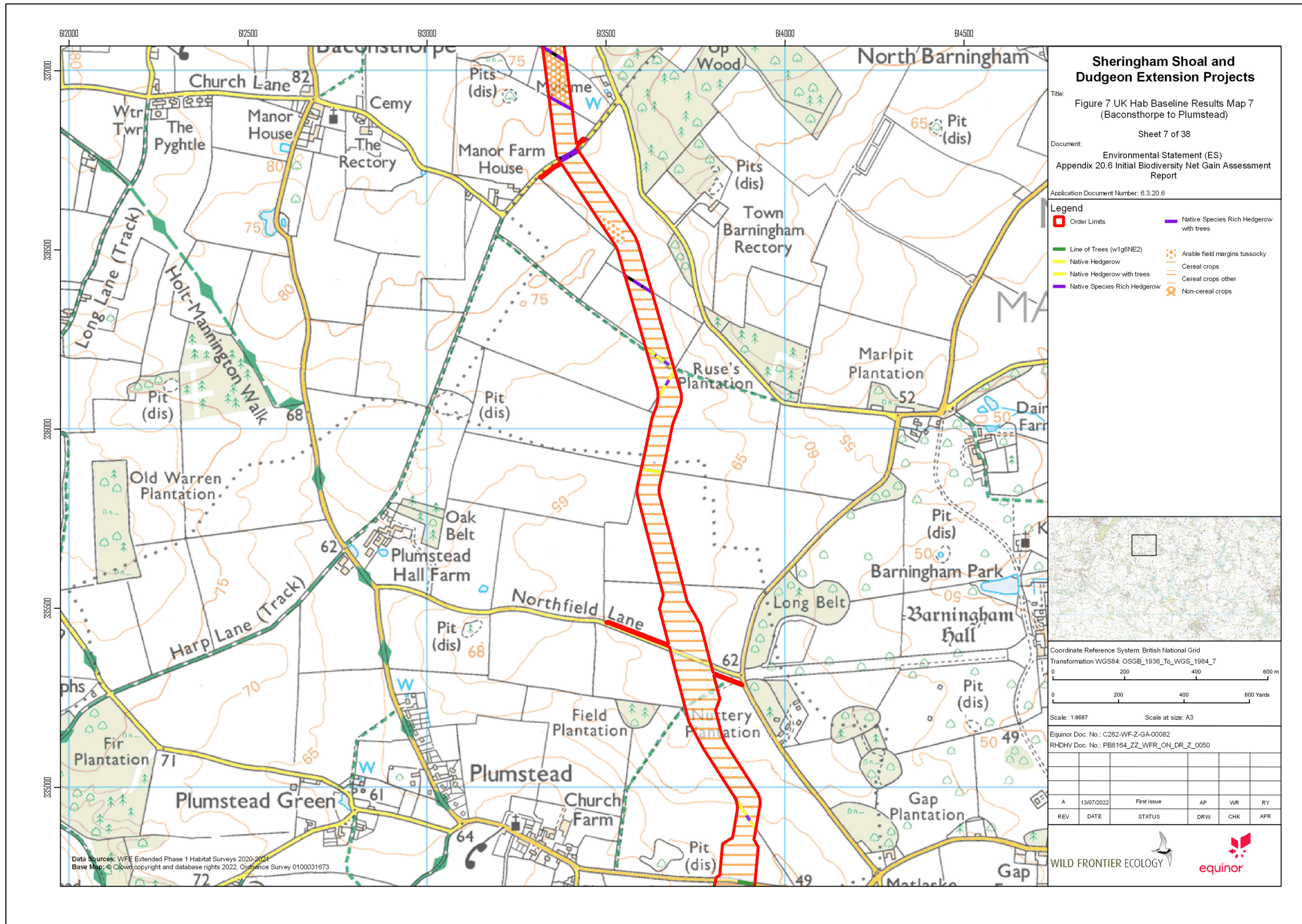


Figure 8: UK Hab Proposed Results Map 8 (Baconsthorpe to Plumstead)

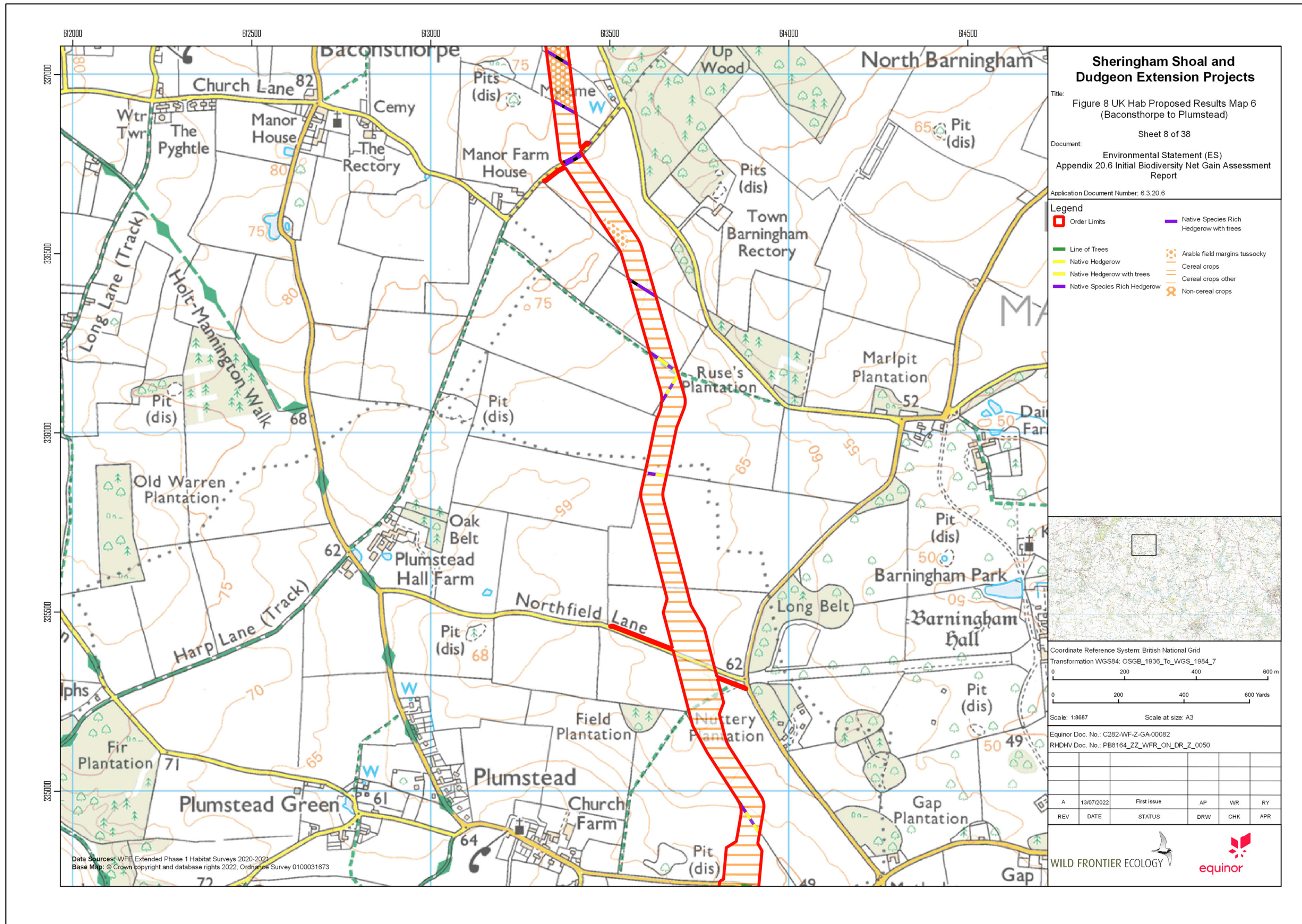




Figure 9: UK Hab Baseline Results Map 9 (Plumstead to Little Barningham)

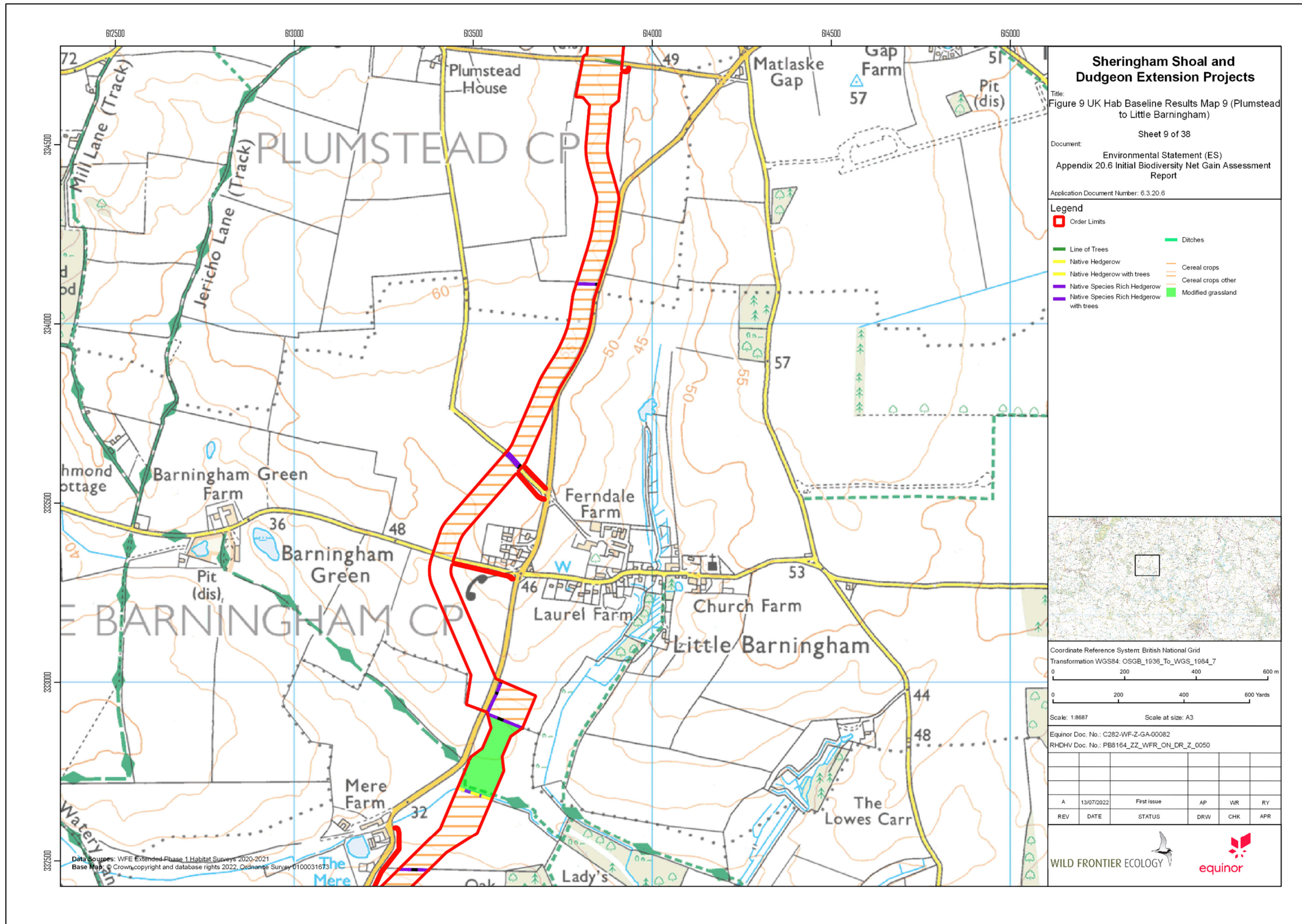


Figure 10: UK Hab Proposed Results Map 10 (Plumstead to Little Barningham)

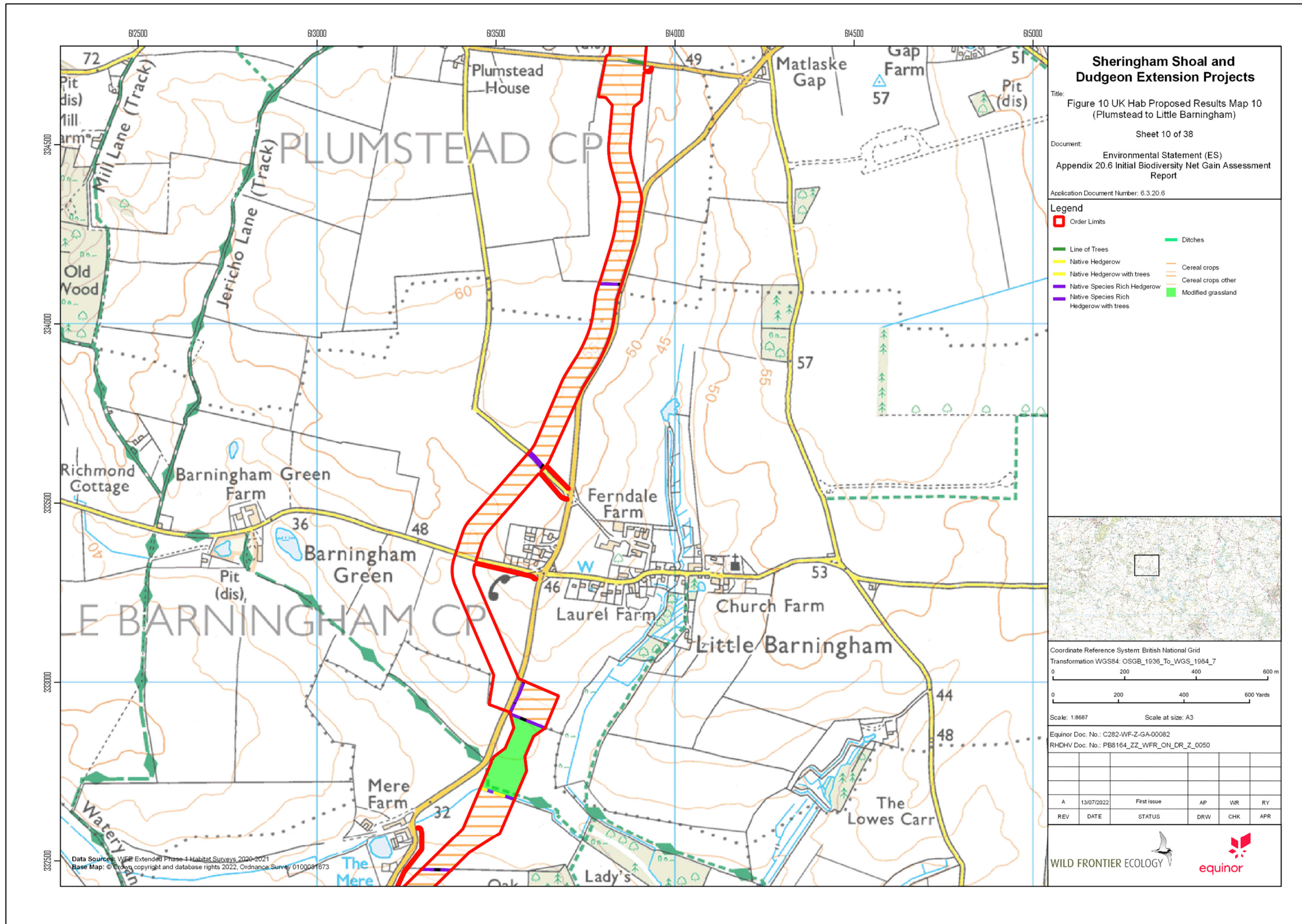


Figure 11: UK Hab Baseline Results Map 11 (Little Barningham to Saxthorpe)

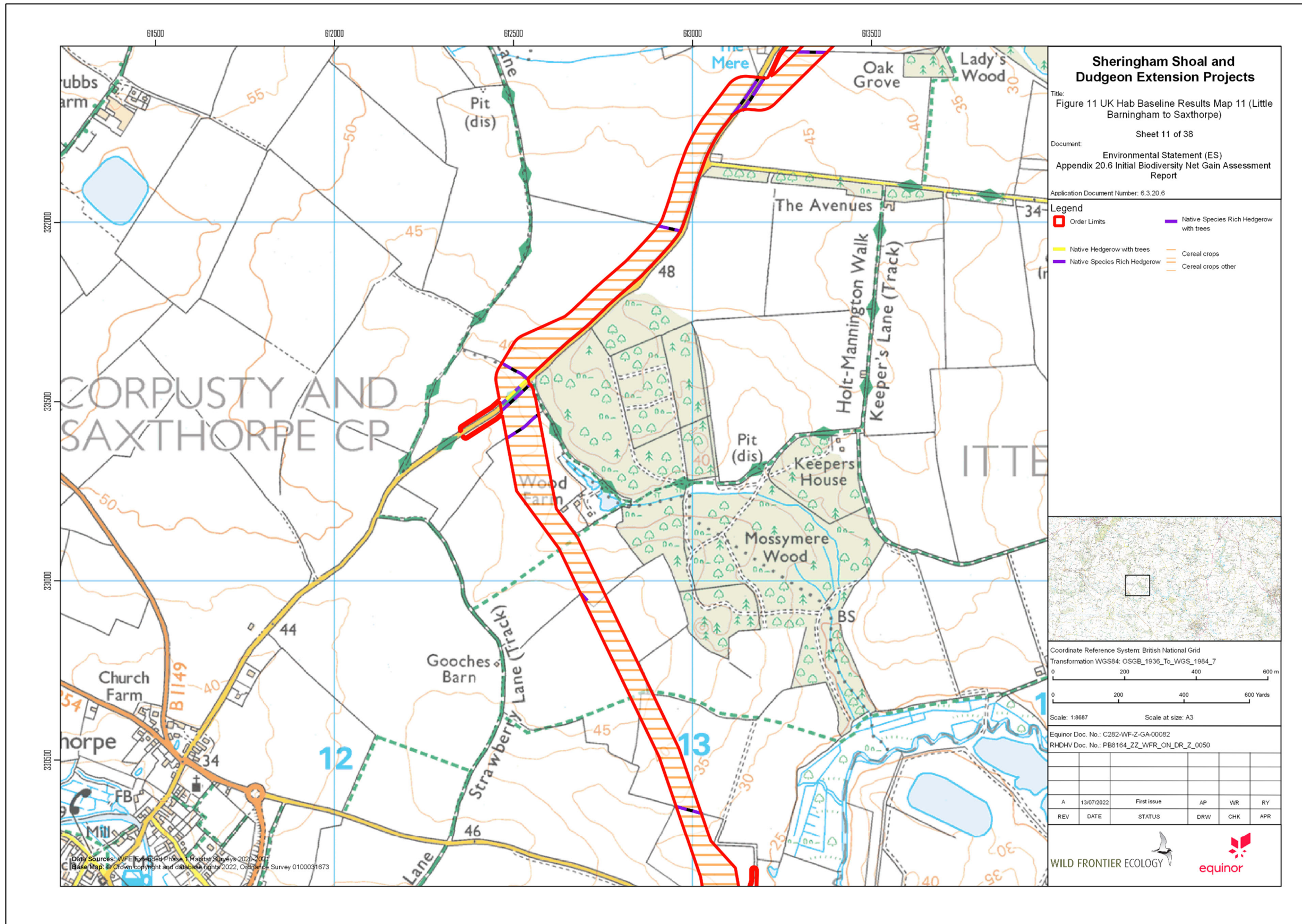


Figure 12: UK Hab Proposed Results Map 12 (Little Barningham to Saxthorpe)

