

**Tillbridge Solar Project
EN010142**

**Volume 6
Environmental Statement**
Appendix 9-3: Baseline Report for Flora (including hedgerows)
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Executive Summary

- ES-1. In July 2022, AECOM (on behalf of Tillbridge Solar Limited) undertook a Preliminary Ecological Appraisal (PEA) for the proposed Tillbridge Solar Project (hereafter referred to as the Scheme). This PEA identified the need for a Phase 2 botanical surveys, including National Vegetation Classification (NVC) survey of grasslands, hedgerow and arable flora surveys.
- ES-2. Part 1 of the Wildlife and Countryside Act 1981 (as amended) affords specific protection to flora (including arable flora) listed on Schedule 8 (flora, fungi and lichens).
- ES-3. Section 41 of the NERC Act (NERC Act S41) includes a list of habitats and plant species of principal importance for nature conservation in England which is to be used by decisionmakers to guide the implementation of their duties under Section 40 of the Act. This S41 list includes hedgerows and arable field margins. Decision-makers are required to have regard to the conservation of biodiversity in England when carrying out their normal functions; consideration of the S41 list is integral to this.
- ES-4. The Hedgerow Regulations 1997 prevent the removal of most countryside hedgerows without first submitting a hedgerow removal notice to the local planning authority. This is not required if the removal is part of a planning application, but consideration and application of the Regulations can still be beneficial for the purposes of consistent assessment.
- ES-5. Surveys for the Scheme were undertaken in 2023, at appropriate times of year for survey.
- ES-6. Based on the evaluation of the grassland surveyed against the criteria provided further on in this report, these grasslands range from local to county nature conservation importance and includes acid grassland and calcareous grassland.
- ES-7. All accessible arable fields in the Principal Site were surveyed for important arable plants, recording lists of scarce arable plant species for each field surveyed. These surveys identified arable field margins of up to local nature conservation importance.
- ES-8. Hedgerow surveys were carried out in accordance with the relevant methods described in the Hedgerows Regulations. The survey of each hedgerow for 'importance' were assessed against the Wildlife and Landscape Criteria, detailed in the Hedgerow Regulations (1997). Forty hedgerows fulfilled the criteria for 'Important' under the Regulations and are of county nature conservation importance.

1. Introduction

1.1 Background

1.1.1 This report forms a technical appendix to the Environmental Statement (ES) [EN010142/APP/6.1], specifically to accompany **Chapter 9: Ecology and Nature Conservation** of this ES [EN010142/APP/6.1]. This report provides information on the value of surveyed habitats, the locations of protected or notable arable flora and on the importance of hedgerows, relevant to the Tillbridge Solar Project, hereafter referred to as the Scheme, including the results of field surveys undertaken within the Order limits.

1.2 Site Description

1.2.1 The Scheme is located approximately 5 kilometres (km) to the east of Gainsborough, Lincolnshire and approximately 13km to the north of Lincoln. The Scheme comprises two distinct parcels, which are:

- a. 'the Principal Site', which is the location where ground mounted solar PV panels, electrical sub-stations, and BESS will be installed; and
- b. 'the Cable Route Corridor', which will comprise the underground electrical infrastructure required to connect the Principal Site to National Grid Cottam Substation.

1.2.2 The Principal Site is located within the administrative district of West Lindsey. The Cable Route Corridor tracks south of the Principal Site, to the east of Willingham by Stow before tracking west towards the River Trent and to the south of Gate Burton. The Cable Route Corridor crosses into Nottinghamshire (within the administrative district of Bassetlaw) before connecting to the Cottam Power Station.

1.2.3 This report recognises that whilst the Scheme is based in the administrative county of Lincolnshire, key aspects of biodiversity are coordinated and managed within the geography of Greater Lincolnshire, for example the Nature Strategy for the Greater Lincolnshire Nature Partnership.

1.2.4 The Order limits covers an area of approximately 1,670 hectares (ha) and is dominated by arable fields (minimum 80% of the Order limits). There are numerous mature trees and hedges within the Order limits, with woodlands and small wooded copses. It is surrounded by mainly arable and improved grassland livestock fields.

1.2.5 The location of the Scheme is presented in Figure 9-3-1, included in Appendix A of this survey report.

1.3 Aims and objectives

1.3.1 The aim of this report is to determine the value of grassland habitats, locations of protected or notable arable flora and on the locations of important hedgerows, including those that are species-rich, within the Order limits.

1.3.2 The objectives, therefore, are to:

- a. review existing ecological data to identify any records of protected or notable flora within the Study Area; and
- b. identify the value of grassland habitats, presence of protected or notable arable flora and important hedgerows within the Order limits.

1.3.3 Combined, this is being used to:

- a. determine the nature conservation value of the Order limits for grasslands, arable flora and hedgerows; and
- b. the potential impacts of the Scheme on grasslands, arable flora and hedgerows and any required mitigation.

2. Relevant Legislation, Policy and Guidance

2.1 Flora and Habitats

- 2.1.1 Part 1 of the Wildlife and Countryside Act 1981 (as amended) (the WCA) (Ref 1) affords specific protection to certain flora listed on Schedule 8 (flora, fungi and lichens) that are protected under Section 13 of the WCA (Ref 1). Section 13 protects plants from picking and sale of plants or parts of plants listed in Schedule 8, as follows:
- a. intentional picking, uprooting or destruction (Section 13, subsection 1a);
 - b. selling, offering for sale, possessing or transporting for the purpose of sale (live or dead, part or derivative) (Section 13, subsection 2a); and
 - c. advertising (any of these) for buying or selling (Section 13, subsection 2b).
- 2.1.2 In addition to the above legislation, 56 habitats (including arable field margins) and 151 vascular plant species are listed as being habitats or species of Principal Importance (HaPI / SPI) for conservation in England under Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 (Ref 2). These habitats and species are of material consideration during the planning process.
- 2.1.3 The NERC list (Ref 2) is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under Section 40 of the NERC Act (in this context, the Secretary of State). Under Section 40, every public authority (e.g. a local authority or local planning authority) must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity, including restoring or enhancing a population or a habitat.
- 2.1.4 The UK Biodiversity Action Plan (UKBAP) (Ref 3) was launched in 1994 and established a framework and criteria for identifying species (and habitat types) of conservation concern. From this list, action plans for Priority Species of conservation concern were published and have subsequently been succeeded by the UK Post-2010 Biodiversity Framework (July 2012) (Ref 4), which is relevant in the context of Section 40 of the NERC Act. These habitats and species are identified as those of conservation concern, due to their rarity or a declining population trend.

2.2 Hedgerows

- 2.2.1 A hedgerow is defined by Defra (Ref 5) as: *“any boundary, line of trees or shrubs over 20m long and less than 5m wide, provided that at one time the trees or shrubs were more or less continuous. It includes an earth bank or wall only where such a feature occurs in association with a line of trees or shrubs.”*
- 2.2.2 The Hedgerow Regulations 1997 (the Regulations) (Ref 5) were introduced in England and Wales in 1997 in order to protect this characteristic element of the countryside.

- 2.2.3 The Regulations prevent the removal of most countryside hedgerows without first submitting a hedgerow removal notice to the local planning authority. This is not required if the removal is part of a planning application, but consideration and application of the Regulations can still be beneficial for the purposes of consistent assessment.
- 2.2.4 Under the Regulations, criteria are established that are to be used by the local planning authority to determine which hedgerows are 'Important'. The criteria relate to the value of the hedgerows from an archaeological, historical, wildlife or landscape perspective and are listed in Part II of the Regulations. Within this assessment, all identified hedgerows were assessed against the wildlife and landscape criteria of the Regulations. Hedgerows were also assessed under the archaeological and historical criteria of the Regulations and details of these are presented in **Chapter 8: Cultural Heritage** of this ES [EN010142/APP/6.1].
- 2.2.5 The Regulations (Ref 5) provide a series of comprehensive assessments to identify 'Important' hedgerows. Note that a hedgerow is not protected if it's in, or marks the boundary of, a private garden. To qualify as 'Important' under the wildlife and landscape criteria of the Regulations, the hedgerow must comply with the following list of criteria:
- a. it must have a continuous length of or exceeding 20m;
 - b. has a continuous length of less than 20m, but meets another hedgerow (by intersection or junction) at each end; and
 - c. it must be more than 30 years old.
- 2.2.6 In addition to the above criteria, to be deemed 'Important', a hedgerow must meet one or more of the following criteria (see also Annex A):
- a. the hedgerow contains a species of bird, animal or plant listed on Part 1 of Schedule 1, Schedule 5 or Schedule 8 within the WCA 1981 (as amended) (Ref 1);
 - b. the hedgerow is adjacent to a public right of way (PRoW), such as a bridleway, footpath, road used by a public path, or a byway open to all traffic, and contains at least four woody species (as defined in Schedule 3 of the Regulations, on average, in a 30m length, plus at least two Associated Features within Part II Criteria;
 - c. the hedgerow includes one or more of the following:
 - i. at least seven woody species, on average, in a 30m length;
 - ii. at least six woody species, on average, in a 30m length, plus at least three Associated Features within Part II Criteria;
 - iii. at least six woody species including a Black Poplar *Populus nigra* subsp. *betulifolia*; Large-leaved lime *Tilia platyphyllos*, Small-leaved lime *Tilia cordata* or Wild Service Tree *Sorbus torminalis*) or
 - iv. at least five woody species, on average, in a 30m length and at least four Associated Features within Part II Criteria.

2.3 Local Biodiversity Action Plan

- 2.3.1 The Scheme is located within the counties of Lincolnshire and Nottinghamshire. Formerly, the Lincolnshire Biodiversity Action Plan (3rd edition) (Lincolnshire BAP) (Ref 6) provided context to inform identification of threatened or uncommon species of local relevance, alongside priorities for conservation and enhancement targeted at a local level in Lincolnshire. However, under the Environment Act 2021 (Ref 7), these are being replaced by Local Nature Recovery Strategies (LNRs), which are a system of spatial strategies for nature which will support delivery of biodiversity net gain (BNG) and provide more focussed action for nature recovery. Whilst this is still being developed for Lincolnshire and with no specific habitat or species plans currently in place, this report references the Lincolnshire BAP although there are no specific action plans for terrestrial flora species in Lincolnshire (Ref 4). However, action plans are produced for arable field margins and hedgerows.
- 2.3.2 In Lincolnshire, the action plan for arable field margins included the following listed species:
- a. Night-flowering Catchfly *Silene noctiflora*;
 - b. Round and Sharp-leaved Fluellen *Kickxia spuria* and *K. elatine*;
 - c. Venus Looking-glass *Legouisa hybrida*;
 - d. Dwarf Spurge *Euphorbia exigua*; and
 - e. Small Toadflax *Chaenorhinum minus*.
- 2.3.3 Furthermore, the Lincolnshire BAP (Ref 6) listed the following threats to arable field margins in the county:
- a. spray drift of pesticides into the field-edge environment;
 - b. lack of cultivation;
 - c. over-spreading of fertilisers into the field edge; and
 - d. silt deposition.
- 2.3.4 In addition, the Lincolnshire BAP (Ref 6) lists the following threats to hedgerows in the county:
- a. over-frequent, too severe and badly timed cutting;
 - b. abandonment, reflecting modern high labour costs and loss of traditional skills;
 - c. the loss of hedgerow trees through old age, neglect and removal;
 - d. hedgerow and root damage from ploughs, mechanical excavators, road improvements and the laying of service pipes;
 - e. non-agricultural development. Hedges are often removed in advance of a wide range of developments;
 - f. increased stocking rates particularly of sheep, leading to hedgerow damage and the need to fence fields;
 - g. contamination by pesticides and fertilisers; and