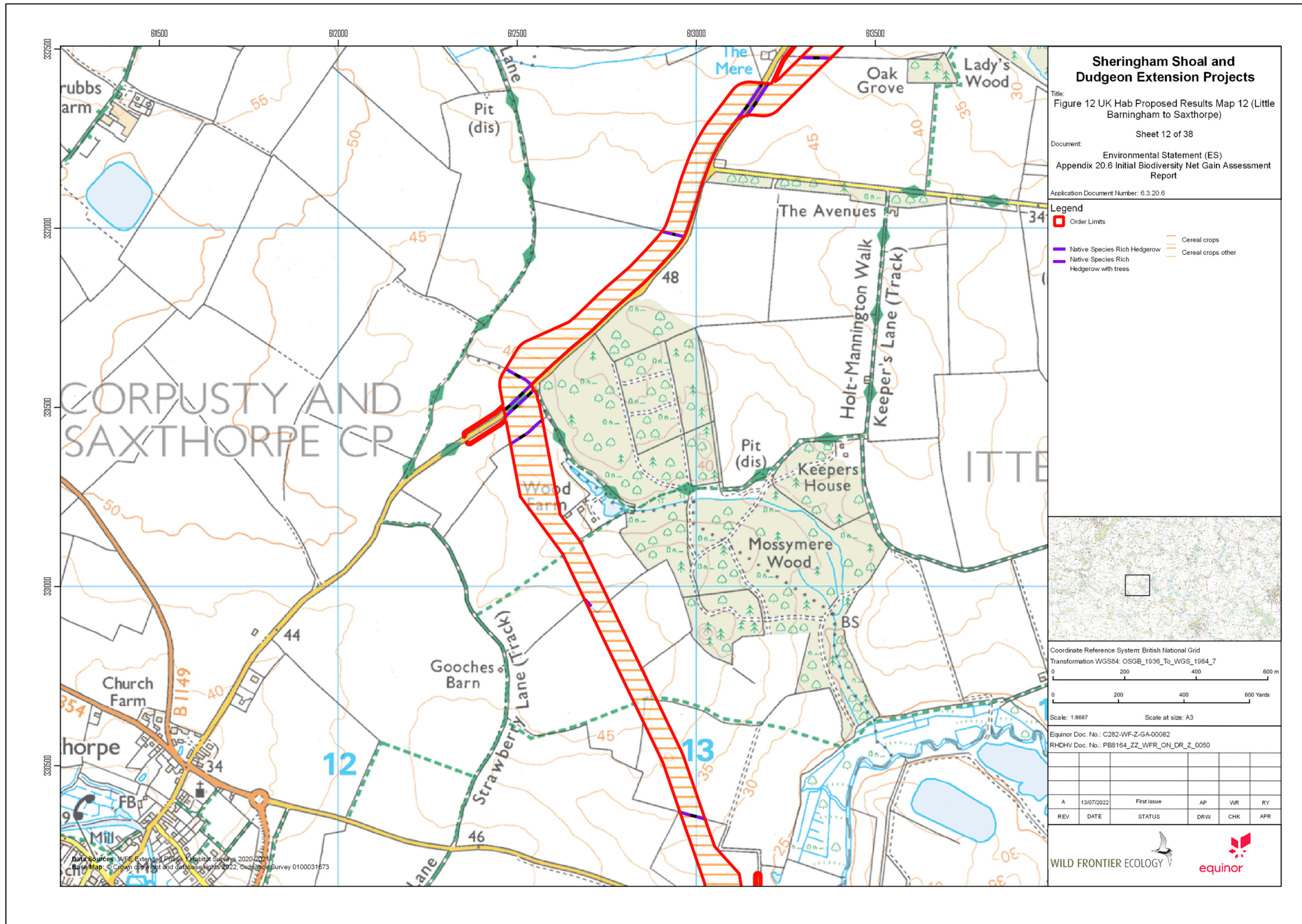


Figure 13: UK Hab Baseline Results Map 13 (Saxthorpe to Oulton)

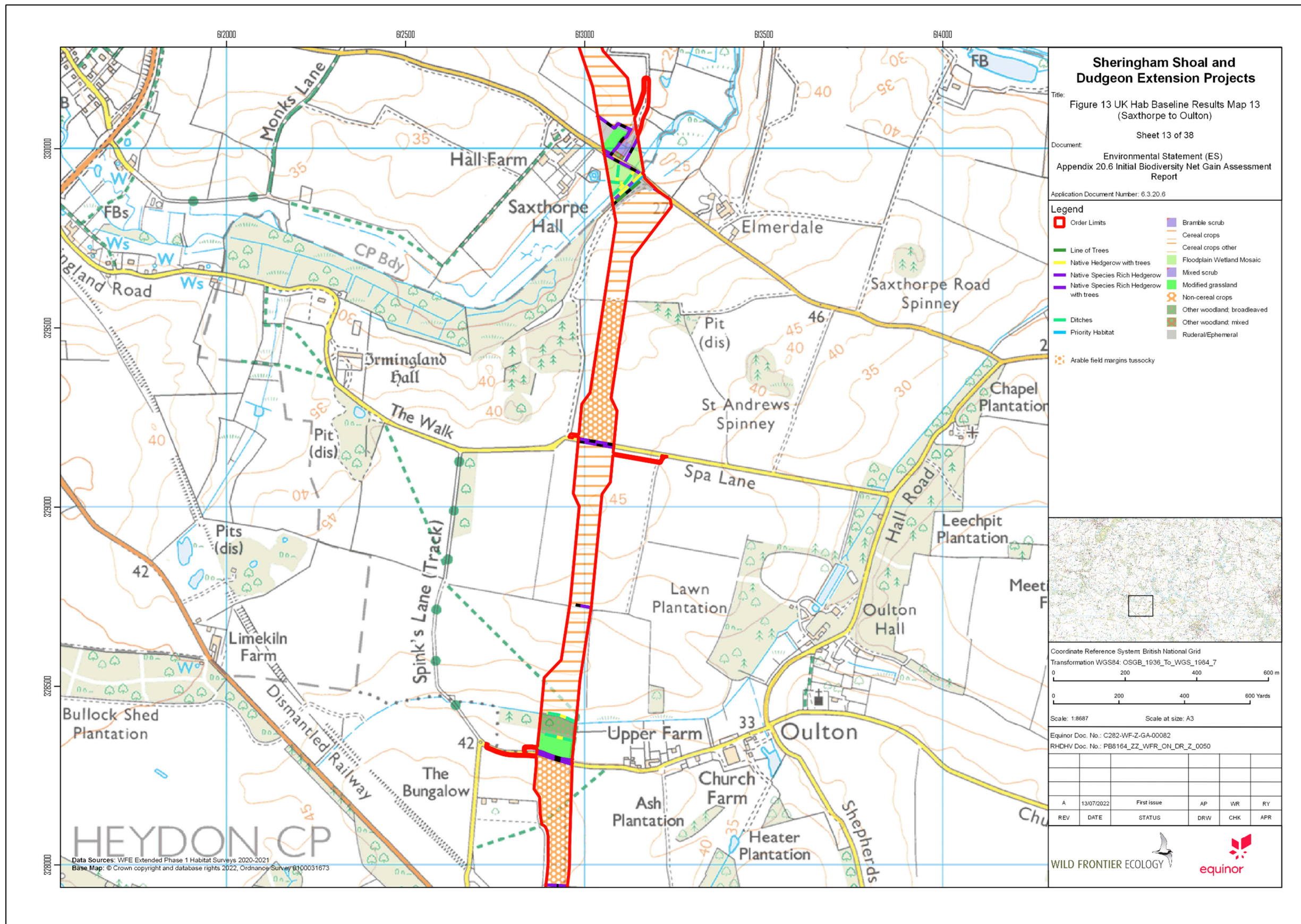


Figure 14: UK Hab Proposed Results Map 14 (Saxthorpe to Oulton)

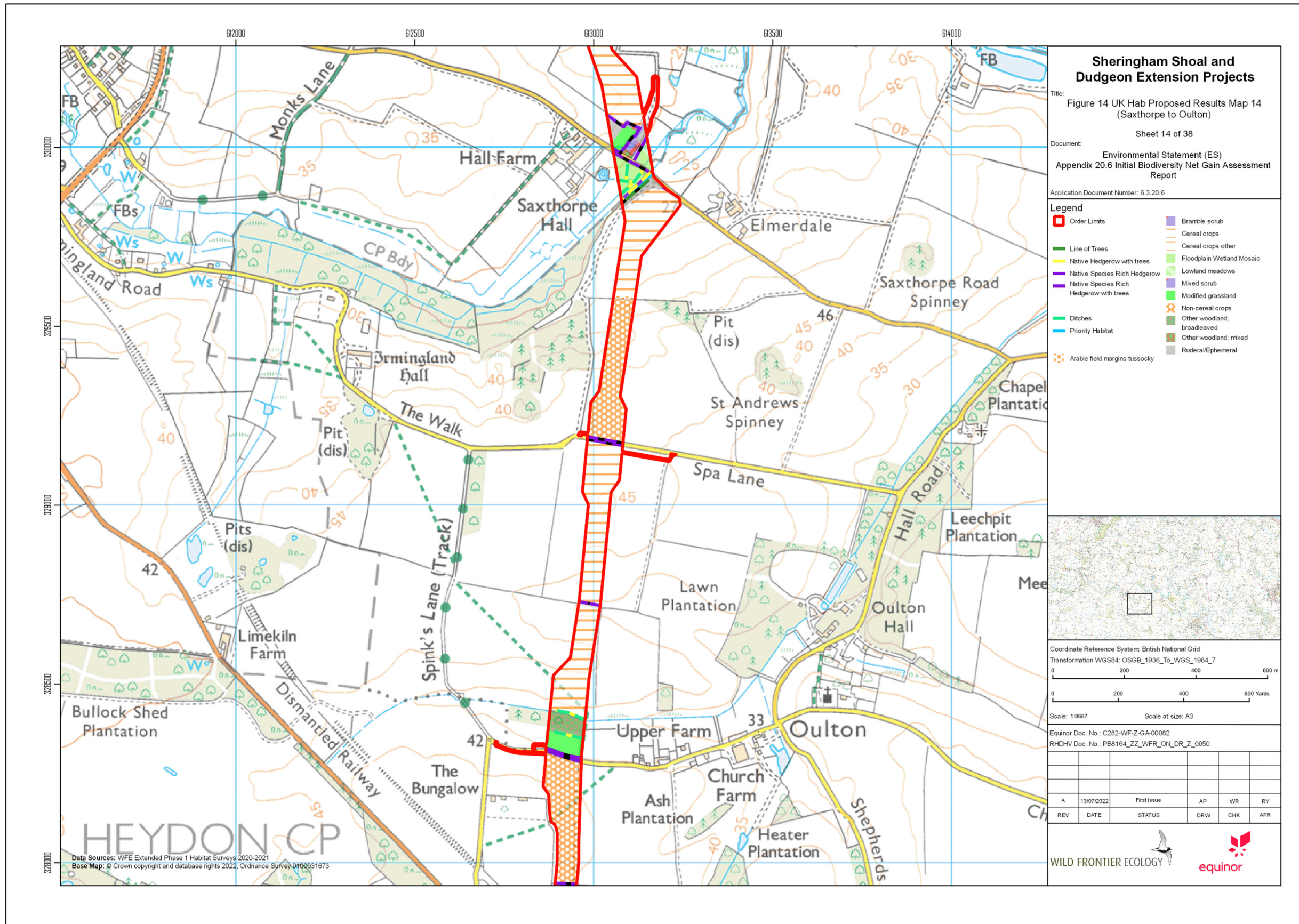


Figure 15: UK Hab Baseline Results Map 15 (Oulton)

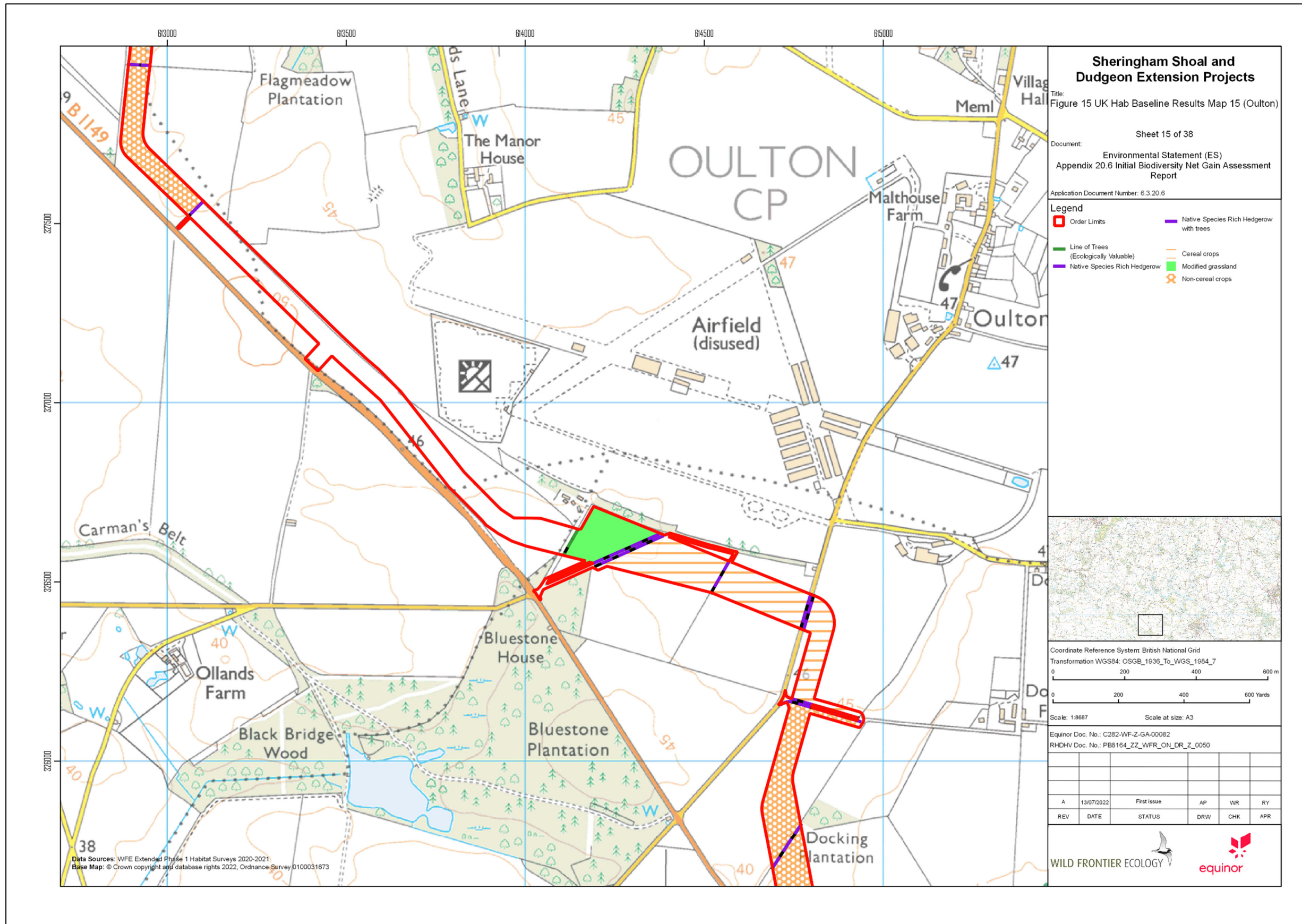


Figure 16: UK Hab Proposed Results Map 16 (Oulton)

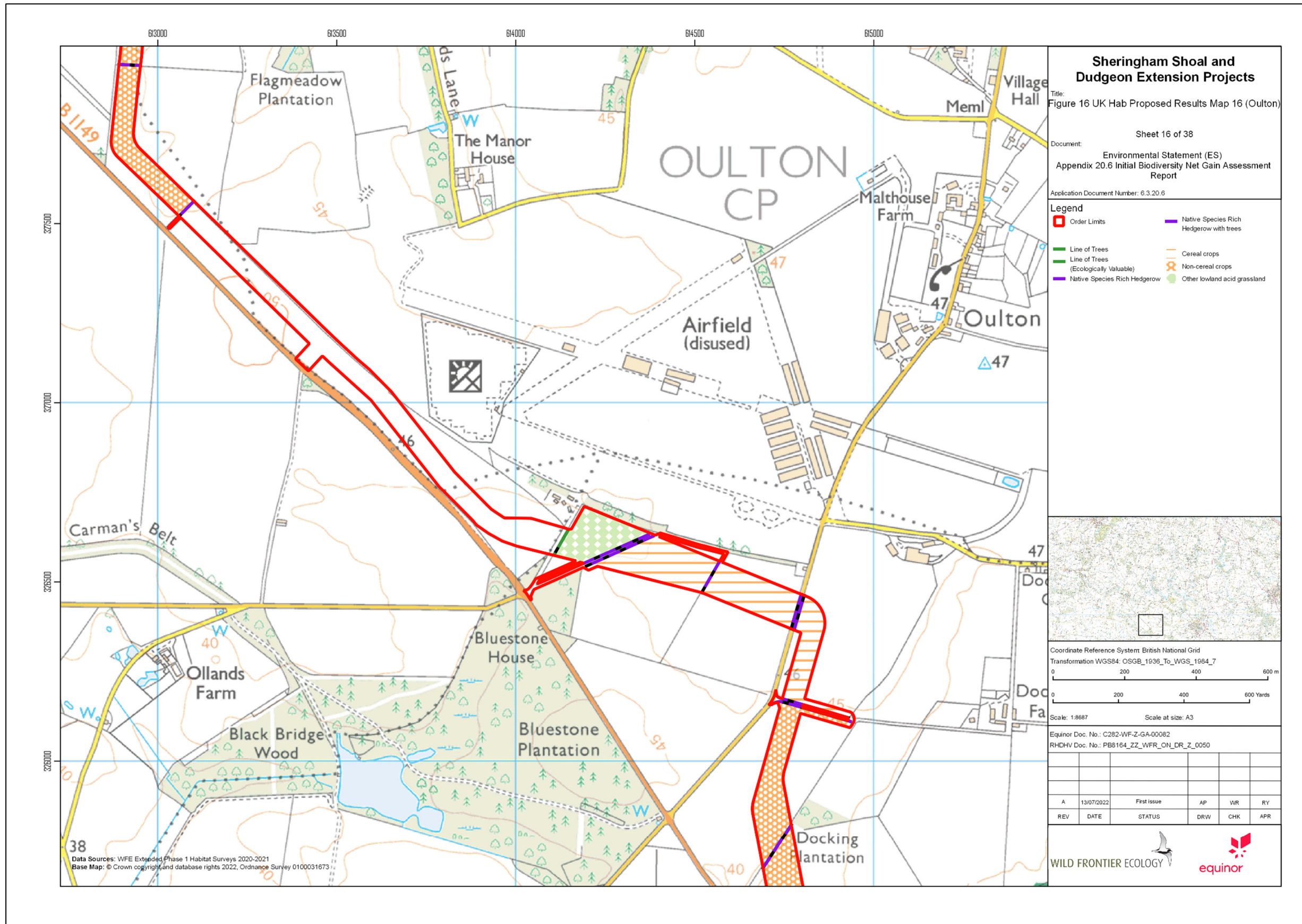




Figure 17: UK Hab Baseline Results Map 17 (Oulton to Cawston)