- h. introduction of non-native species/cultivars.
- 2.3.5 In Nottinghamshire, the action plan for arable field margins includes the following listed species:
- a. Shepherd's Needle *Scandix pecten-veneris*;
 - b. Cornflower *Centaurea cyanus*;
 - c. Hairy buttercup *Ranunculus sardous*;
 - d. Red Hemp Nettle *Galeopsis angustifolia*; and
 - e. Spreading Hedge Parsley *Torilis arvensis*.
- 2.3.6 The Nottinghamshire Biodiversity Action Plan (Nottinghamshire BAP) (Ref 8) lists the following threats to arable field biodiversity in the county:
- a. crop density and timing of planting;
 - b. reduction in mixed farming (arable / grassland);
 - c. lack of field margins adequate to support birds, mammals and insects
 - d. land drainage; and
 - e. use of herbicides and insecticides.
- 2.3.7 Furthermore, the Nottinghamshire BAP (Ref 8) lists the following threats to permanent grassland in the county:
- a. early grass cutting;
 - b. over and under-grazing;
 - c. lack of infrastructure support for stock farming; and
 - d. modern worming treatments.
- 2.3.8 In addition, the Nottinghamshire BAP (Ref 8) lists the following threats to hedgerows in the county:
- a. loss and fragmentation due to intensified farming practices, residential and industrial development, road schemes, landfill and mineral extraction;
 - b. lack of management (laying and trimming);
 - c. unsympathetic, over management through modern methods;
 - d. managing too frequently;
 - e. management at the wrong time of the year;
 - f. cutting hedges all at once;
 - g. disturbance of leaf litter;
 - h. chemical pollution from spray and fertiliser drift, and pesticides.
 - i. cultivation right up to hedge base; and
 - j. automatic removal of dead wood from hedgerows.

3. Methods

3.1 Desk Study

- 3.1.1 A desk study was undertaken as part of the Preliminary Ecological Appraisal (PEA) in July 2022 (Ref 9). This desk study obtained records of the relevant Local Wildlife Sites and relevant flora (including lower plant species such as mosses, ferns and fungi) within the preceding ten years and within a 2km radius of the Order limits from Greater Lincolnshire Nature Partnership (GLNP) and Nottinghamshire Biological and Geological Records Centre (NBGRC).
- 3.1.2 Only species records up to ten years old were considered within the assessment, as any records older than ten years are unlikely to be still representative of plant communities in the local area.
- 3.1.3 A review of the Multi-Agency Geographic Information Centre (MAGIC) website (Ref 10) was also undertaken to identify the soil classification of the Order limits to understand the most appropriate substrate type for the purposes of data analysis.

3.2 Collaborative Dataset

- 3.2.1 As set out in **Chapter 3: Scheme Description** of the ES [EN010142/APP/6.1], the Scheme has worked collaboratively with Gate Burton Energy Park (Ref 11), Cottam Solar Project (Ref 12) and West Burton Solar Project (Ref 13) to minimise environmental impacts along the Cable Route Corridor by using a shared route, where practicable. As a result, a wealth of ecological information has been collected along this corridor. To minimise disturbance to wildlife and landowners, through repeated access by multiple schemes, where relevant, the Applicant has collaborated with the other proposed developments to 'share' data. Where this has been the case, it is clearly described in this report. In addition, the Applicant has undertaken surveys to ground truth these data, where relevant.

3.3 Field Survey

Survey Area

- 3.3.1 The Survey Area for arable flora surveys, comprised all arable margins within the Principal Site only. The Cable Route Corridor was not surveyed for arable flora as works within the Cable Route Corridor will be temporary (see section 3.5.2). The Survey Area for hedgerow surveys comprised all mature hedgerows within the Order limits, where access allowed. All areas of permanent or semi-permanent grassland within the Order limits were assessed during the Phase 1 Habitat survey and subsequent walkovers for their potential to support notable grassland communities. No areas within the Principal Site were identified for further survey due to likely prior disturbance or being recently-established habitats.

Arable Flora Survey

- 3.3.2 All suitable, accessible arable fields within the Order limits were assessed for their potential to support arable flora, with surveys for important arable plant species undertaken on 7, 8, 9 and 14 June 2023, within the optimal time of year for recording flora species. Given that the distribution of scarce arable plant species in the modern agricultural landscape is largely confined to arable field margins and similar areas of less intensive management, the survey involved walking field boundaries and comparable areas of marginal habitat only.
- 3.3.3 Lists of rare or scarce arable plant species were recorded for each field surveyed based on Criterion B of the Plantlife Important Arable Plant Areas (Ref 14). Criterion B for outstanding assemblages utilises the same methodology for identifying sites of County, National and European Importance. This is a scoring system that tallies the weighted individual score for each of the species present according to their rarity and decline across Britain. The basic listing of arable species is drawn from PLANTATT: Attributes of British and Irish Plants (Ref 15), which provides the most comprehensive listing of species characteristic of arable land currently available. The survey recorded arable plant species present, listed in the Great Britain (Ref 16) and England (Ref 17) Red Data Lists as Critically Endangered, Endangered, Vulnerable and Near Threatened, and those listed by Byfield & Wilson as locally, regionally or nationally scarce (Ref 18). As such, data were only collected for those fields where scarce flora was found.
- 3.3.4 The survey results were used to determine the relative notability and importance of any scarce arable plant assemblages present. Byfield and Wilson (Ref 18) set thresholds to support this and subsequent nature conservation evaluation. Thresholds have been defined based on the cumulative total of the weighted scores of species present at each discrete location (in this case per field location). The scoring system recognises that arable communities on a particular geological substrate may consistently score either more or less than equally valued communities on a different substrate.

Hedgerow Survey

- 3.3.5 Hedgerow surveys were carried out between June and September 2023 by experienced ecologists, in accordance with the wildlife and landscape criteria described in the Regulations and the methods within the Hedgerow Survey Handbook (Ref 19).
- 3.3.6 Each hedgerow was assigned a unique identifier number and the relevant hedgerows (*i.e.* those where impacts were identified) were surveyed and assessed against the wildlife and landscape criteria as explained in Section 2.2 of this report.
- 3.3.7 Any hedgerows that are not included within this report were scoped out of requiring any further assessment based on not meeting the criteria in paragraph 2.2.5 of this report (e.g. due to being <30 years old or exemption as a within or, on boundary of a dwelling).