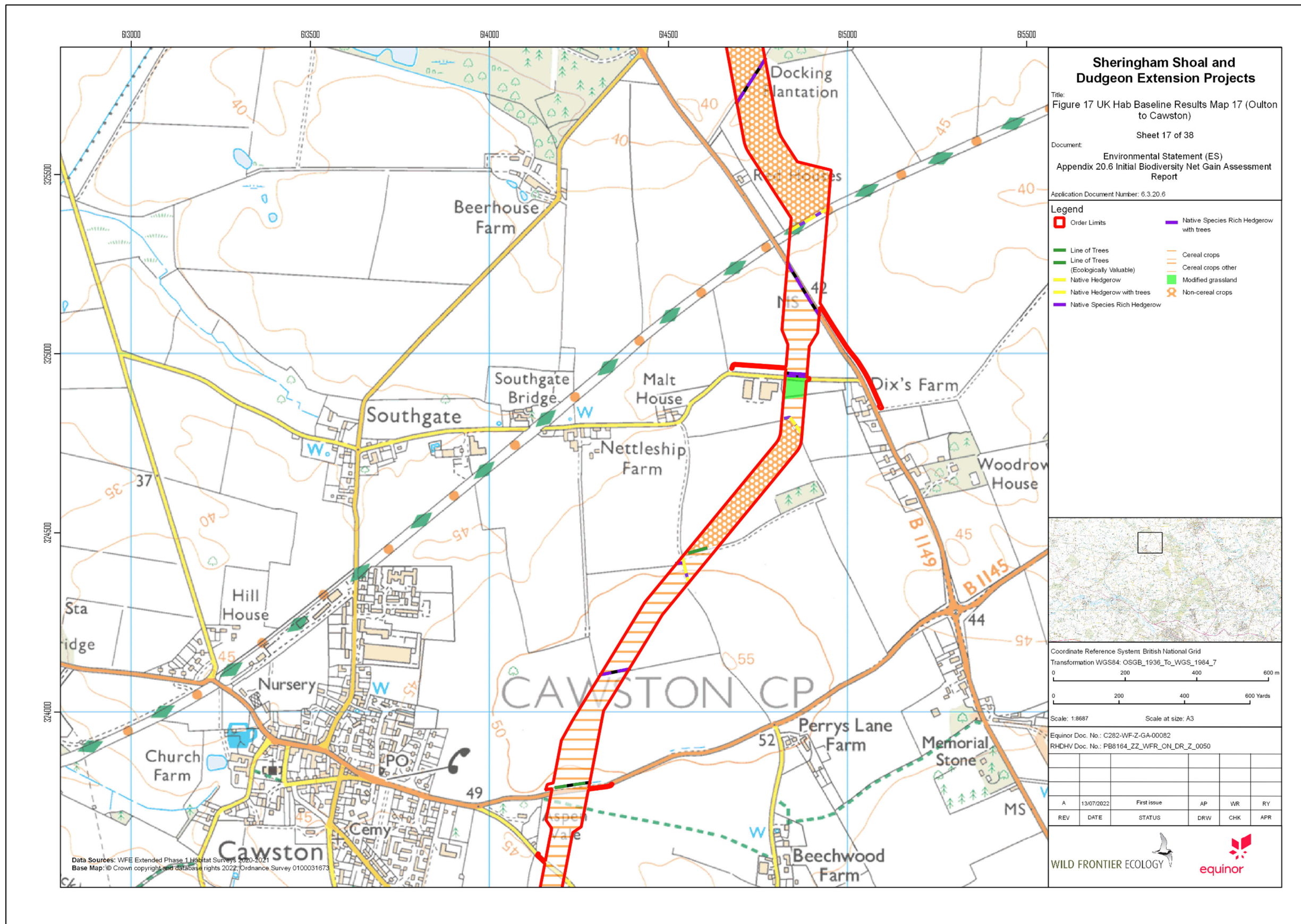


Figure 18: UK Hab Proposed Results Map 18 (Oulton to Cawston)

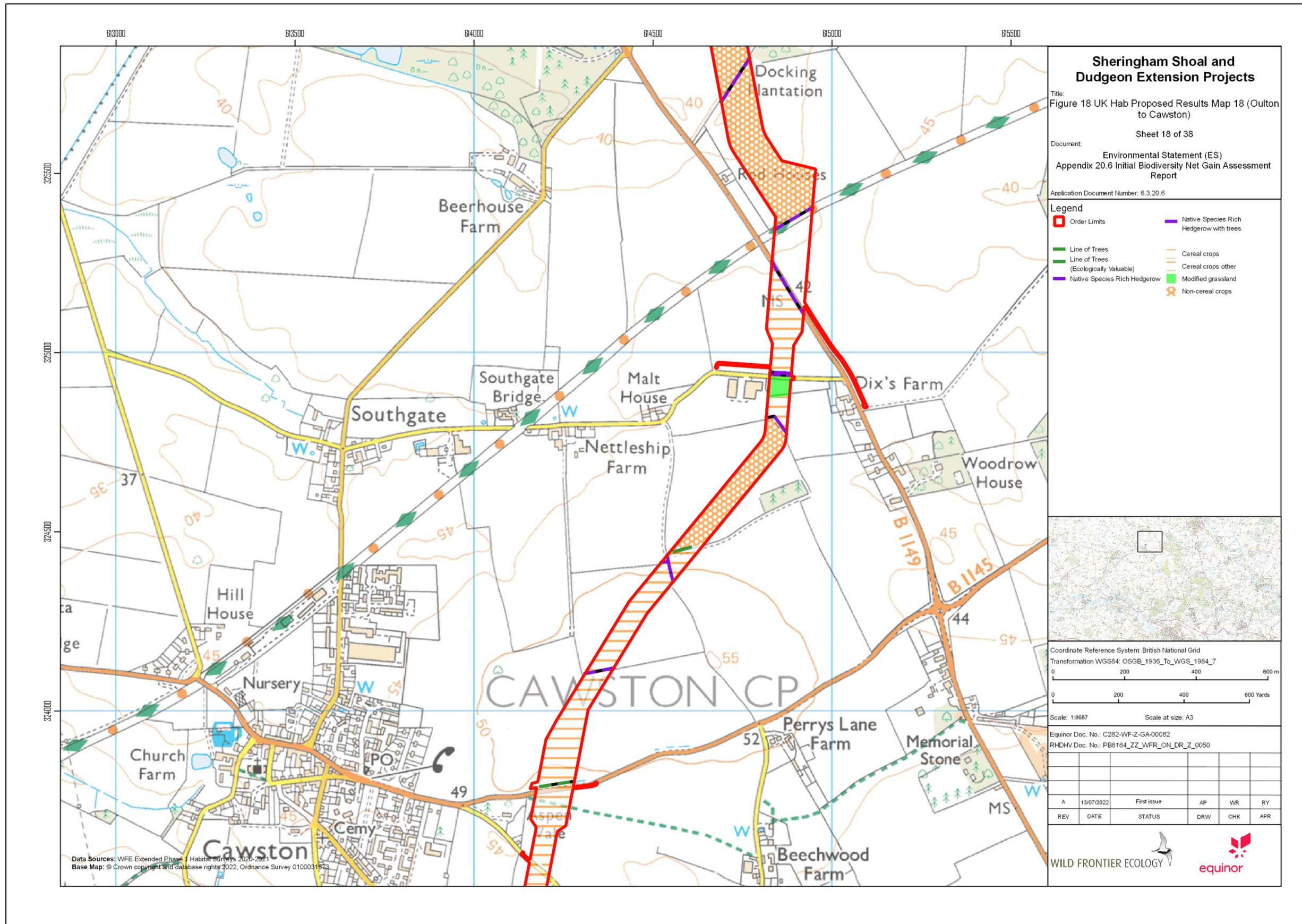


Figure 19: UK Hab Baseline Results Map 19 (Cawston to Brandiston)

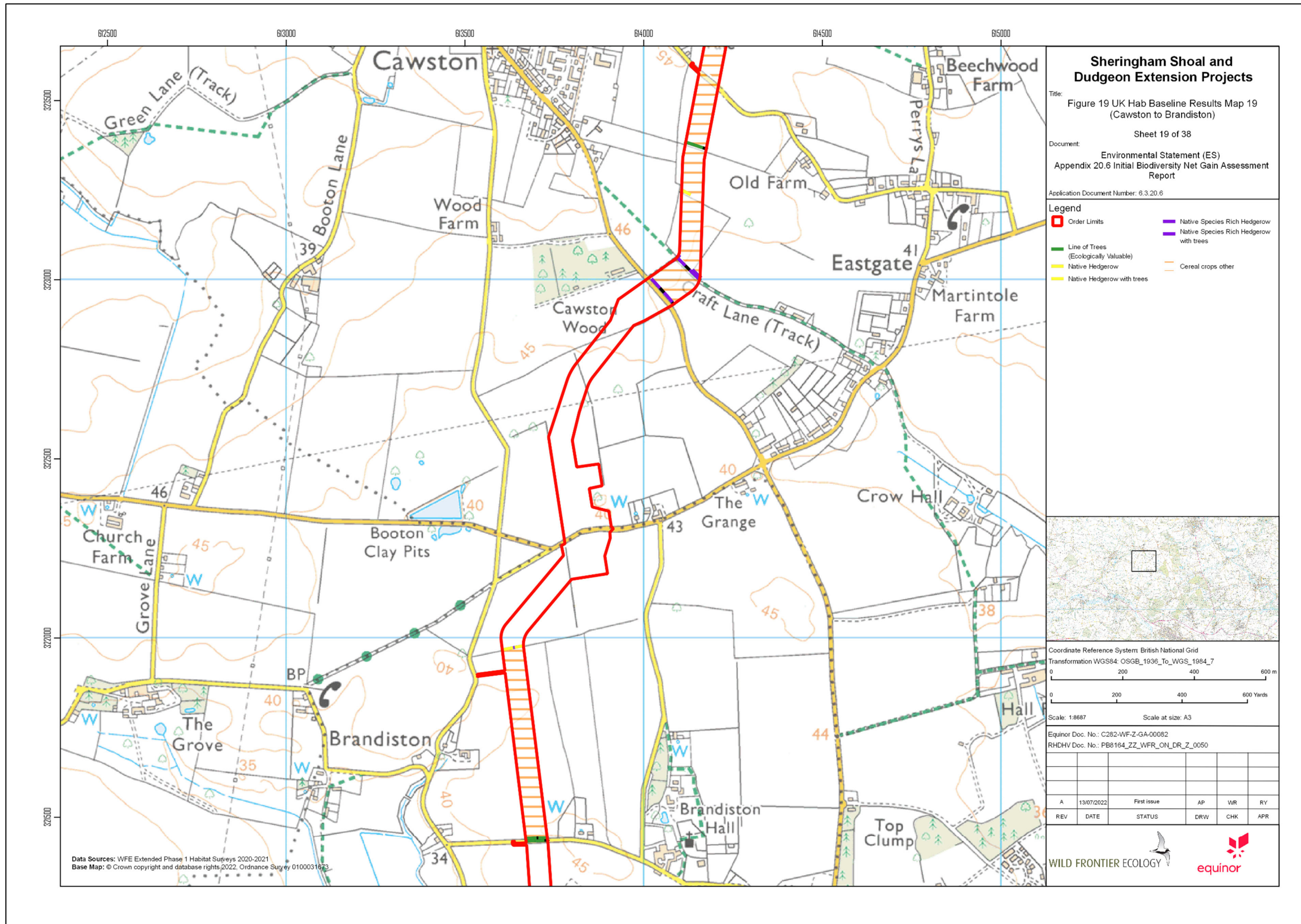


Figure 20: UK Hab Proposed Results Map 20 (Cawston to Brandiston)

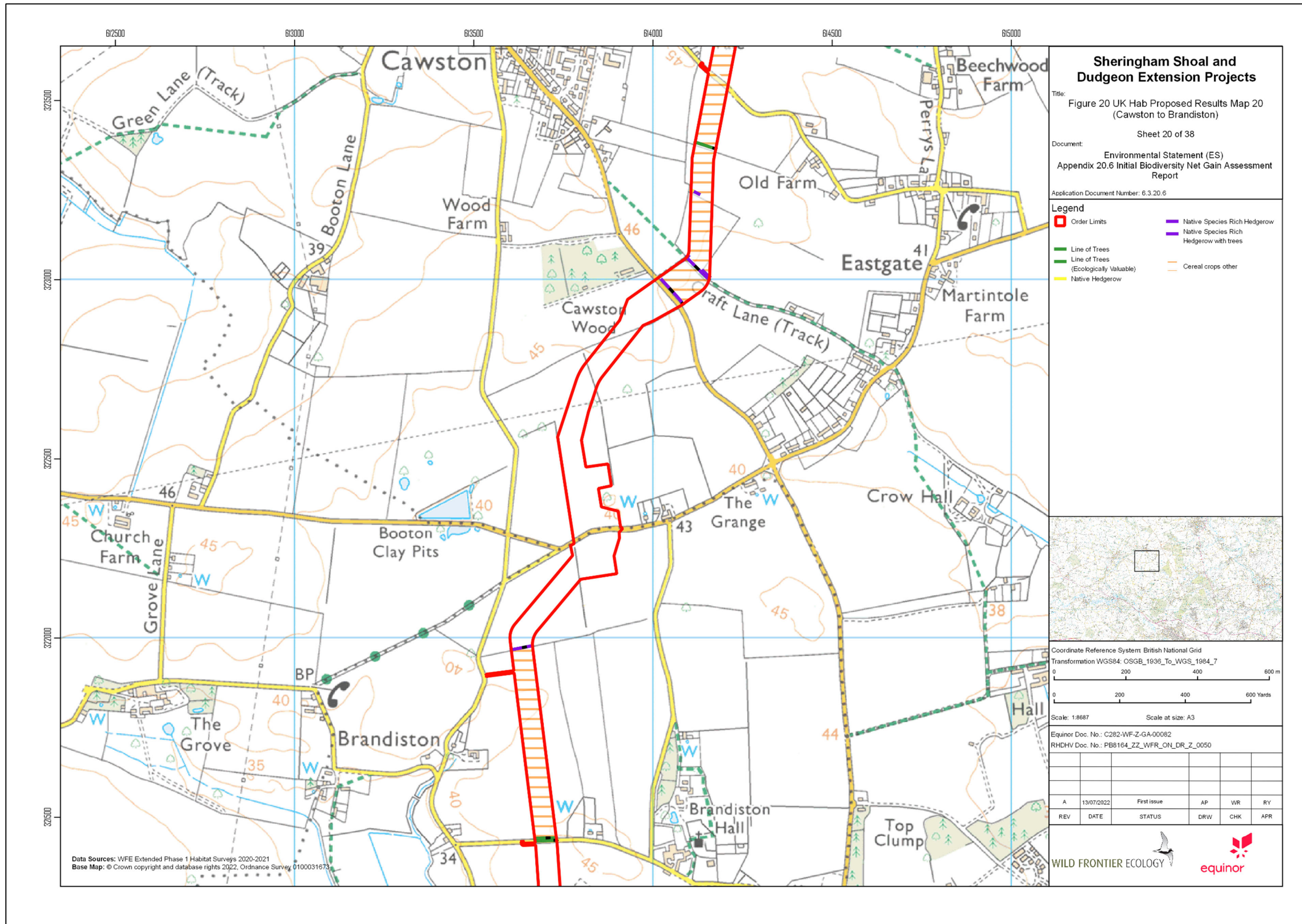


Figure 21: UK Hab Baseline Results Map 21 (Brandiston to Swannington)