- 3.3.8 Where the age of hedgerows was not known, a precautionary approach was taken based on professional judgement. All well-established mature hedgerows were assumed to be at least 30 years unless there was evidence or knowledge that would cast doubt on this.
- 3.3.9 Where non-native lookalikes (species and races of non-British origin) had been planted or had self-sown in hedgerows these were not recorded. An example is the non-native Southern Dogwood *Cornus sanguinea* subspecies *australis* which can be readily mistaken for native Dogwood *Cornus sanguinea* subspecies *sanguinea* and is widely planted and increasingly bird sown. Southern Dogwood is native to Eastern Europe and the Caucasus, so to include it in species totals for the purposes of applying the Regulations would undermine the process of identifying important hedgerows based on the diversity of native tree and shrub species present.
- 3.3.10 Whilst the primary aim of the survey work undertaken was to determine the presence and distribution of all 'Important' hedgerows, the survey data collected can also be used to evaluate hedgerows as being species-rich or species-poor.
- 3.3.11 Species-rich hedgerows are those that have an average of five or more woody species per 30m survey section. Therefore, all hedgerows that can be determined as 'Important' are by definition species-rich (but the converse is not true, species rich hedgerows are not automatically 'Important'). Species-poor hedgerows are those with an average of four or less woody species per 30m survey section. For these thresholds to be usable in practice, the results of the Hedgerow survey need to be rounded to the nearest whole number.
- 3.3.12 Each 30m sections were sampled in accordance with Schedule 1 Part II Wildlife and Landscape 7(3) of the Regulations (Ref 5):
- where the length of the hedgerow does not exceed 30m, count the number of woody species present in the hedgerow;
 - where the length of the hedgerow exceeds 30m, but does not exceed 100m, count the number of woody species present in the central stretch of 30m;
 - where the length of the hedgerow exceeds 100m, but does not exceed 200m, count the number of woody species present in the central stretch of 30m within each half of the hedgerow and divide the aggregate by two; or
 - where the length of the hedgerow exceeds 200m, count the number of woody species present in the central stretch of 30m within each third of the hedgerow and divide the aggregate by three.

Grassland NVC survey

- 3.3.13 The survey focused on grassland habitats at Upton Grange Road Verges Local Wildlife Site (LWS) and Willingham to Fillingham Road Verges LWS. This survey was undertaken to identify the species composition, current management of the LWS's and condition of habitats.
- 3.3.14 The surveys were undertaken by an experienced botanist on 6 September 2023. The National Vegetation Classification (NVC) survey was carried out

(where applicable) in accordance with the standard methodology as detailed for grasslands in Rodwell (Ref 24).

- 3.3.15 The NVC survey involved recording plant species present within a 4m x 4m quadrat (or 8m x 1m) (for tall and more open herb communities). In each discrete grassland type, between five or six randomly selected quadrats were recorded, depending on the extent and variability of the grassland. Each plant species in a quadrat was given a by eye estimate of cover using the Domin scale and bare ground was recorded where present.
- 3.3.16 The Domin scale describes the cover of a species in a vegetation community. The scale ranges from simple presence through 10 grades of linked cover-abundance measures as set out in Table 1.

Table 1. Domin Scale

Domin	Cover
10	91-100%
9	76-90%
8	51-75%
7	34-50%
6	26-33%
5	11-25%
4	4-10%
3	<4% (many individuals)
2	<4% (several individuals)
1	<4% (few individuals)

- 3.3.17 Other typical and/or noteworthy plant species in the wider grassland woodland, but not picked up in the quadrats was also recorded. Such species, even if rare within the ground flora, could be relevant for the classification of the associated NVC community. Each discrete grassland type was assigned, where applicable, to its relative NVC community using the keys and descriptions given in Rodwell. Botanical nomenclature in this report follows that of Stace (Ref 25) for vascular plants and Atherton *et al.* (Ref 23) for bryophytes. The scientific name is given only the first time the species is mentioned in the main text.
- 3.3.18 NVC survey is not appropriate where vegetation has a history of prior disturbance, as heavily-disturbed or recently-established habitats would be unlikely to align with any of the described NVC communities. Where this was the case based on professional judgement, notes were made on the species and abundance only, rather than an NVC survey.
- 3.3.19 The rarity of higher plants given is based on Stace (Ref 25), where;
- a. Uncommon – a species found in not more than 250 different 10 x 10km grid squares in the British Isles since 1987;

- b. Scarce - a species found in not more than 100 different 10 x 10km grid squares since 1987; and
 - c. Rare – a species found in not than 15 different 10 x 10km grid squares since 1987.
- 3.3.20 Red list threat status, protected species (Ref 1), priority species (Ref 2) and notable species as listed on the Vascular Plant Red List for England (Ref 17) and UK Biodiversity Action Plan (UKBAP) (Ref 26) are listed in the results.

Invasive Plant Species and Other Records of Protected or Notable plants

- 3.3.21 During the Phase 1 habitat survey (see **Chapter 9: Ecology and Nature Conservation** of the ES [EN010142/APP/6.1]) and surveys of habitats reported within this document, the Order limits were surveyed for the presence of invasive non-native plant species listed on Schedule 9 of the WCA (Ref 1) including Japanese Knotweed *Reynoutria japonica*, Giant Hogweed *Heracleum mantegazzianum* and Himalayan Balsam *Impatiens glandulifera*.