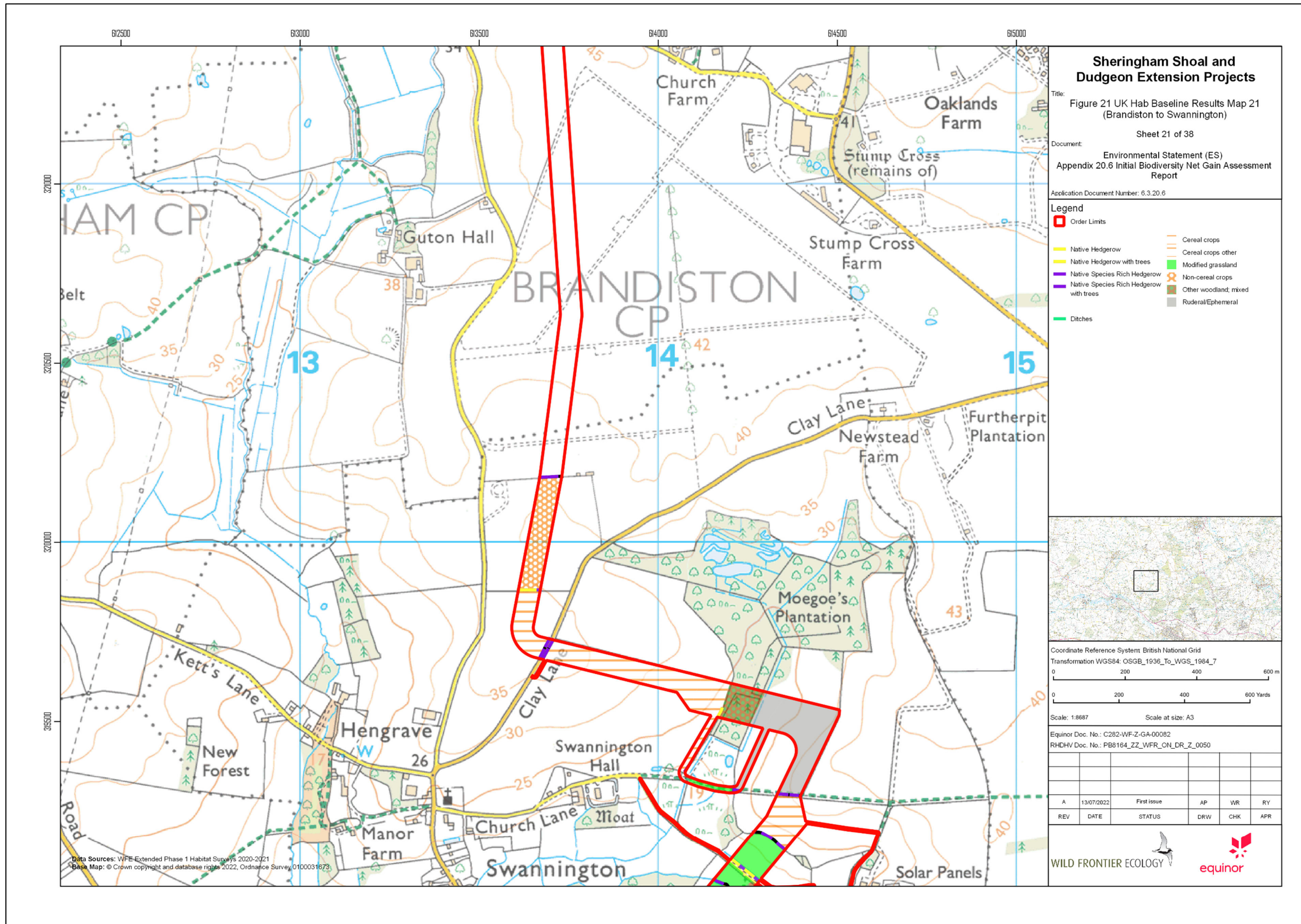


Figure 22: UK Hab Proposed Results Map 22 (Brandiston to Swannington)

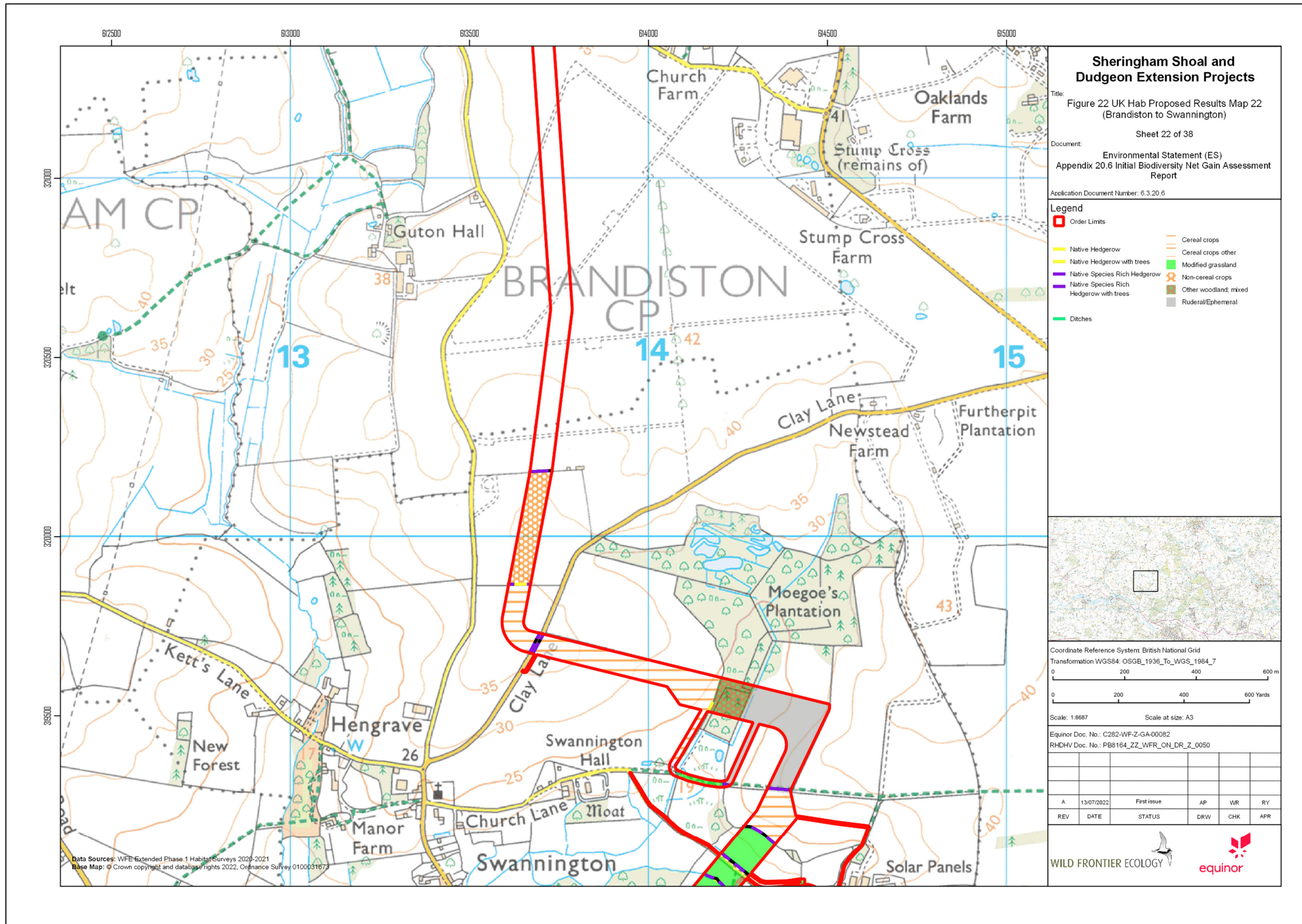


Figure 23: UK Hab Baseline Results Map 23 (Swannington to Morston)

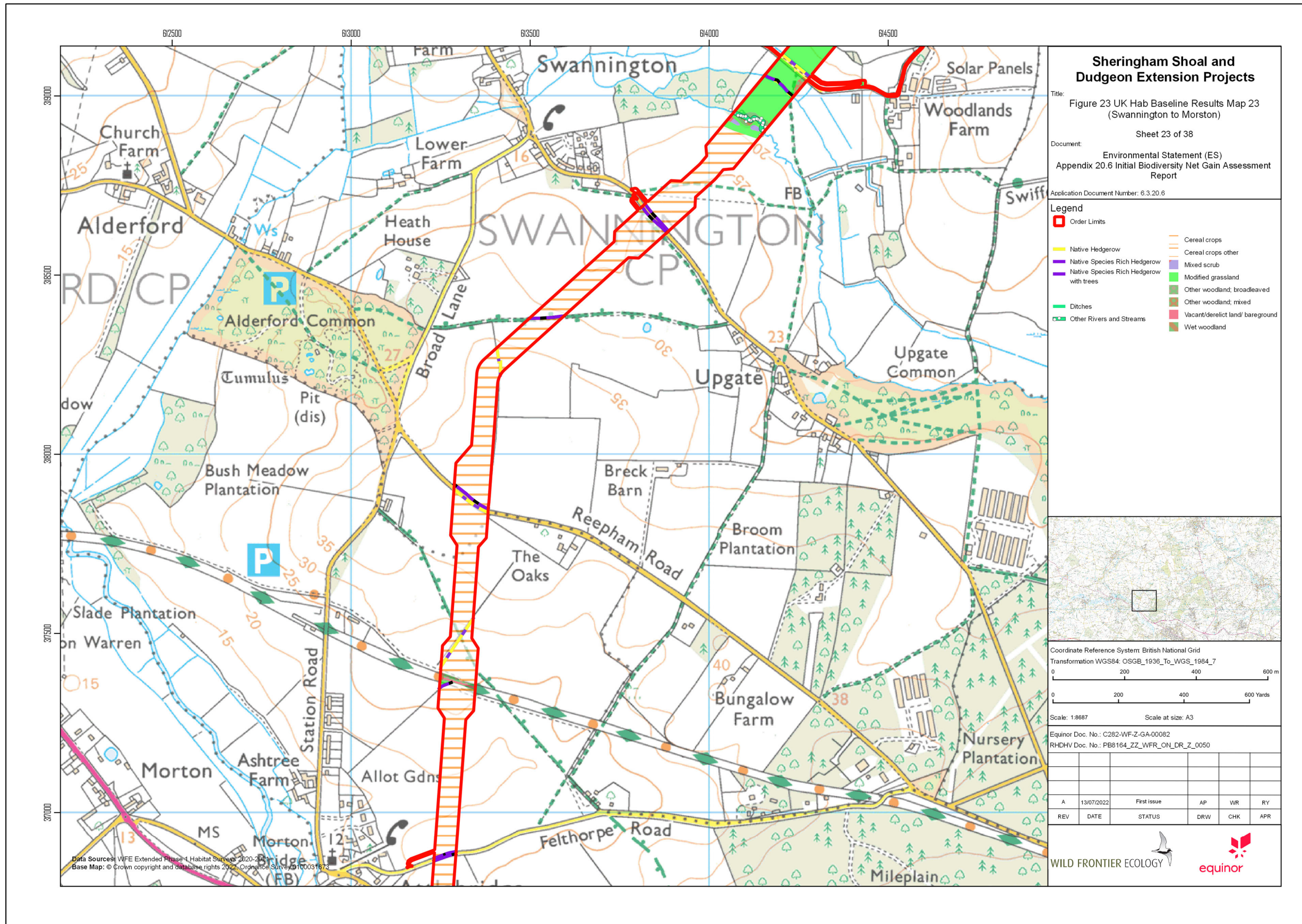


Figure 24: UK Hab Proposed Results Map 24 (Swannington to Morston)

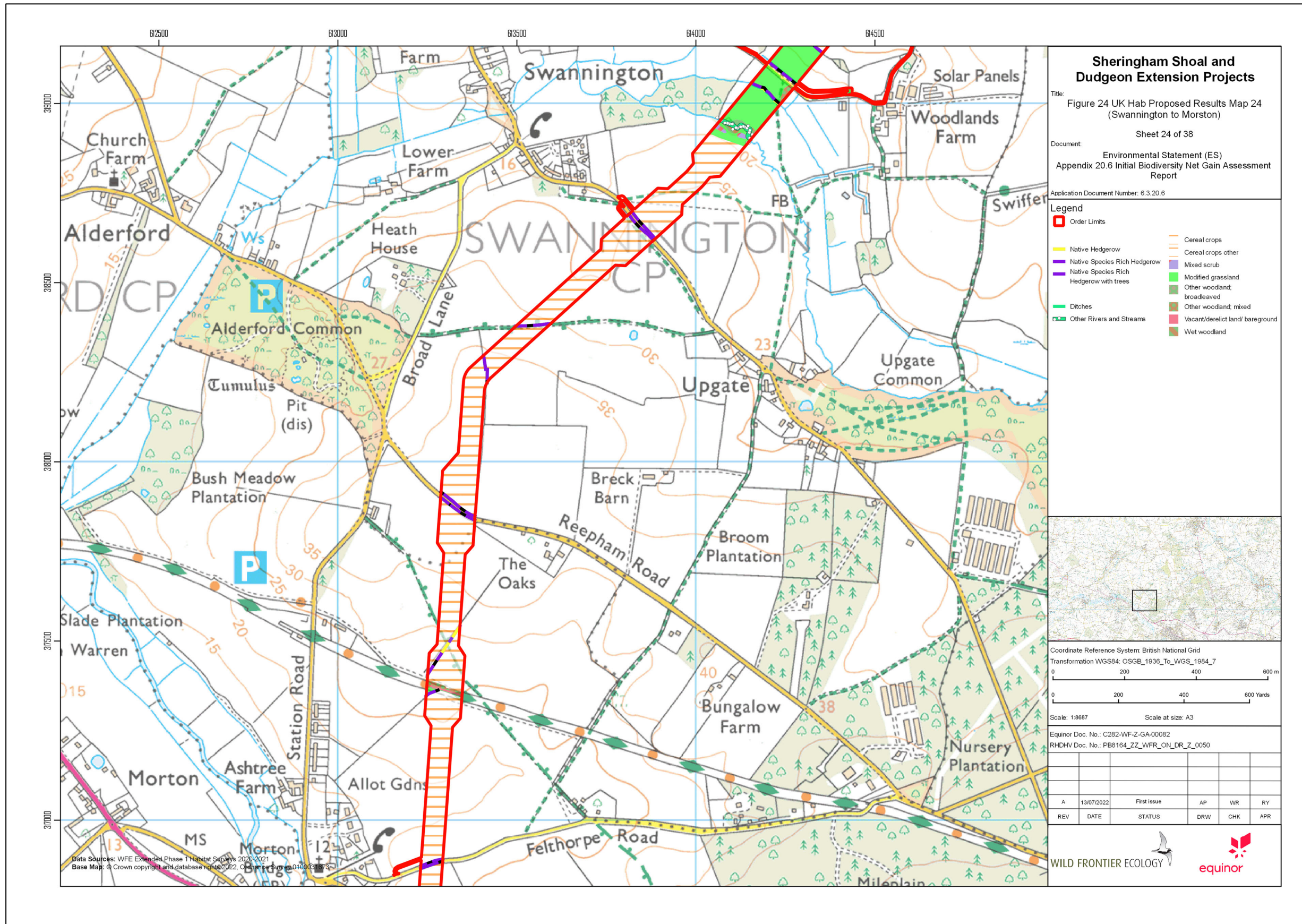




Figure 25: UK Hab Baseline Results Map 25 (Attlebridge to Weston Longville)

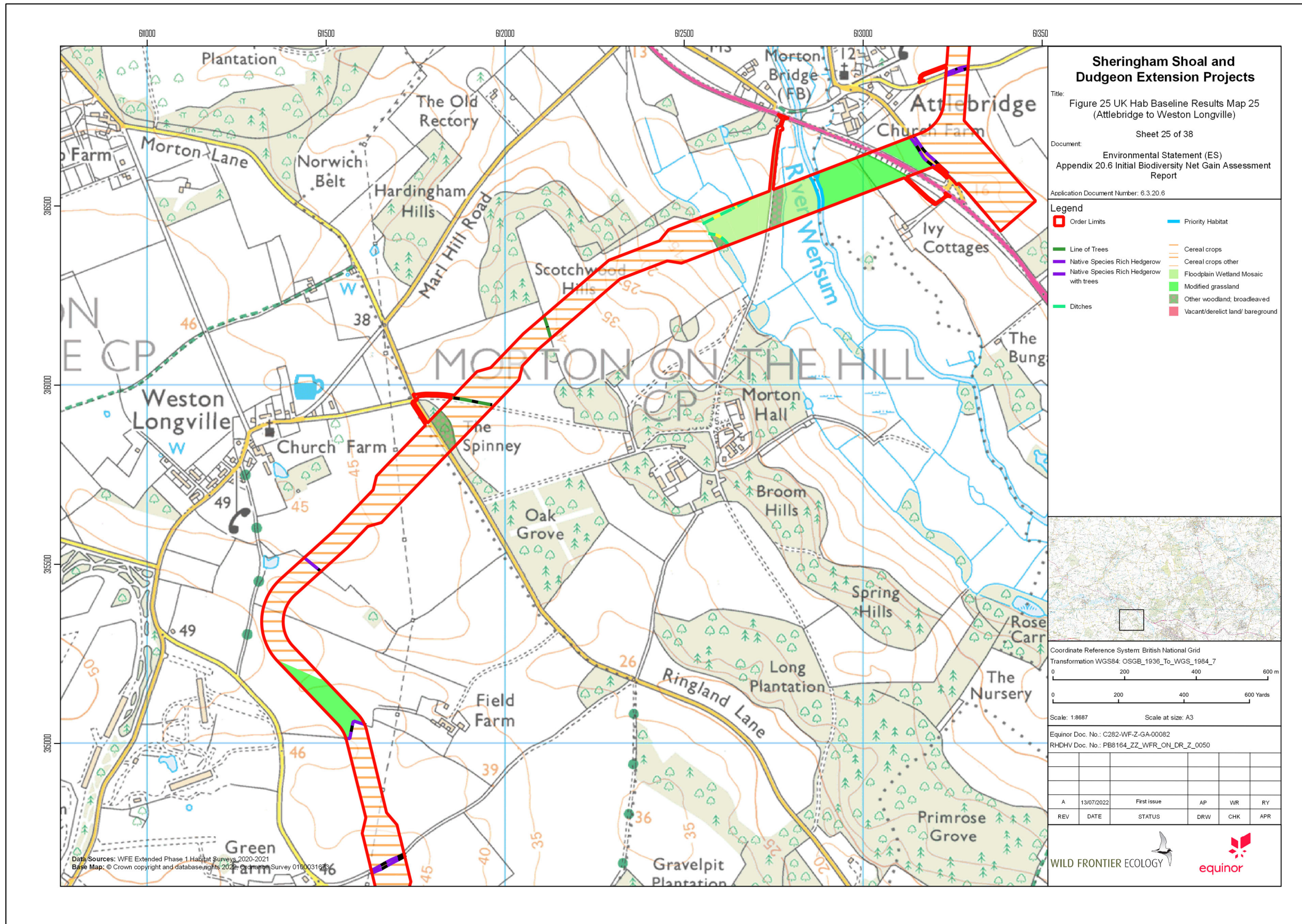


Figure 26: UK Hab Proposed Results Map 26 (Attlebridge to Weston Longville)