3.4 Biodiversity Importance

- 3.4.1 An essential prerequisite step to allow ecological impact assessment of the Proposed Development was an evaluation of the relative biodiversity importance of the Survey Area for flora. This is necessary to set the terms of reference for the subsequent ecological impact assessment.
- 3.4.2 The method of evaluation that was utilised has been developed with reference to the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines (Ref 20). This gives guidance on scoping and carrying out environmental assessments and places appraisal in the context of relevant policies and at a geographical scale at which feature matters (i.e. international, national, regional, county, district, local or site). Data received through desk study and field-based surveys were used to identify the importance of the species addressed in this report. Professional judgement was also applied, where necessary. Relevant published national and local guidance and criteria has been used, where available, to inform the assessment of biodiversity importance and to assist consistency in evaluation.
- 3.4.3 Habitats and their component plant species can be of biodiversity importance for a variety of reasons, and their relative importance should always be determined on a case-by-case basis. Importance may relate, for example, to the uniqueness of the assemblage, or to the extent to which species are threatened throughout their range, or to their rate of decline.
- 3.4.4 No criteria are available for the identification of flora assemblages of lower value/biodiversity importance than of County (see Table 2). Professional judgement has been applied to the Order limits, based on the nature of the species assemblage recorded. As such District importance assemblages have a species score between 10 and 14 or have the presence of a high scoring species (7+), and Local importance assemblages have a score between 1 and 9.

Table 2. Threshold scores for assessing the nature conservation importance of arable plant assemblages with reference to prevailing soil type (taken from Byfield and Wilson (Ref 18))

Geographic scale of nature conservation importance	Chalk and limestone derived free draining calcareous soils (excluding clay)	Clay and slowly impermeable soils (inc. calcareous)	Sand loams, shale and free-draining soils
European	45+	40+	45+
National	25-44	25-39	30-44
County	15-24	15-24	15-29

3.4.5 In the case of assessing the value of county important habitats such as hedgerows guidance in Local Wildlife Site Selection Criteria has been followed for Lincolnshire (Ref 21) and Nottinghamshire (Ref 22).

3.5 Assumptions and Limitations

Desk Study

3.5.1 The aim of a desk study was to help characterise the baseline context of the Scheme and provide valuable background information that would not be captured by site surveys alone. Information obtained during the course of a desk study was dependent upon people and organisations having made and submitted records for the area of interest. As such, a lack of records for a particular habitat or species does not necessarily mean that the habitats or species do not occur in the study area. Likewise, the presence of records for particular habitats and species did not automatically mean that these still occurred within the area of interest or were relevant in the context of the Scheme.

Field Survey

Survey areas and access

3.5.2 Whilst the Cable Route Corridor was surveyed for its broad habitat types, including the potential presence of notable habitats, no targeted surveys for arable flora were undertaken. Works within the Cable Route Corridor will be temporary, with habitats re-instated following the laying of the cable. As such, there would be no permanent impact to any arable flora presence and detailed surveys are not considered necessary.

3.5.3 Invasive plant species were recorded where present within the terrestrial habitats surveyed. It should be noted that a survey of aquatic invasive non-native species within the Order limits has not been undertaken in this report, incidental records of note have been included, but these species are included (where present) in the Aquatic Ecology Report (see **Appendix 9-2: Aquatic Ecology Baseline Report** of the ES [EN010142/APP/6.2])

Arable Flora

- 3.5.4 The surveys were undertaken in mid-June, which represents the optimum time for recording scarce arable flora. However, not all arable plant species and populations may be apparent or identifiable during this period.
- 3.5.5 Use of selective herbicides on crops observed throughout the year will have restricted the occurrence of scarce arable flora to areas unaffected by spray, such as field entrances/turning areas.
- 3.5.6 Not all crops are of equal value for scarce arable flora. Crops of the same type are not grown in the same fields year after year *i.e.* they are rotated on a regular cycle. Some crop types are more compatible than others with arable flora, depending upon the specific inputs required to maintain the crop (*e.g.* herbicides and fertilisers) and how closely the cultivation requirements of the crop matches the ecological requirements of the scarce flora present.

Hedgerow survey

- 3.5.7 It was not possible to determine the presence or absence of all potential notable or protected plant or animal species associated with the hedgerows (one of the criteria for assessing 'important' hedgerows). However, field data from other surveys (*e.g.* Barn Owl *Tyto alba* and Badger *Meles meles* survey), field signs during the hedgerow survey and desk study data were used to help inform this assessment.
- 3.5.8 Due to limited access and access restrictions including livestock in a field, restricting access for Health and Safety reasons, hedgerows 139, 162a, 162b, 250a, 378, 379, 384 385 and 386 were only surveyed from a distance. Using best professional judgement, hedgerows 139, 162b, 250a, 378, 384, 385 are included on Figure 9-3-2 as species-poor and intact hedgerows and hedgerows 162a, 373, 374, 375 and 379 and 386 have been included on Figure 9-3-2 as species-poor hedgerows with trees. However, they have been excluded from the results of this report as a full assessment could not be made.

Grassland NVC survey

- 3.5.9 The NVC surveys were undertaken at an appropriate time in early September and under suitable weather conditions for grassland survey. Some early season flowering species were unlikely to be evident. It should be noted that grassland survey results, and the description of communities types (where applicable), represent a current community evaluation at the time of survey (as opposed to one seeking to describe what the community was before any human interference, or what it might become in the future). This is only a snapshot of the vegetation communities present and should not be interpreted as a static long-term reference. A section of the east-west verge at Upton Grange Road Verges LWS had been cut prior to the survey so this was not surveyed. However, sufficient data was collected from other sections to assess this site.
- 3.5.10 These limitations did not significantly limit this flora report / assessment.

4. Results

4.1 Desk Study

- 4.1.1 The data search through NBGRC returned sixteen records of nine species of notable flora (*Ranunculus sardous*, *Spergula arvensis*, *Callitriche truncata*, *Groenlandia densa*, *Salix x calodendron*, *Dactylorhiza purpurella*, *Filago vulgaris*, *Chenopodium glaucum* and *Persicaria mitis*) recorded within 2km of the Order limits and within the preceding ten years. None of these were from within the Order limits. The closest record is approximately 170m from the Cable Route Corridor.
- 4.1.2 The data search, through GLNP, returned no records of notable flora from within 2km of the Order limits and within the last ten years. The closest record is approximately 3.8km from the Order limits.
- 4.1.3 The data search returned eight records of two invasive terrestrial plants, New Zealand Pigmyweed *Crassula helmsii* and Himalayan Balsam *Impatiens glandulifera* within 2km of the Order limits, none of which were recorded within Order limits. The closest record is approximately 40m south of the Cable Route Corridor.
- 4.1.4 A review of MAGIC (Ref 10) has identified that the soil classification of the Study Area comprises a mixture of Slowly permeable seasonally wet acid loamy and clayey soils (Soilscape Type 17), Naturally wet very acid sandy and loamy soils (Soilscape Type 15), Loamy and clayey floodplain soils with naturally high groundwater (Soilscape Type 20), and Loamy soils with naturally high groundwater (Soilscape Type 22). The most appropriate substrate type for the purposes of data analysis, as presented in Table 2, within the Order limits is therefore “Clays”. Whilst it is acknowledged there is some sand and freely draining acidic soil influence, using the Clay category takes the precautionary approach as it has a lower threshold value for nature conservation importance.