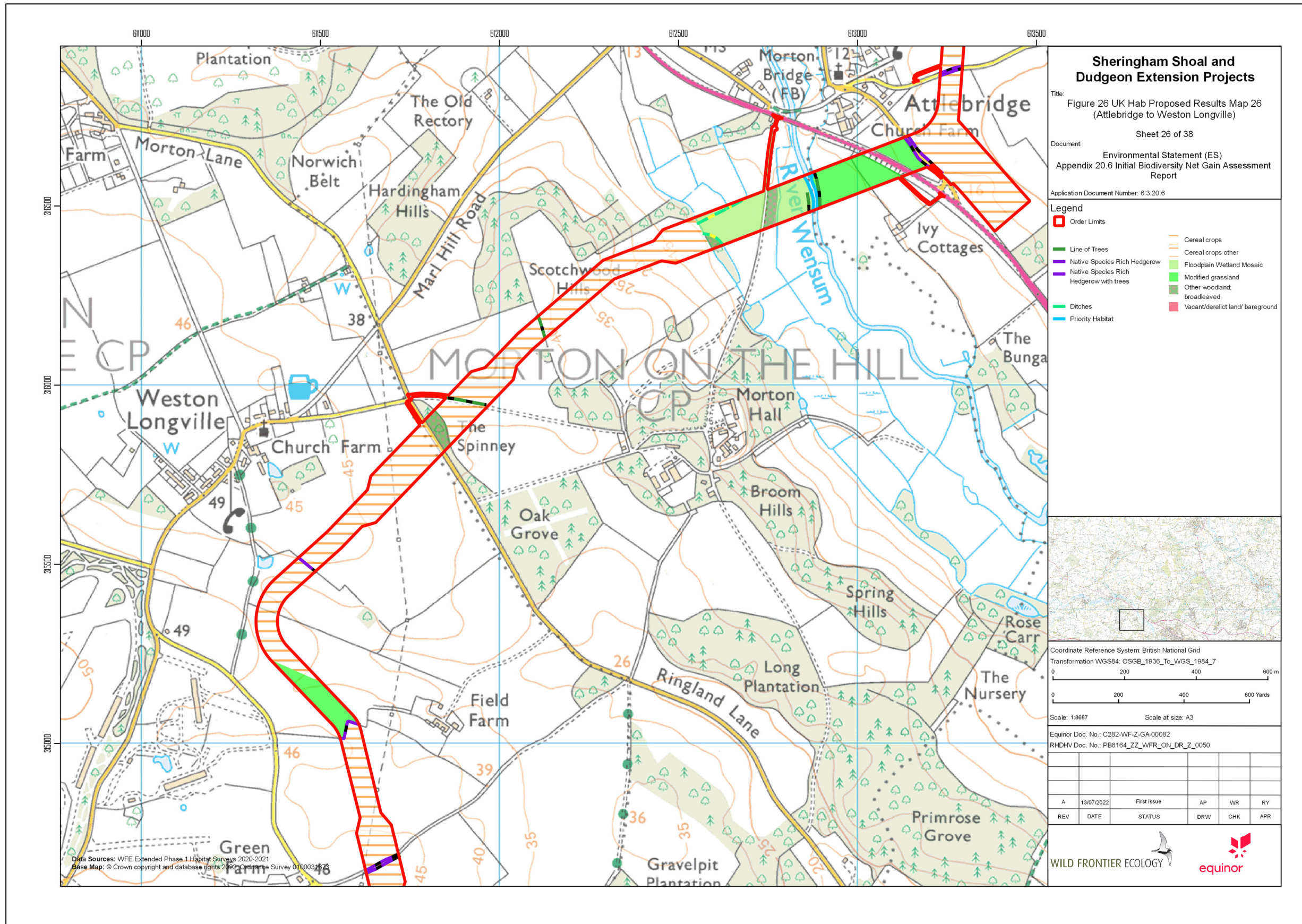


Figure 27: UK Hab Baseline Results Map 27 (Weston Longville to Honingham)

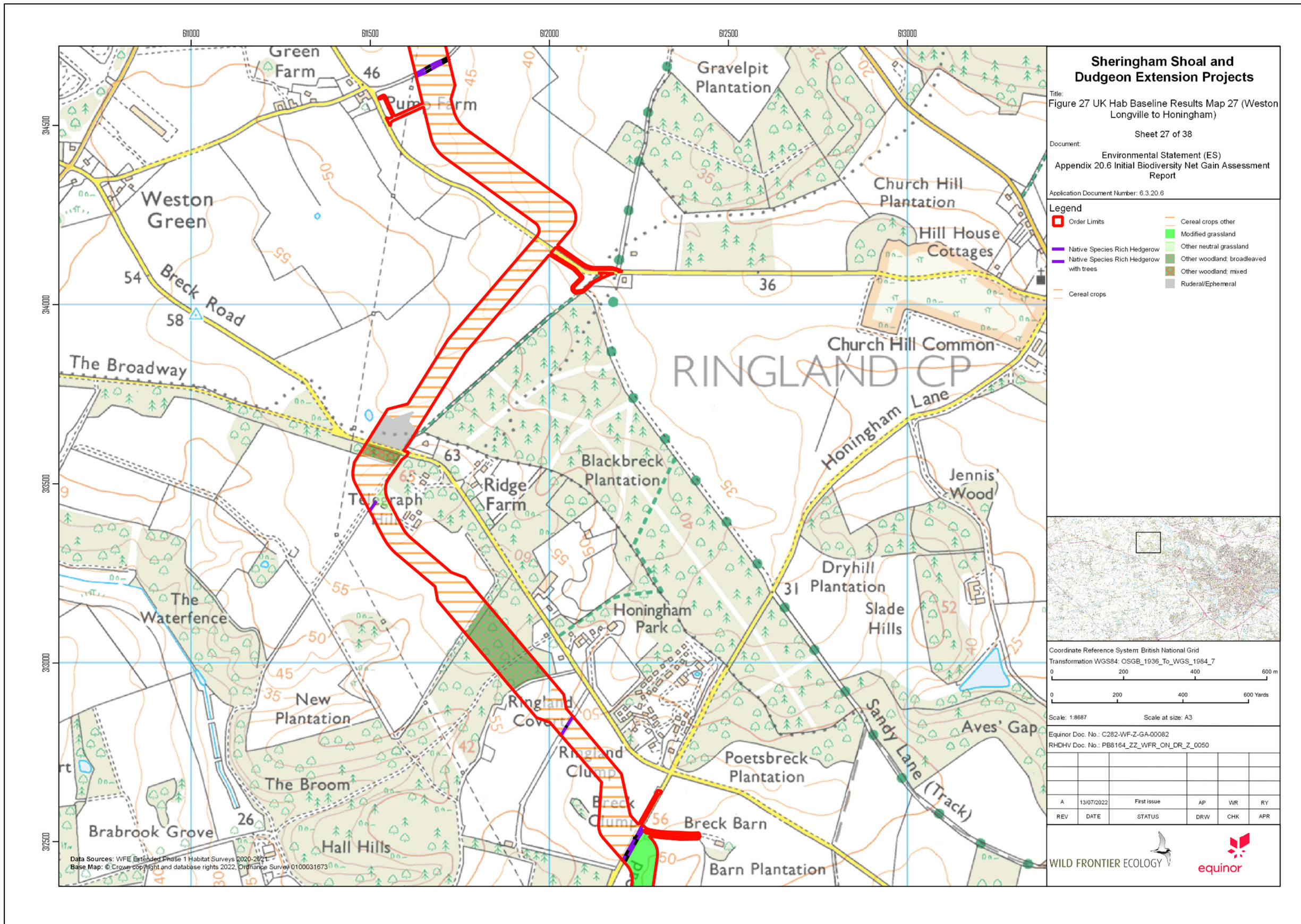
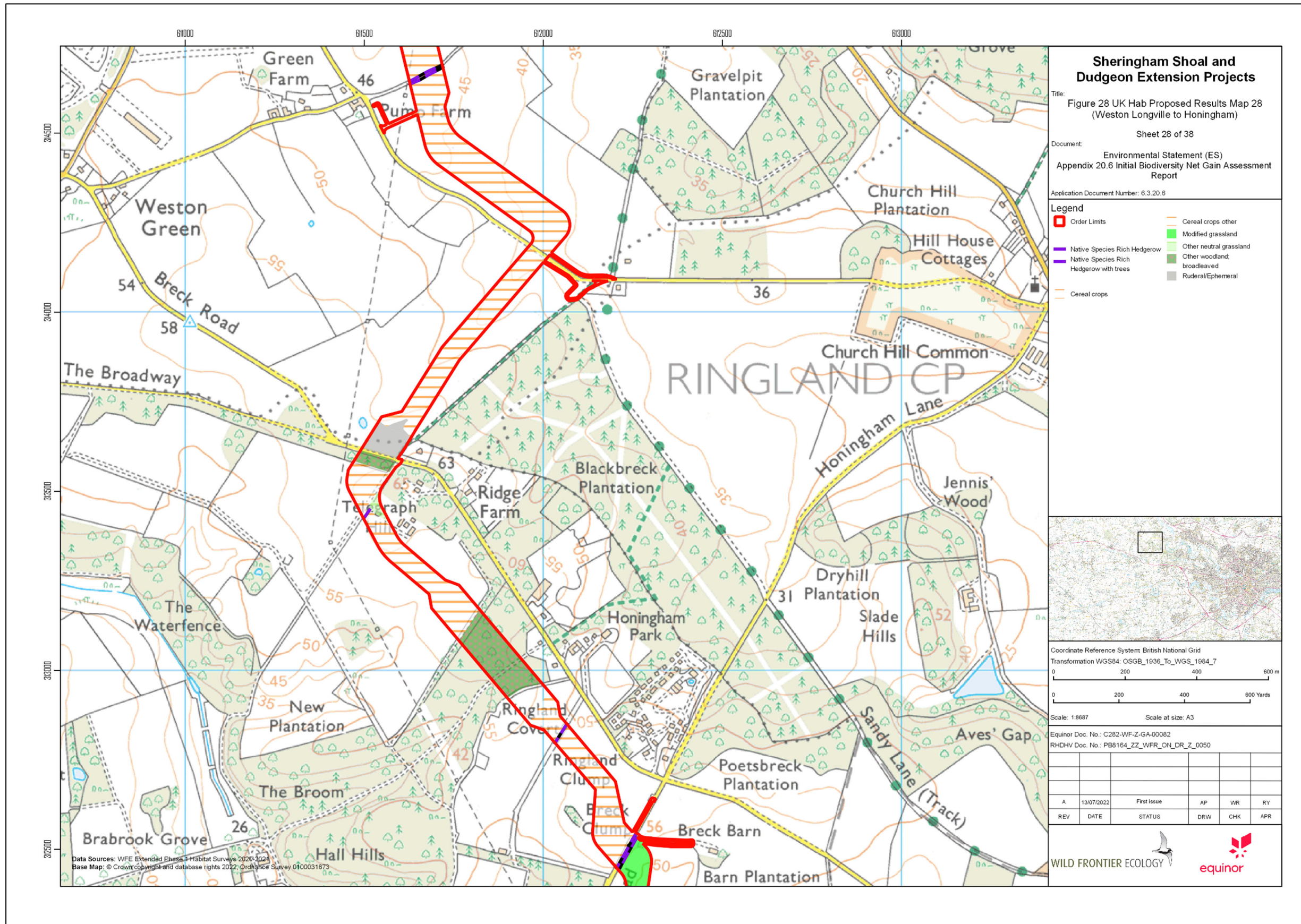
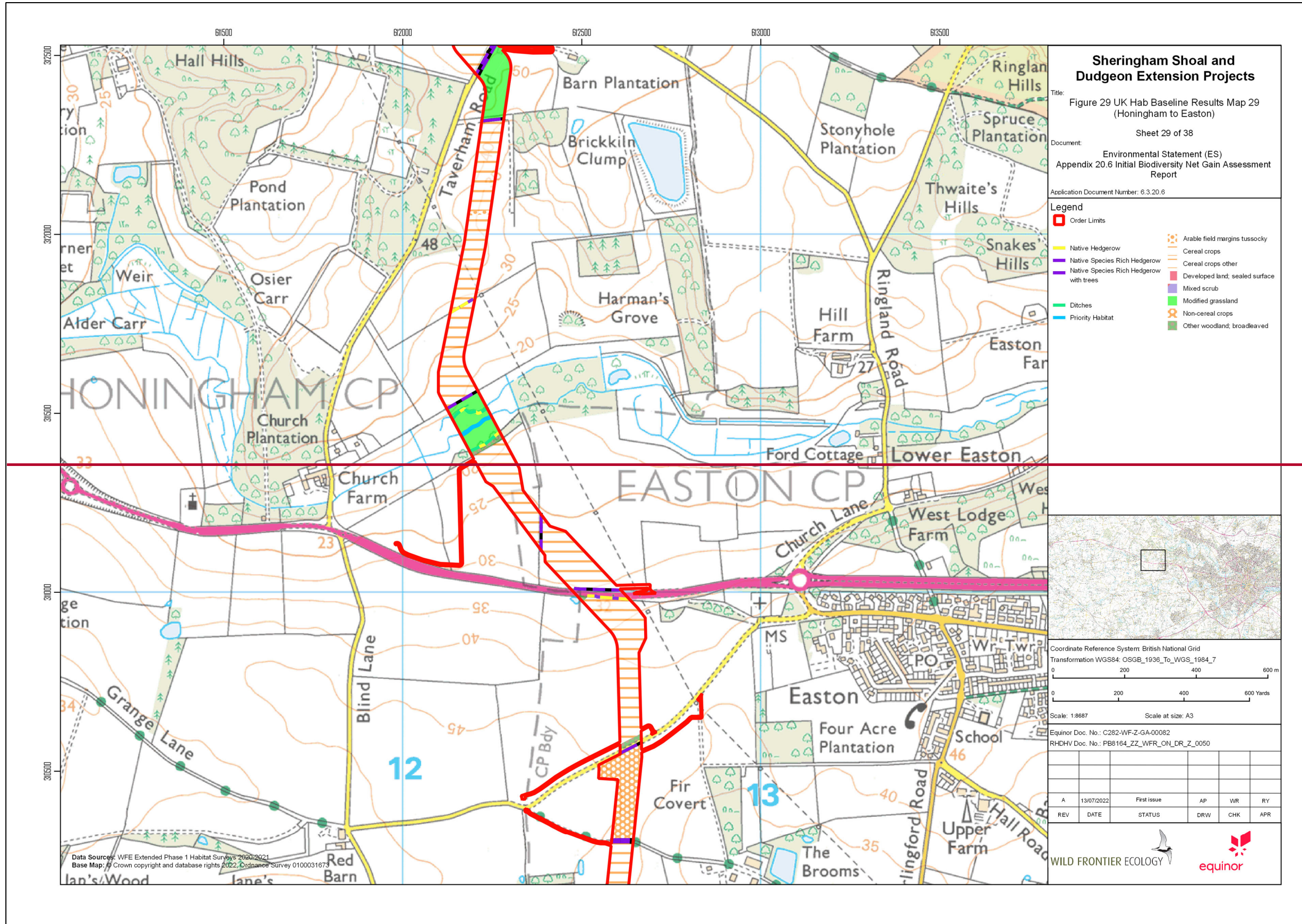


Figure 28: UK Hab Proposed Results Map 28 (Weston Longville to Honingham)