4.2 Collaborative Dataset

- 4.2.1 The collaborative datasets received for the Gate Burton Energy Park (Ref 11) and Cottam Solar Project (Ref 12) provided information on seventy-one hedgerows within the Cable Route Corridor. Hedgerows numbered 250 – 295 (see Figure 9-3-2) were received by Cottam Solar Project (Ref 16) and hedgerows numbered 297 – 369 (see Figure 9-3-2) were received by Gate Burton Energy Park (Ref 15).
- 4.2.2 From the information received on the seventy-one hedgerows, twenty-seven hedgerows were identified as species-rich and the remaining hedgerows were identified as species-poor.
- 4.2.3 Six hedgerows (250, 254, 256, 348, 364 and 366 (see Figure 9-3-2)) are classified as ‘Important’ in terms of wildlife and landscape criteria under the Hedgerow Regulations (Ref 5). Of these, four are within the Cable Route Corridor, one is approximately 20m outside of the Cable Route Corridor and one is on the boundary of the Principal Site.

4.3 Field Survey

Arable Flora

- 4.3.1 The margins of all arable fields within the Principal Site were subject to an initial walkover assessment for species of important arable plants. Five arable fields, marked as 121, 110, 75/76, 61b/62 and 85b as presented on Figure 9-3-1, were noted to contain instances of scarce arable flora in their margins. A summary of the results is presented in Table 3. All other fields within the Principal Site were either not in cultivation (e.g., improved grassland), or had no potential or visible arable plants, (e.g., sown field margins that are not included in the method), or sprayed margins.

Table 3. Arable Flora Results

Field Number (see Figure 9-3-1)	Soil type	Crop	Score and Geographic Importance	Species present with DAFOR* abundance rating and score
121	Clay	Oil seed rape (OSR)	Local	Small-flowered Crane's-bill <i>Geranium pusillum</i> (O) – Score 2
110	Clay	Wheat	Local	Common Poppy <i>Papaver rhoeas</i> ® – Score 1
75 / 76	Clay	Wheat	Local	Many-seeded Goosefoot <i>Lipandra polyspermum</i> (O) – Score 2
61b / 62	Clay	OSR	Local	Bur Chervil <i>Anthriscus caucalis</i> (O) – Score 3
85b	Clay	OSR	Local	Bur Chervil <i>Anthriscus caucalis</i> (O) – Score 3

- 4.3.2 No other notable arable flora was recorded on the Principal Site.

Hedgerows

- 4.3.3 The majority of hedgerows across the Order limits are species-poor, comprising mostly Common Hawthorn *Crataegus monogyna* and Blackthorn *Prunus spinosa*. Several contain standard trees, including mature, veteran or ancient Oak *Quercus robur*, Ash *Fraxinus excelsior* and occasional Field Maple *Acer campestre*.
- 4.3.4 Out of the 163 hedgerows surveyed within the Principal Site, 21 hedgerows were recorded to be species rich (see Table 4 and Figure 9-3-2), of which, 13 are also classed as 'Important' (12b, 75, 83a, 85a, 85b, 89c, 102, 117, 127, 133, 134, 144 and 163) under the wildlife and landscape criteria of the Hedgerow Regulations (Ref 5). A further four hedgerows were also identified as being 'Important', and species poor (105, 124, 162 and 169b). In total 17

hedgerows are classified as 'Important' within the Principal Site (see Table 4 and Figure 9-3-2).

- 4.3.5 Out of the 64 hedgerows surveyed within the Cable Route Corridor, 12 hedgerows were recorded to be species rich (see Table 4 and Figure 9-3-2), of which, 9 are also classed as 'Important' (172, 181, 182, 197, 203, 204, 205, 227 and 232). A further eight hedgerows were also identified as being 'Important', and species poor (176, 178, 190, 196, 199, 201, 233 and 241). In total, 17 hedgerows are 'Important' within the Cable Corridor (see Table 4 and Figure 9-3-2).
- 4.3.6 A total of 33 hedgerows are species rich and 34 hedgerows are 'Important' within the Order limits (see Table 4 and Figure 9-3-2)
- 4.3.7 A summary of the hedgerow survey results is presented in Table 4. Summary of Hedgerow Field Survey Results Full results are presented in Annex B with the locations of hedgerows presented in Figure 9-3-2.

Table 4. Summary of Hedgerow Field Survey Results

Location (see Figure 9-3-2)	Species rich hedges	'Important' under wildlife and landscape criteria
Principal Site	12b, 17, 60, 75, 83, 83a, 85a, 85b, 89b, 89c, 102, 117, 118, 127, 128, 133, 134, 141, 143, 144, 163 (Total 21)	12b, 75, 83a, 85a, 85b, 89c, 102, 105, 117, 124, 127, 133, 134, 144, 162, 163 and 169b (Total 17)
Cable Route Corridor	172, 181, 182, 197, 203, 204, 205, 219, 220, 222, 227 and 232 (Total 12)	172, 176, 178, 181, 182, 190, 196, 197, 199, 201, 203, 204, 205, 227 232, 233 and 241 (Total 17)
Total within Order limits	33	34

Grassland NVC survey

- 4.3.8 A summary of the results of the NVC flora survey is provided below with NVC community types and UK habitat classification. Full results are provided in Appendix D.

Upton Grange Road Verges LWS

- 4.3.9 This site comprises species rich neutral and calcareous grassland and is designated as a LWS (as presented in **Chapter 9: Ecology and Nature Conservation** of this ES [EN010142/APP/6,1]). The verges are cut annually in the late summer/early autumn and the arisings removed. It comprises east-west and north-south roadside verges between 1 and 10m wide with an area of approximately 3.1 hectares. Based on the LWS citation from 2009, a previous survey in 2008 recorded species-rich grassland with Meadow Barley *Hordeum secalinum* and Zig-zag Clover *Trifolium medium*, with Saw-wort *Serratula tinctoria* and Common Spotted Orchid *Dactylorhiza*

fuchsia present along the verge to the west of Heaton Wood in the south-east part of the LWS. None of these four species listed in 2008 were recorded during the field survey undertaken in 2023. Meadow Barley is a short-lived perennial and this is likely to have either disappeared or was of restricted occurrence in 2023, potentially within the cut area. Saw-wort and Common Spotted Orchid was of restricted occurrence previously and may have been out-competed by taller grasses.

- 4.3.10 Field surveys identified coarse, tall tussocky grasses are dominant with Tall Fescue *Festuca arundinacea*, Cock's-foot *Dactylis glomerata*, False Oat-grass *Arrhenatherum elatius* and Common Couch *Elymus repens*. Although native, strains of Tall Fescue are widely used in agriculture it is becoming invasive in roadside verges and other grasslands, due to its drought tolerance and resistance to predation, potentially reducing native grassland biodiversity. The first 1m of the LWS, near the road is mown/disturbed and dominated by Perennial Rye-grass *Lolium perenne*.
- 4.3.11 Other species present include species indicating mesotrophic grassland and a lack of improvement. These include Great Burnet *Sanguisorba officinalis*, Meadow Vetchling *Lathyrus pratensis*, Red Clover *Trifolium pratensis*, Common Sorrel *Rumex acetosa* and Tufted Vetch *Vicia cracca*. A few calcareous grassland indicator species are present, including Tor Grass *Brachypodium pinnatum* and Common Knapweed *Centaurea nigra* agg.
- 4.3.12 The vegetation does not fit well into NVC communities, reflecting disturbance alongside the road from vehicles and road /agricultural run-off. It has some affinities to MG1 *Arrhenatherum elatius* grassland, a species poor MG4 *Alopecurus pratensis*– *Sanguisorba officinalis* grassland and CG4 *Brachypodium pinnatum* grassland. In terms of UKHabs classification, it is best placed within g3a Lowland meadows priority habitat.

Willingham to Fillingham Road Verges LWS

- 4.3.13 This site comprises species rich neutral and calcareous grassland and is designated as a LWS (as presented in **Chapter 9: Ecology and Nature Conservation** of this ES [EN010142/APP/6,1]). It comprises a narrow east-west roadside verges on both sides of the road between 1 and 3m wide covering a length of approximately 1.75km. The 1m of verge closest to the road is cut frequently. No other management was noted, although the citation states the verges are flailed with cuttings left in late summer.
- 4.3.14 Based on the LWS citation from 2019, a previous survey in July 2018 recorded calcareous and neutral unimproved/semi-improved grassland with indicator species including Tor Grass, Yellow Oat-grass *Trisetum flavescens*, Meadow Fescue *Festuca pratensis*, Meadowsweet *Filipendula ulmaria*, Cowslip *Primula veris*, Great Burnet and Zig-zag Clover. Most of these species are still present, with Cowslip as an early flowering species which was unlikely to have been evident during the later season survey, although likely to still be present.
- 4.3.15 Field surveys identified coarse, tall tussocky grasses are dominant with Tor Grass, Meadow Fescue, Cock's-foot, False Oat-grass *Arrhenatherum elatius* and Common Couch *Elymus repens*. Other finer grasses are present with

Yellow Oat-grass, Red Fescue *Festuca rubra* agg. and Creeping Bent *Agrostis stolonifera*.

- 4.3.16 Other indicator species present associated with calcareous and mesotrophic grassland and a lack of improvement included Great Burnet, Common Knapweed, Meadow Vetchling, Red Clover, Meadow Buttercup *Ranunculus repens* and Tufted Vetch.
- 4.3.17 The vegetation does not fit well into NVC communities, reflecting disturbance alongside the road (as very narrow verges) from vehicles, road /agricultural run-off and influence of shading. It has affinities to CG4 *Brachypodium pinnatum* grassland, MG1 *Arrhenatherum elatius* grassland and a species poor MG4 *Alopecurus pratensis*– *Sanguisorba officinalis* grassland. In terms of UKHabs classification it is best placed within g3a Lowland meadows priority habitat.

Invasive Species

- 4.3.18 No evidence of invasive non-native plant species listed on Schedule 9 of the WCA (Ref 1) were identified during surveys.

5. Evaluation

5.1 Nature and Conservation Evaluation

5.1.1 An evaluation of the biodiversity importance of flora and habitats in relation to the Scheme is presented below.

Arable Flora

5.1.2 Five arable fields (121, 110, 75/76, 61b/62 and 85b) supported scarce arable plant species of Local importance based on established criteria. These assemblages enrich the habitat resource and are of value within the Local context (*i.e.* within 2km of the Order limits). All other arable fields are of less than Local importance (*i.e.* of Site importance) for important arable plant assemblages due to the absence of notable arable species.