**Figure 29: UK Hab Baseline Results Map 29 (Honingham to Easton)**

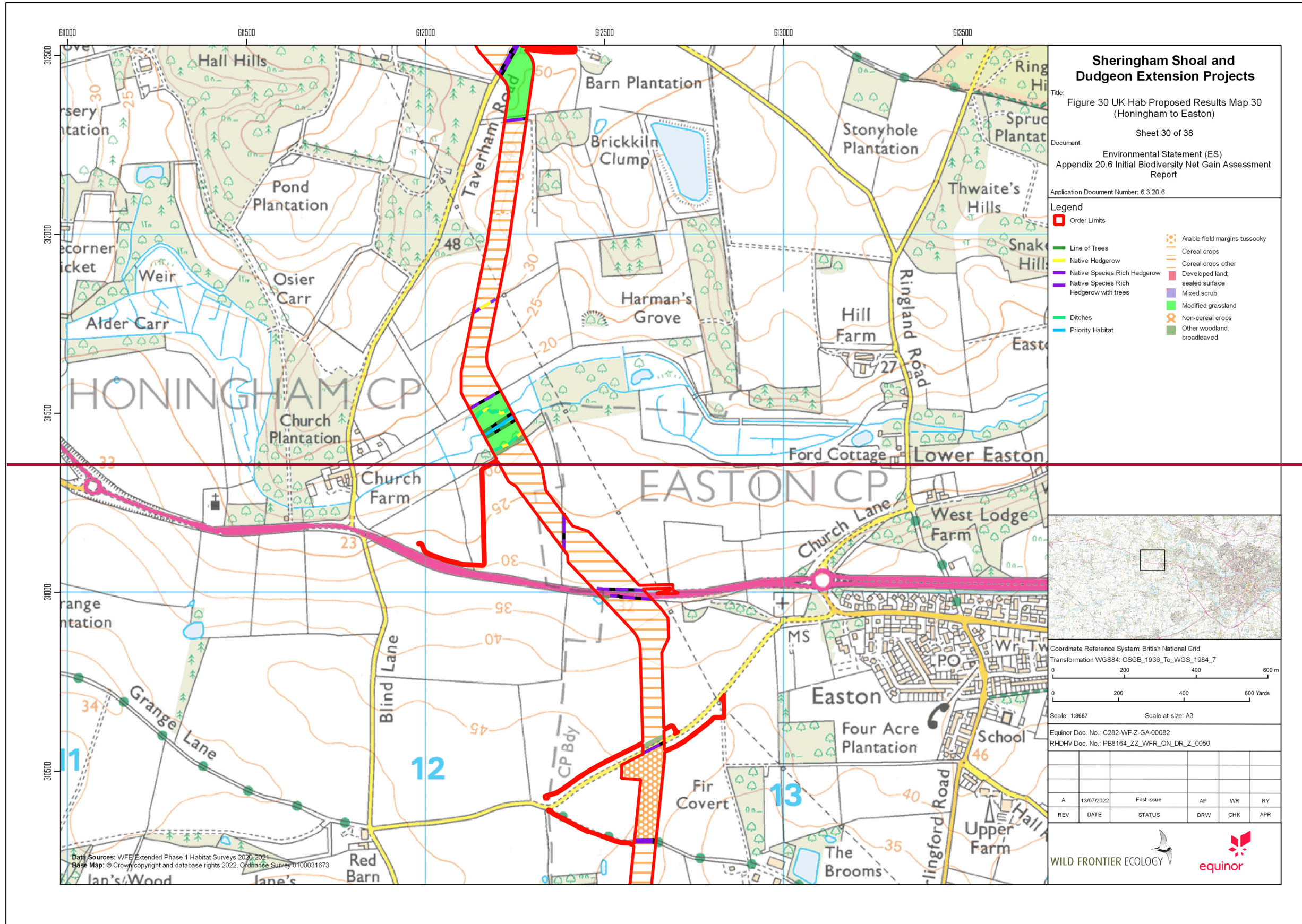




**Figure 30: UK Hab Proposed Results Map 30 (Honingham to Easton)**







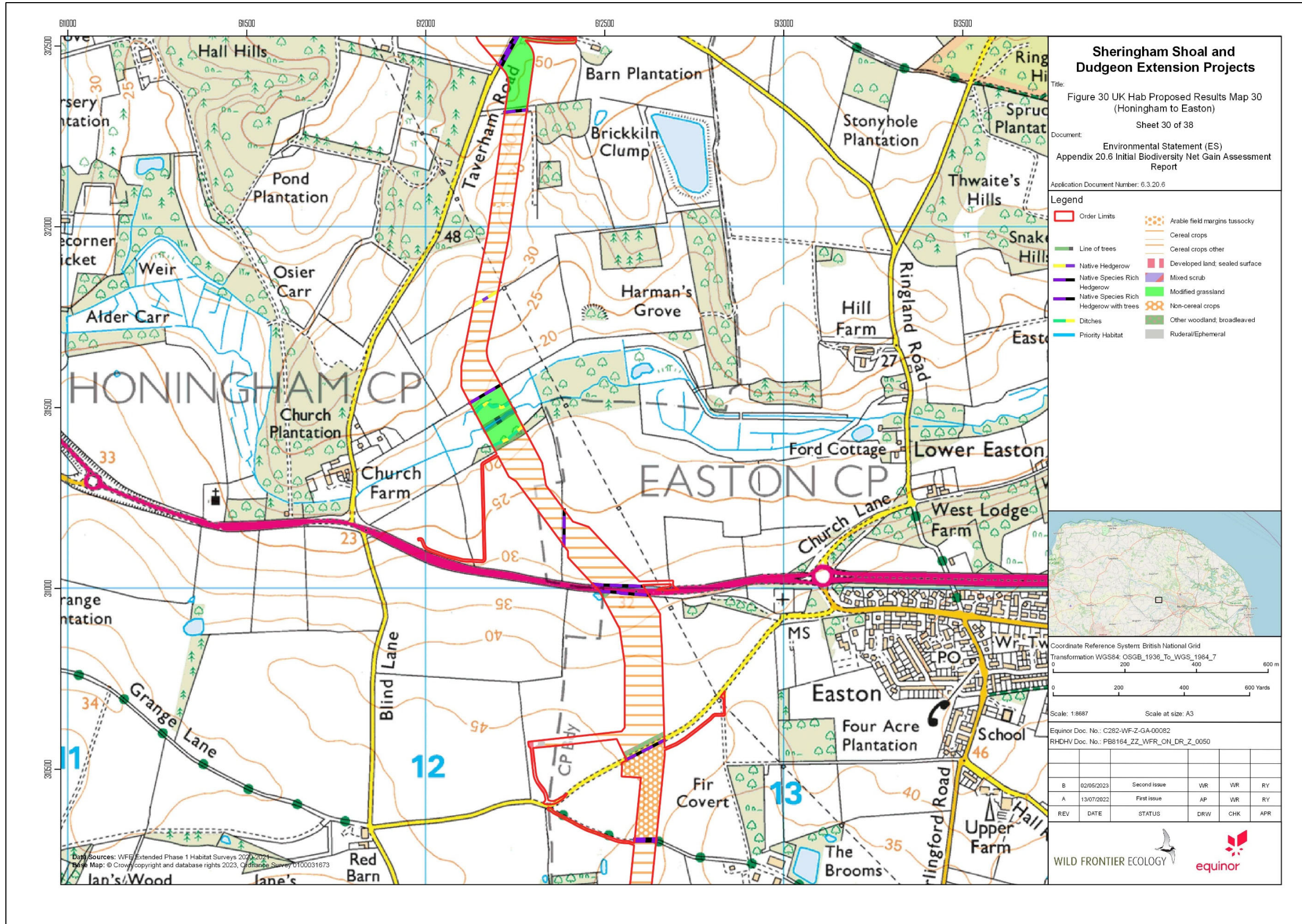


Figure 31: UK Hab Baseline Results Map 31 (Easton to Colton)

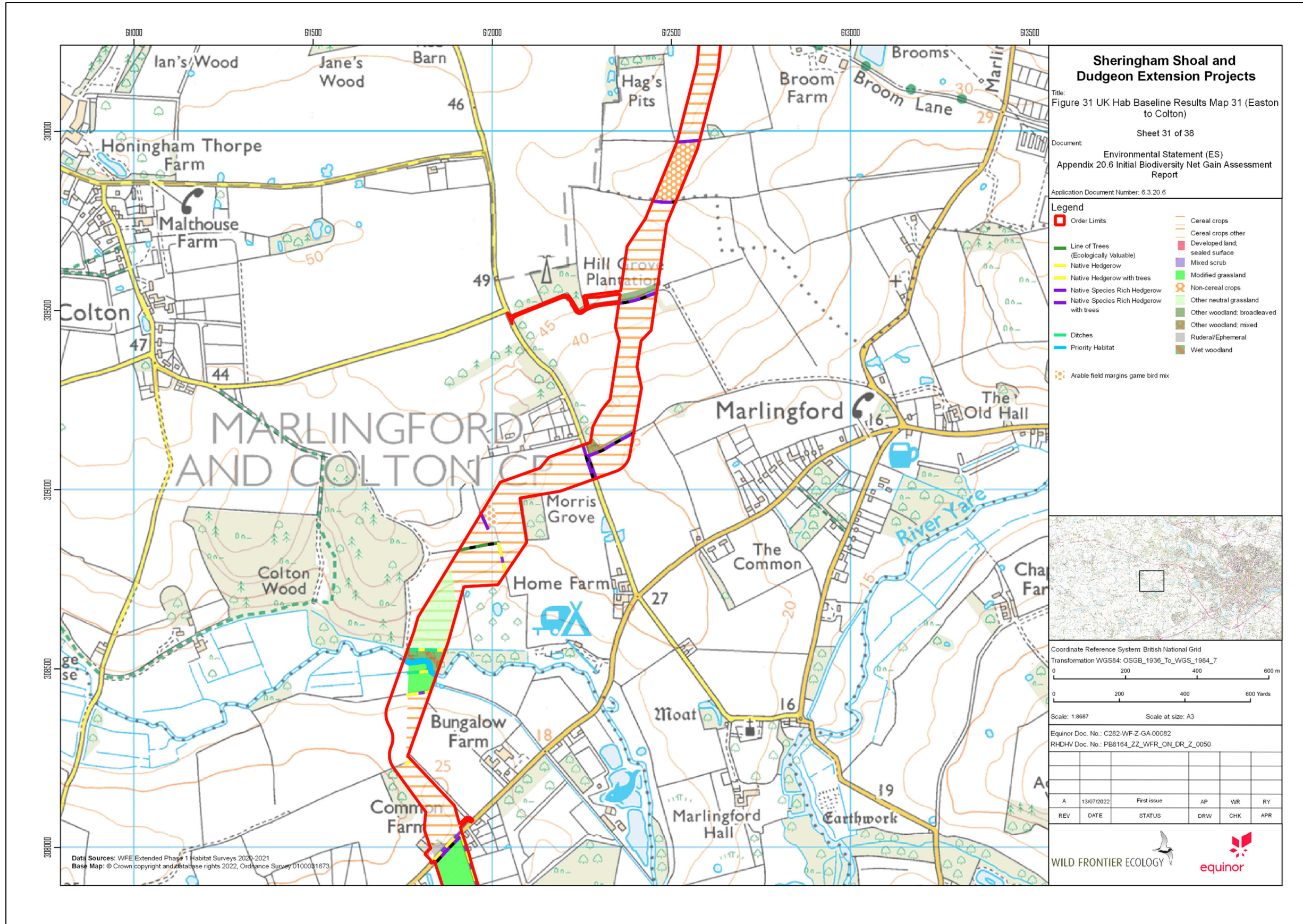


Figure 32: UK Hab Proposed Results Map 32 (Easton to Colton)

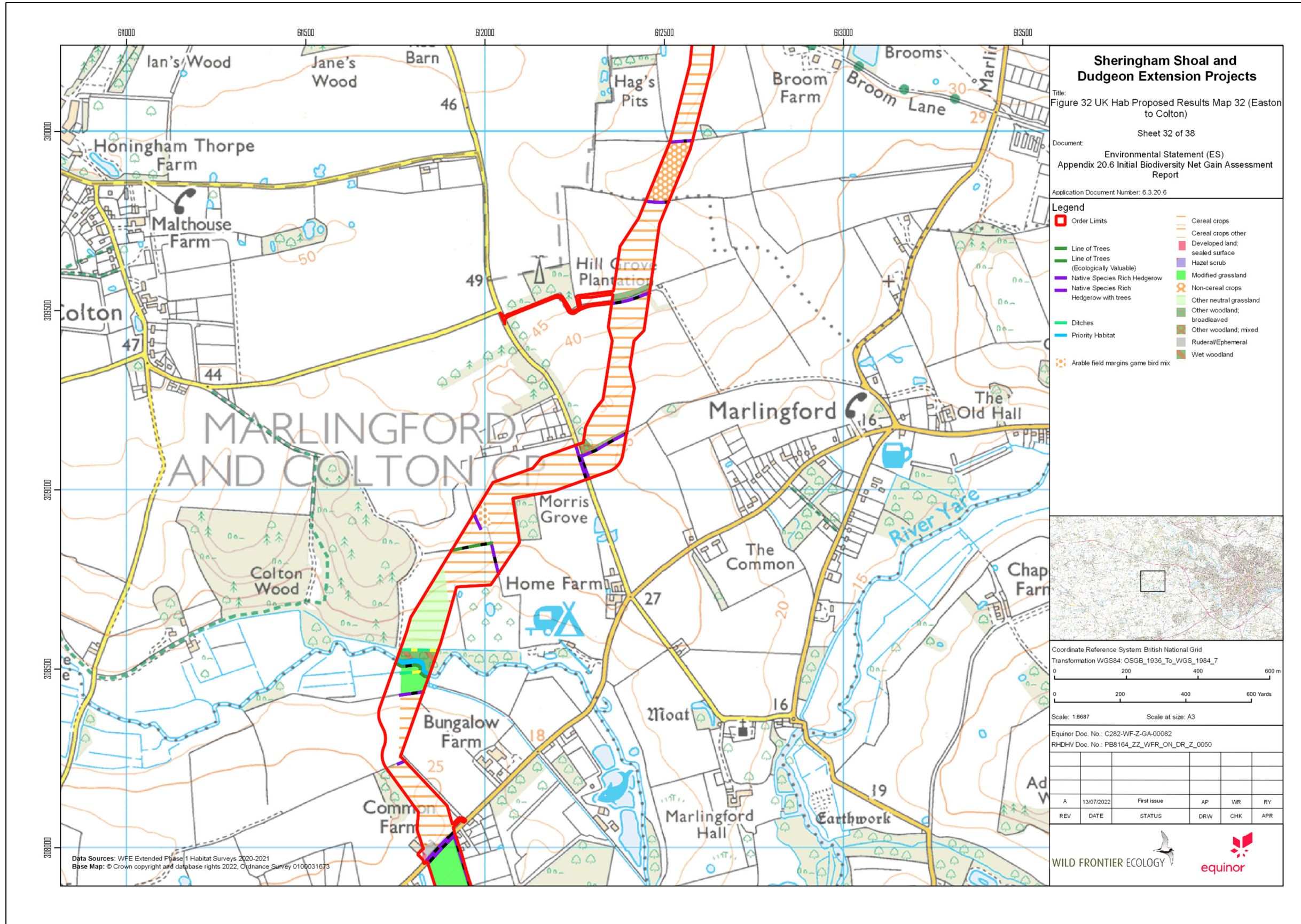


Figure 33: UK Hab Baseline Results Map 33 (Barford to Pockthorpe)

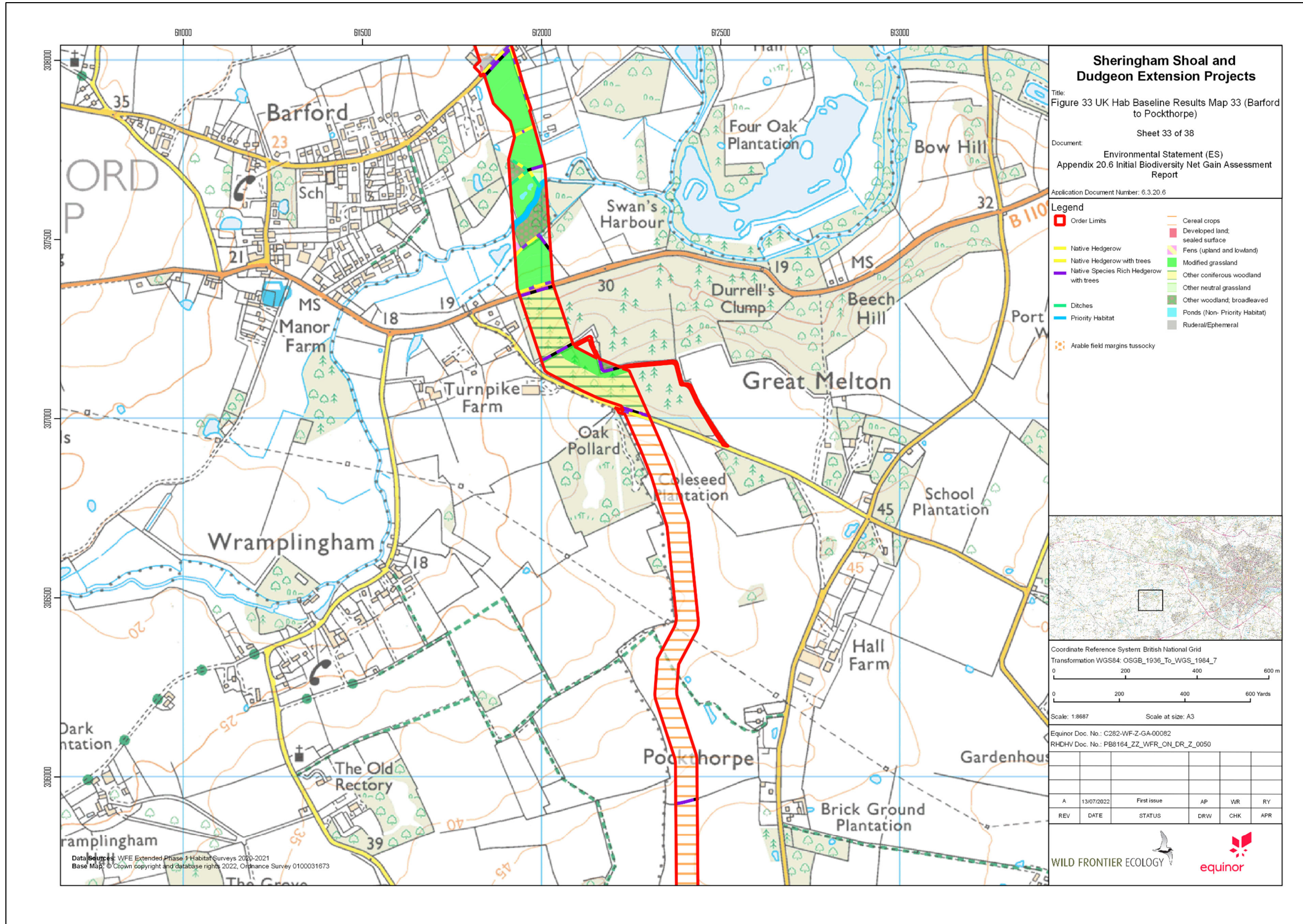


Figure 34: UK Hab Proposed Results Map 34 (Barford to Pockthorpe)

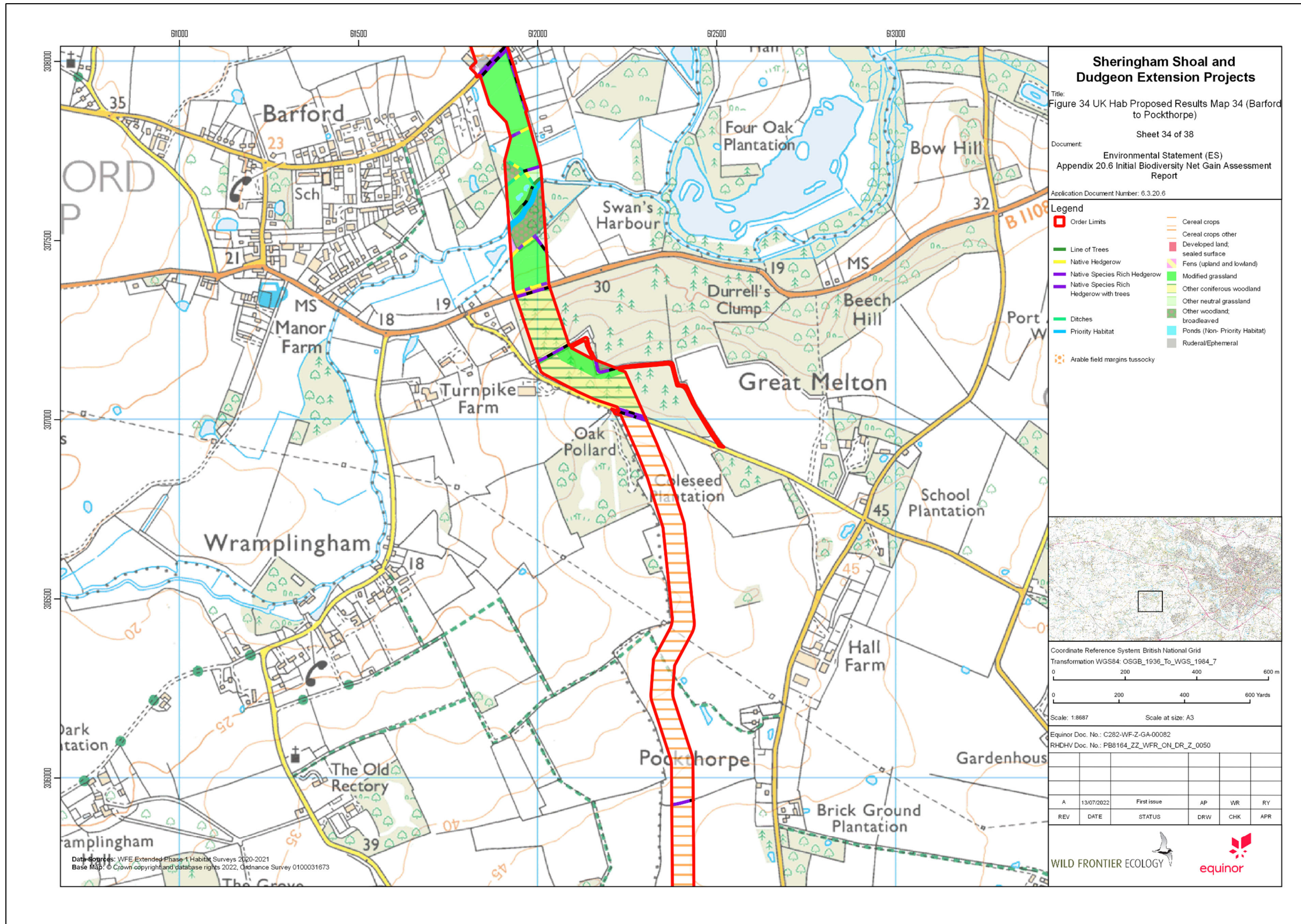


Figure 35: UK Hab Baseline Results Map 35 (Pockthorpe to Ketteringham)

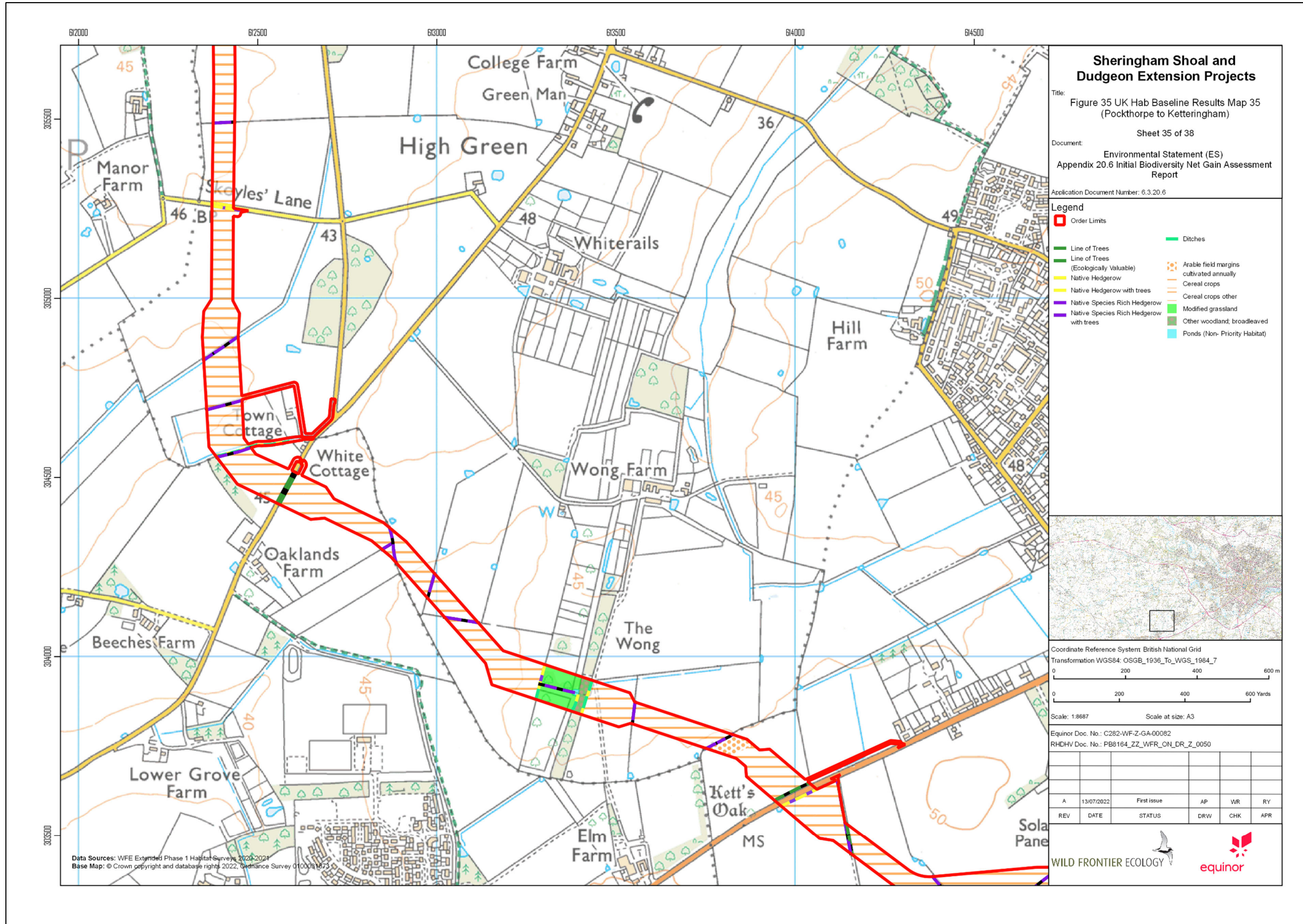


Figure 36: UK Hab Proposed Results Map 36 (Pockthorpe to Ketteringham)

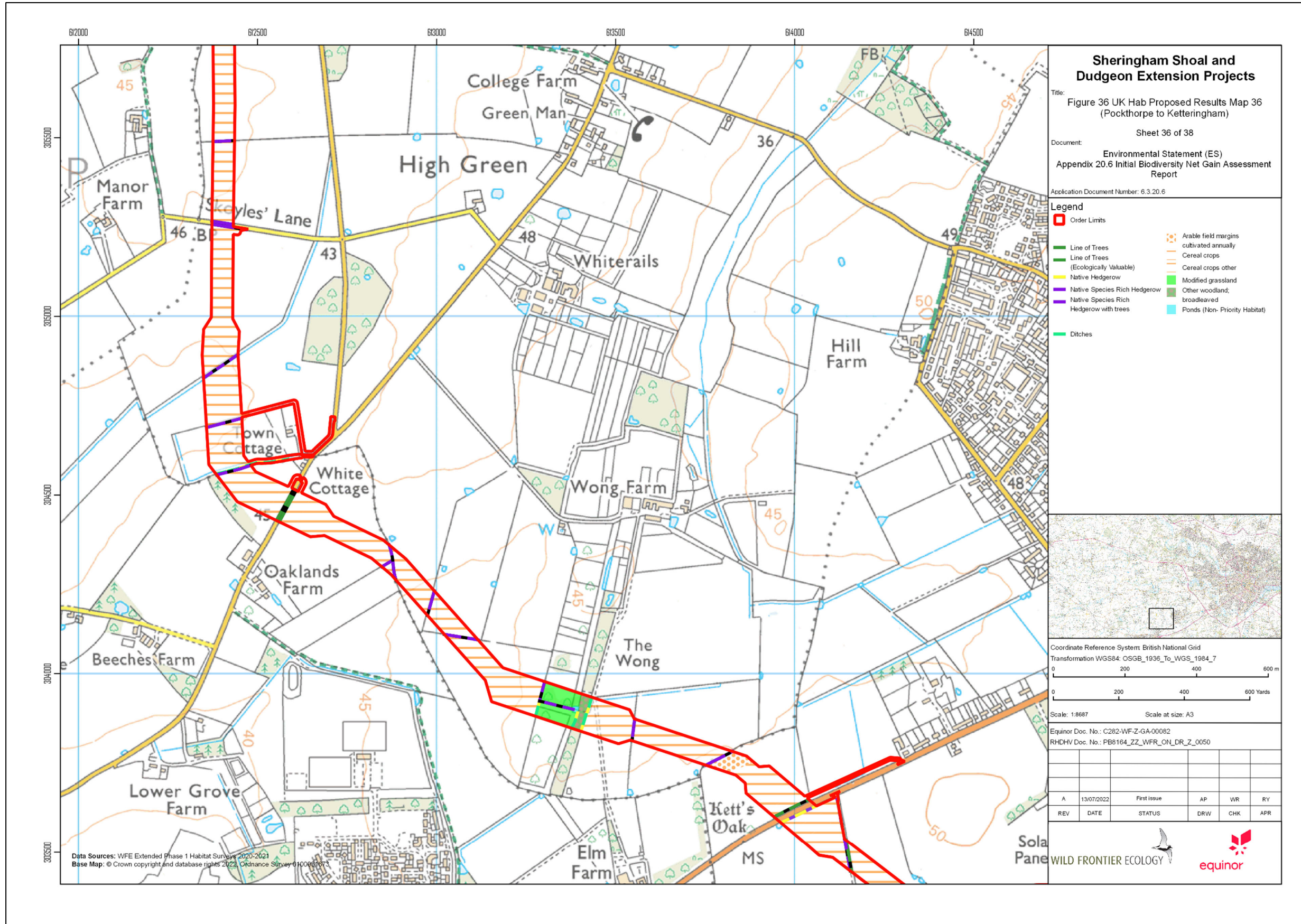


Figure 37: UK Hab Baseline Results Map 37 (Ketteringham)



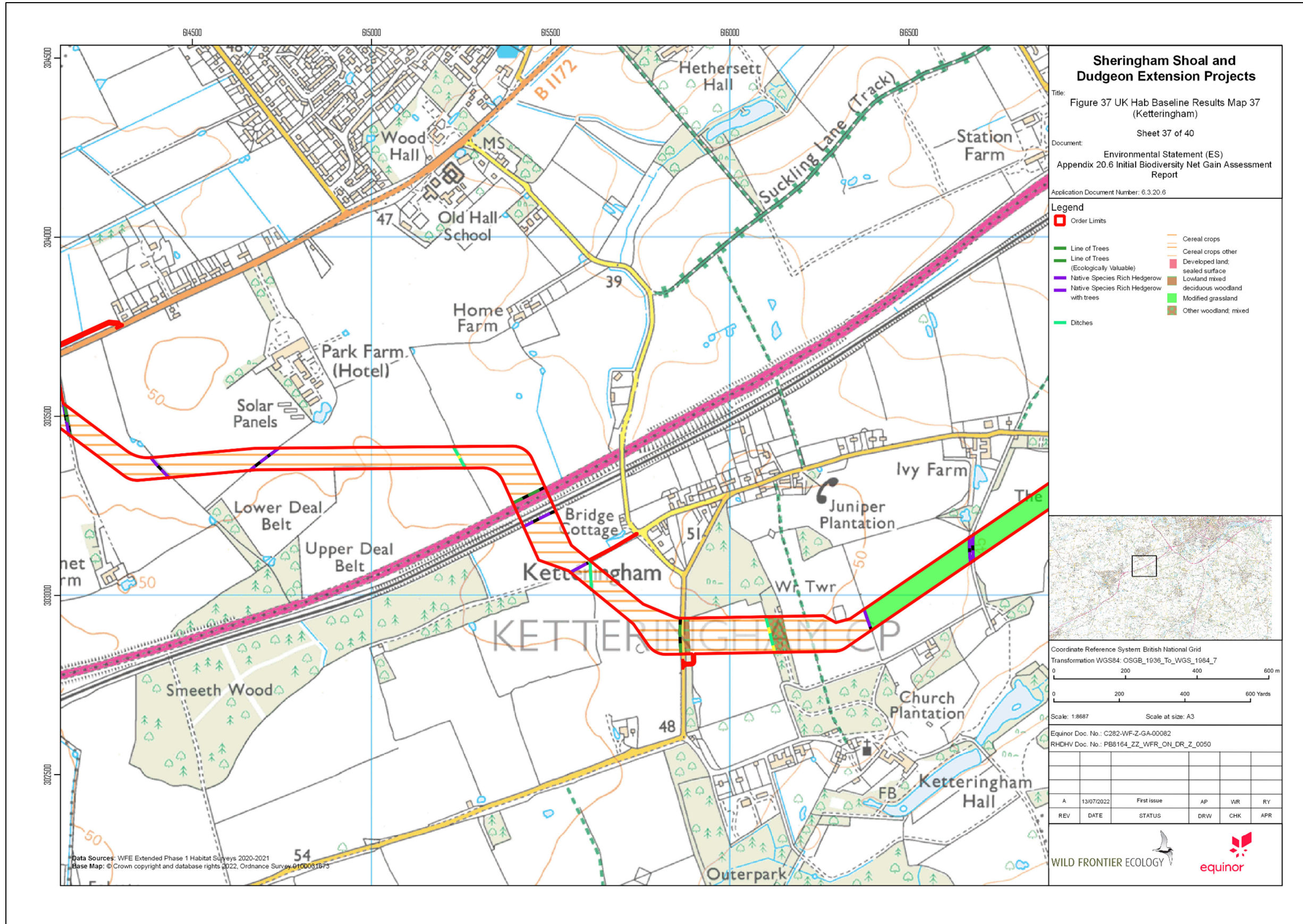


Figure 38: UK Hab Proposed Results Map 38 (Ketteringham)

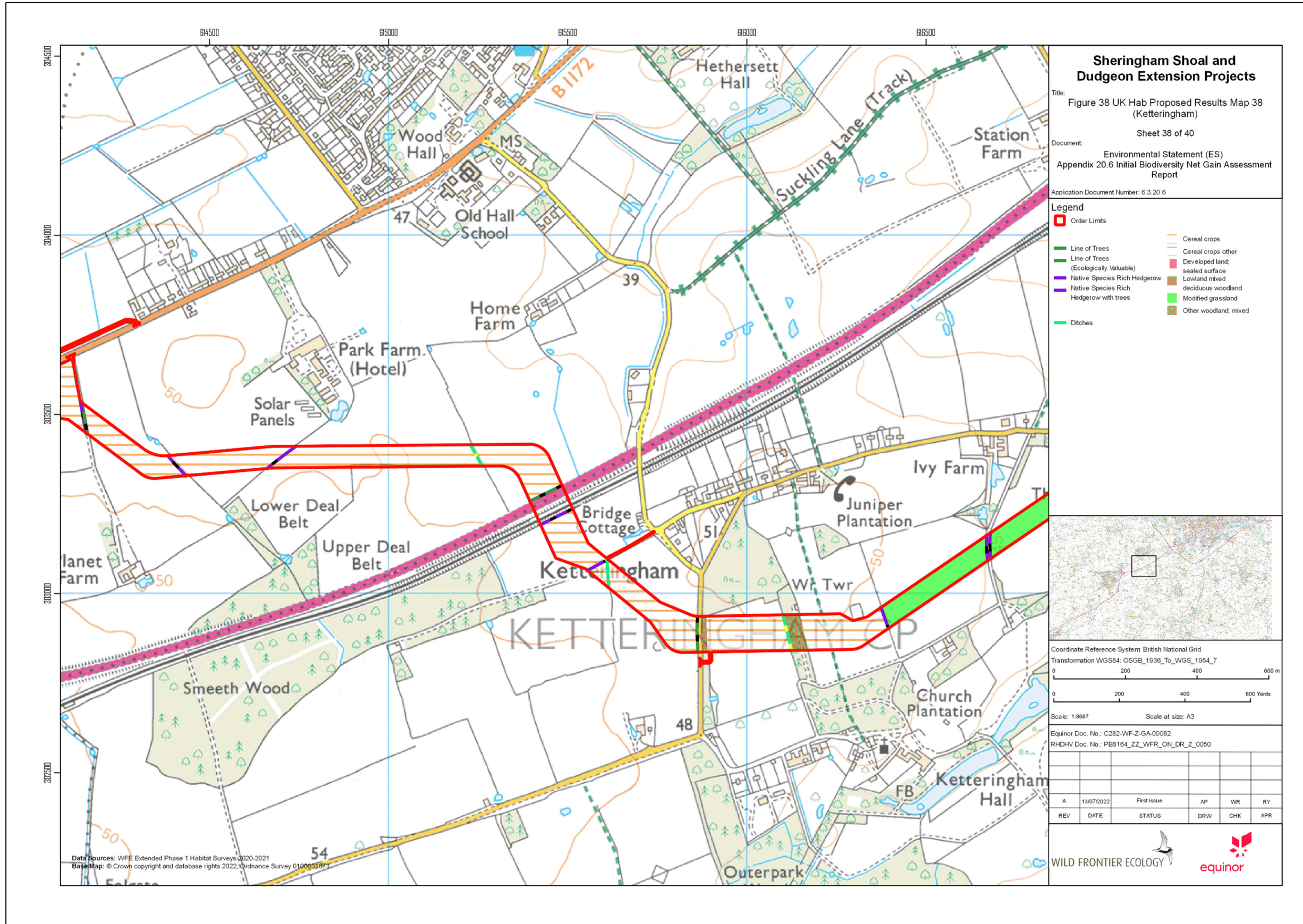


Figure 39: UK Hab Baseline Results Map 39 (Ketteringham to East Carleton)

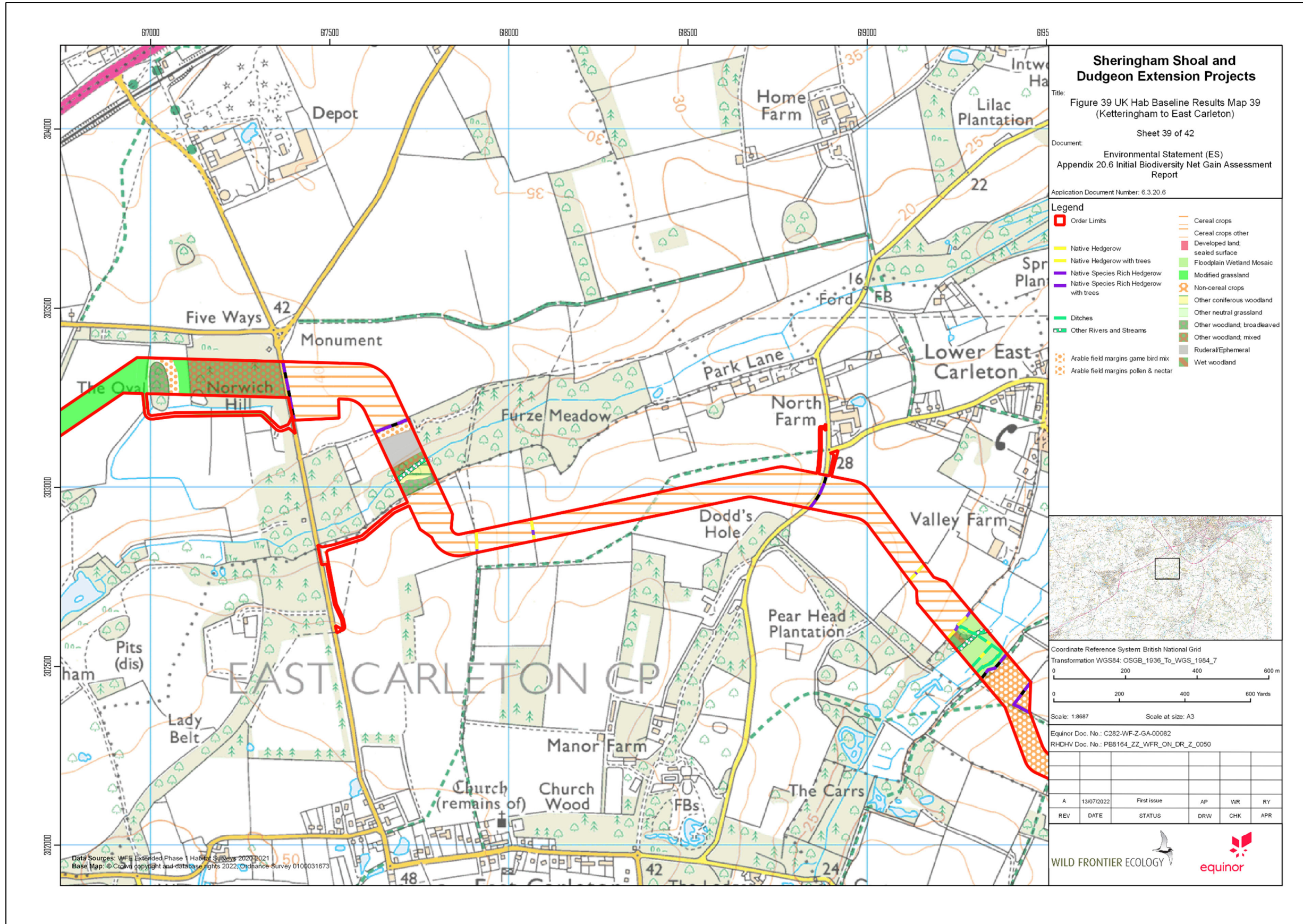


Figure 40: UK Hab Proposed Results Map 40 (Ketteringham to East Carleton)

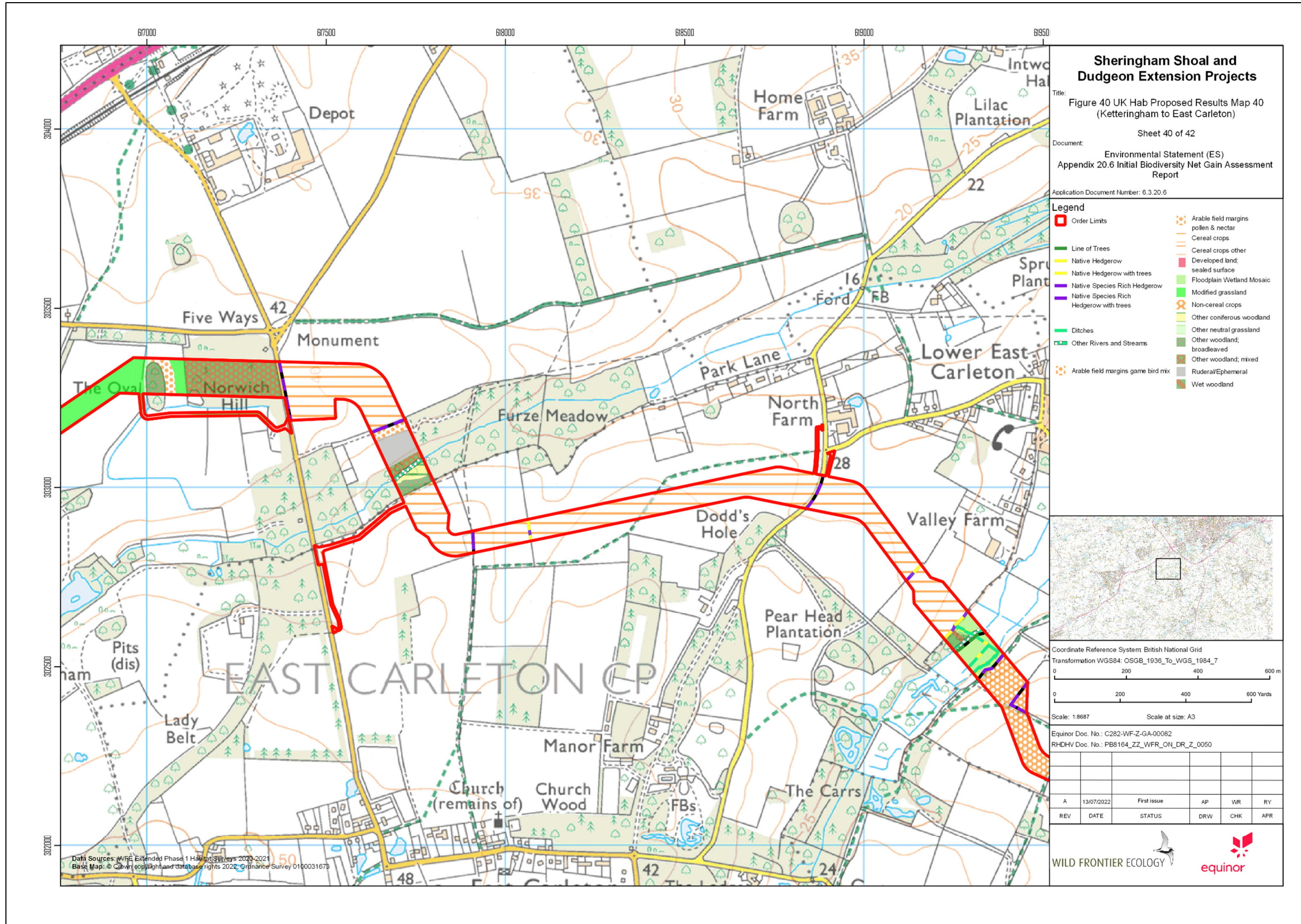


Figure 41: UK Hab Baseline Results Map 41 (Swardeston to Onshore Substation)

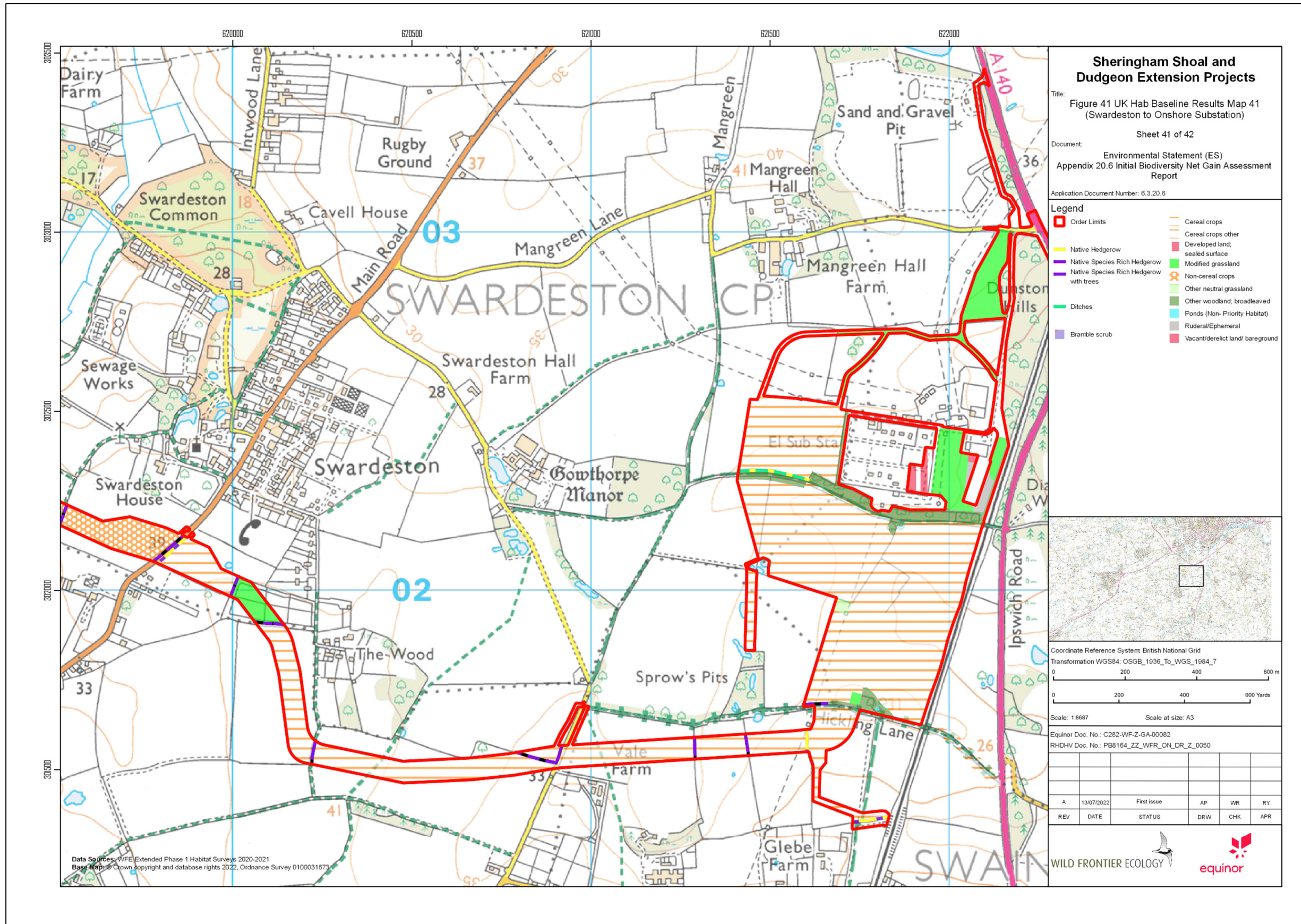
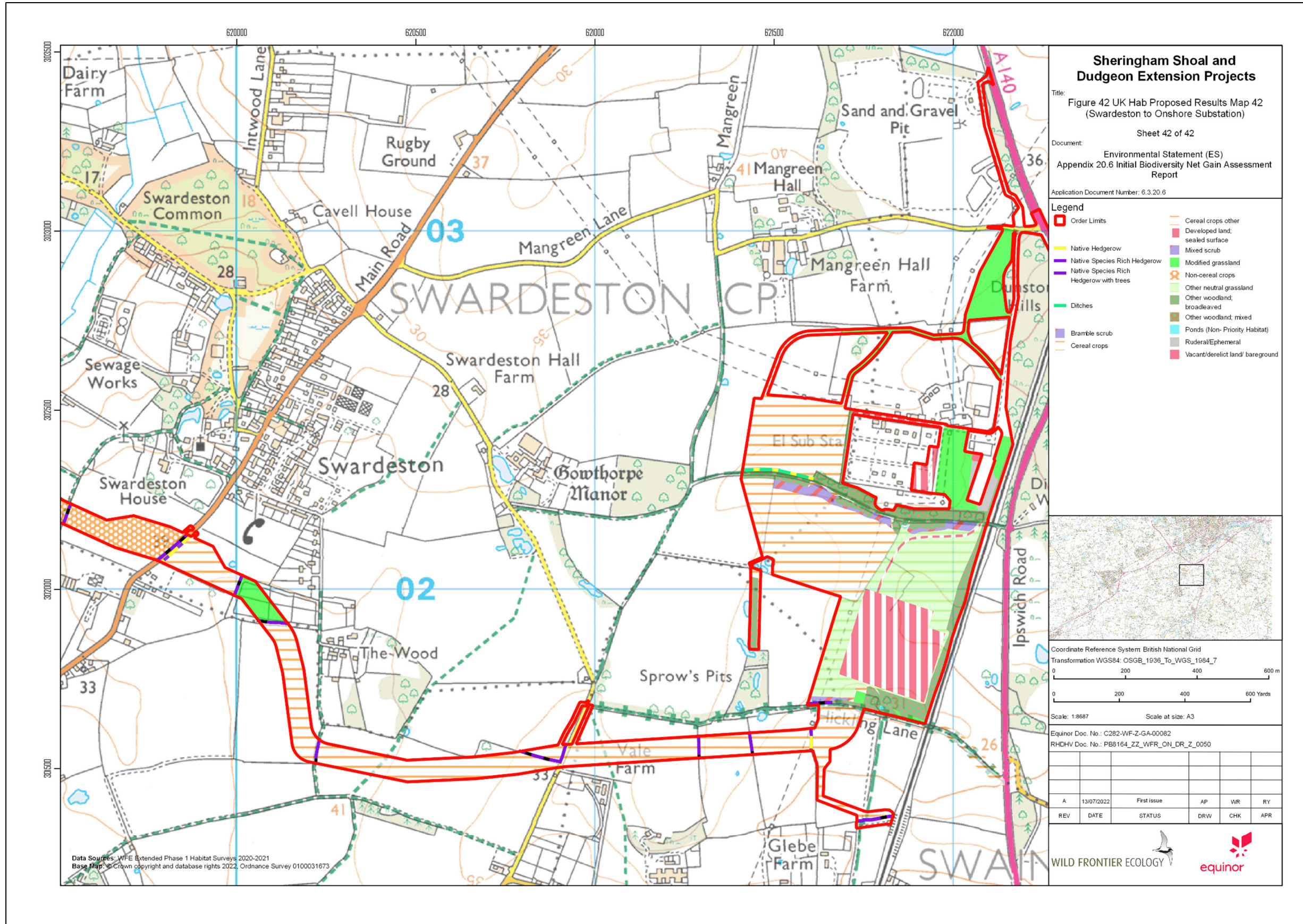


Figure 42: UK Hab Proposed Results Map 42 (Swardeston to Onshore Substation)



### 4.3 Constraints and Limitations of Assessment

The main constraint to the habitat survey relates to the limited landowner access; approximately 10% of the DCO boundary has not been surveyed because landowner access has not been agreed. This has meant habitat classifications of the inaccessible areas use Norfolk Living Maps data from NBIS, rather than detailed walkover surveys. The habitat classifications are quite broad in comparison to UK Hab categorisations. These areas do not have sufficient information to complete a BNG Assessment (as there is not enough information to categorise habitat distinctiveness and condition) and so have been omitted from the initial BNG assessment.

The vast majority of the habitat surveys took place during the optimal survey season between May and September in 2020. Small areas of the PEIR/DCO boundary were surveyed in March and April 2020, and in January and September 2021. These are acceptable times of year for completing EP1HS (as the survey can be done at any time of year), but January, March and April are outside the optimal season. This is not considered a significant constraint because most of the areas surveyed at those times were arable habitats or improved grasslands which can be accurately classified at the times of year they were surveyed. It is extremely unlikely that any habitats would have been misclassified; the surveys completed outside of the optimal survey window may, however, have recorded slightly reduced species diversity or different habitat conditions in certain habitats at the time the survey was completed.

The EP1HS (on which the UK Hab classifications are based) recorded habitats on accessible land parcels within the PEIR boundary, which was a former, mostly wider iteration of the DCO boundary. All features were therefore classified according to their total footprints within the PEIR boundary; for example, hedgerow classifications were based on all features of a hedgerow within the relevant area, but not on parts of the hedgerow outside the PEIR boundary at the time of the survey. As the PEIR boundary has subsequently been refined and become the DCO boundary, it is possible that some of these classifications are now not fully accurate. For example, the PEIR boundary may have covered a length of hedgerow where there were multiple trees and hedge gaps at one end of the hedge, meaning the hedgerow was classified as having trees and being defunct. Subsequent refinements to the PEIR boundary (i.e. when it became the narrower DCO boundary) could mean those sections of the hedgerow with gaps and trees are now outside the DCO boundary, leaving only an intact section without trees inside the DCO boundary. However, as the precise locations of gaps, trees and species-diversity/richness was not recorded during the EP1HS, hedgerow classifications cannot be retrospectively adjusted, meaning that in the example given the hedgerow would still be classified as defunct and with trees even though the section within the DCO boundary is intact with no trees. The same issue may apply for numerous other habitats such as grasslands and woodlands, where the overall classification assigned to an area applied to a wider area than is now relevant.

Some of the EP1HS surveys were undertaken prior to the requirement for a BNG Assessment being agreed, and the majority of surveys were undertaken prior to the release of the Defra Metric 3.0. This has meant that in some cases not all of the condition criteria were assessed in the field. In these cases, the condition assessment has been based on field notes, photos and the professional opinions of the pair of surveyors who completed the survey. It is considered unlikely that this will have significantly altered condition assessments for most habitats, especially given that the majority of the route consists of heavily altered habitats such as arable land. Condition assessments will also be constrained for those habitats which were surveyed outside of the optimal season. Again, this is less relevant for habitats which are heavily modified, or those not requiring condition assessment (such as cropland or some urban habitats).

#### 4.4. Further Survey Requirements and Expiry Dates

Typically, EP1HS results should be considered valid for planning/DCO purposes for at least one year. However, given the extent of the DCO boundary and logistical complexities in organising surveys (particularly arranging access with landowners), it has taken roughly 18 months to survey the 90% of the parts of the DCO boundary which have been accessible. Therefore, the one-year expiry limit cannot be reasonably applied to this project. It is relevant to note that the majority of the DCO boundary overlaps arable habitat. The data on these sections is arguably valid for much longer than one year given this habitat is very unlikely to change year on year. Data on non-arable habitats is perhaps more likely to change in time, albeit the majority of habitat classifications relevant to the DCO boundary (improved grasslands, poor semi-improved grasslands and conifer plantation woodlands) are extremely unlikely to vary over the course of a few years.



## 5. CONCLUSIONS

The Initial Biodiversity Net Gain Assessment has identified minor net losses to Habitat Units and River Units, with minor net gains to Hedgerow Units. This has been based upon a ‘realistic worst-case scenario’ approach, and it is considered likely that a final assessment will be more favourable once impacts have been further refined. There are widespread opportunities for enhancement of habitats throughout the DCO boundary, although many of these will require agreement with landowners. Where relevant, these opportunities have been highlighted, and include improved management of retained habitats to improve condition and replacing removed habitats with higher distinctiveness (such as creation of other neutral grassland in place of removed modified grassland). Where some of these opportunities are taken and where impacts are further refined, it is considered feasible for the project to achieve a positive Biodiversity Net Gain.

The Initial Biodiversity Net Gain Assessment also shows that the majority of high value habitats (both high distinctiveness habitats and those in good condition) will be avoided through the adoption of trenchless techniques, i.e. HDD. This includes all major watercourses, most woodlands and high-quality grasslands. This has significantly reduced impacts to biodiversity across the DCO boundary.