Hedgerows

- 5.1.3 Out of the 227 hedgerows surveyed within the Order limits, 33 hedgerows were species rich of which 22 are also classed as 'Important' under the wildlife and landscape criteria of the Hedgerow Regulations. A further 12 hedgerows were also identified as being 'Important' and species poor.
- 5.1.4 The collaborative dataset received data for 71 hedgerows within the Order limits. Of which, six hedgerows are classified as 'Important'.
- 5.1.5 From the field survey and collaborative dataset a total of 40 hedgerows (12b, 75, 83a, 85a, 85b, 89c, 102, 105, 117, 124, 127, 133, 134, 144, 162, 163, 169b, 172, 176, 178, 181, 182, 190, 196, 197, 199, 201, 203, 204, 205, 227, 232, 233 and 241, 250, 254, 256, 348, 364, 366) within the Order Limits are classified as 'Important' in terms of landscape and wildlife criteria under the Hedgerow Regulations (Ref 5).
- 5.1.6 All of the other hedgerows surveyed are of Local importance and are examples of the Priority Habitat under S41 of the NERC Act (Ref 2), which encompasses all predominantly (greater than 80%) native hedgerows regardless of their "importance" or species-richness. Together the hedgerows within and adjacent to the Order limits form a network that helps link other wooded habitats in the surrounding landscape. Each hedgerow contributes to an ecological network of greater biodiversity importance than its individual component hedgerows. Regardless of their importance under the Hedgerow Regulations (Ref 5), they are only likely to be of greater than district importance if they are an integral part of valuable ecological networks or are critical for the survival of populations of flora or fauna that are themselves of above district value.
- 5.1.7 It is considered that the hedgerow network present within the Order limits, is likely to be of up to County importance. As Local Wildlife Site Criteria does not specifically cover selection criteria for hedgerows, (Ref 23), this evaluation takes into account their classification as a Priority Habitat, the high number of hedges covering a large area of landscape, the hedgerow species composition, richness and associated features (*e.g.* the presence of mature trees and protected species within these hedgerows, *e.g.* including

potential bat roosts and Barn Owl presence), and recognises their intrinsic biodiversity value, and their value as movement and feeding corridors for wildlife.

Grassland

- 5.1.8 The main purpose of the survey was to assess the species composition, current management and condition of the LWS's and not determine their importance. There is no reason to change the importance of these sites as inferred by their designation as LWS's, therefore both Upton Grange Road Verges LWS and Willingham to Fillingham Road Verges LWS are assessed as being of County importance. They are evaluated in **Chapter 9: Ecology and Nature Conservation** of the ES [EN010142/APP/6.1]

Invasive Species

- 5.1.9 No evidence of invasive non-native plant species listed on Schedule 9 of the WCA (Ref 1) were identified during surveys.

6. References

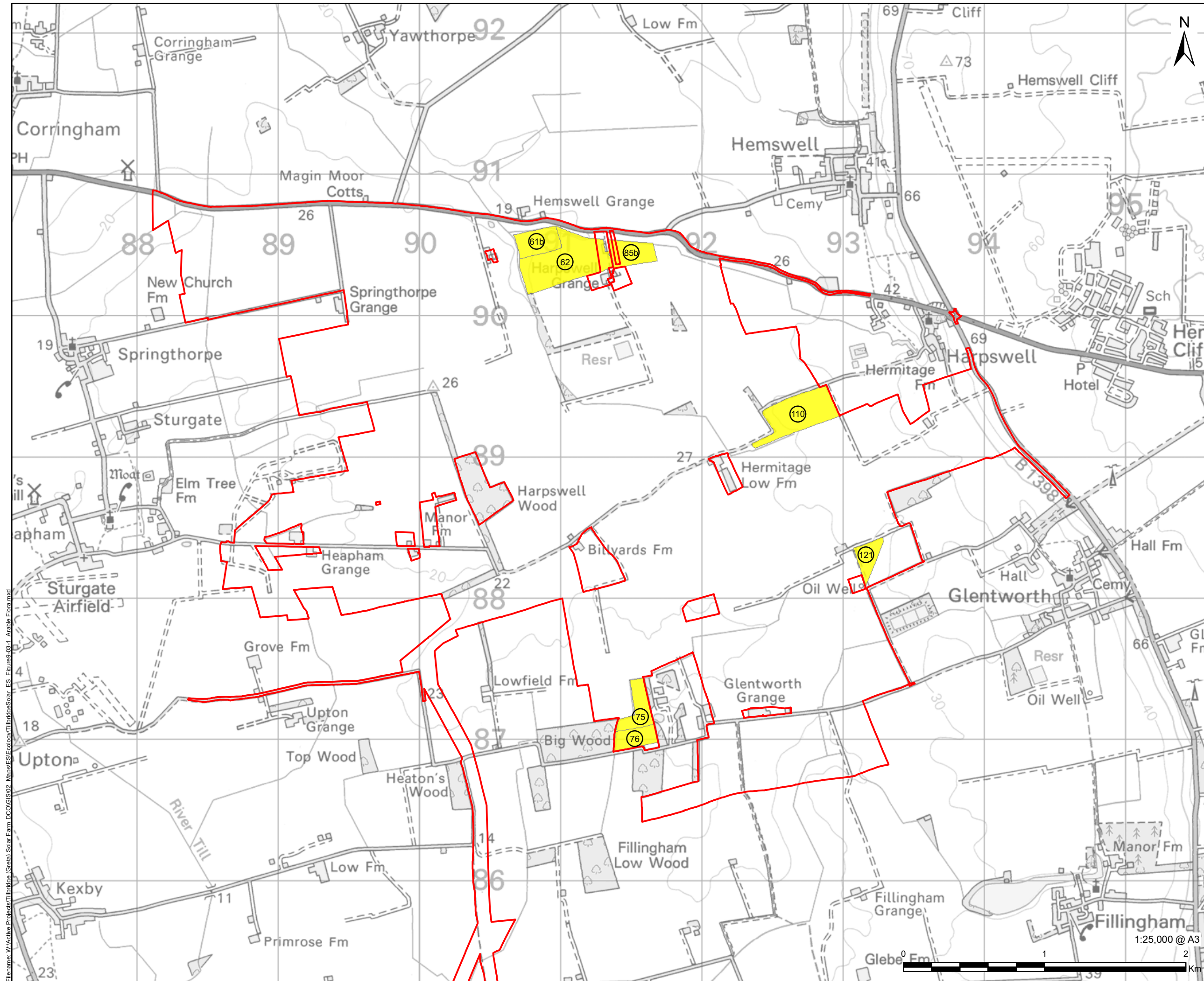
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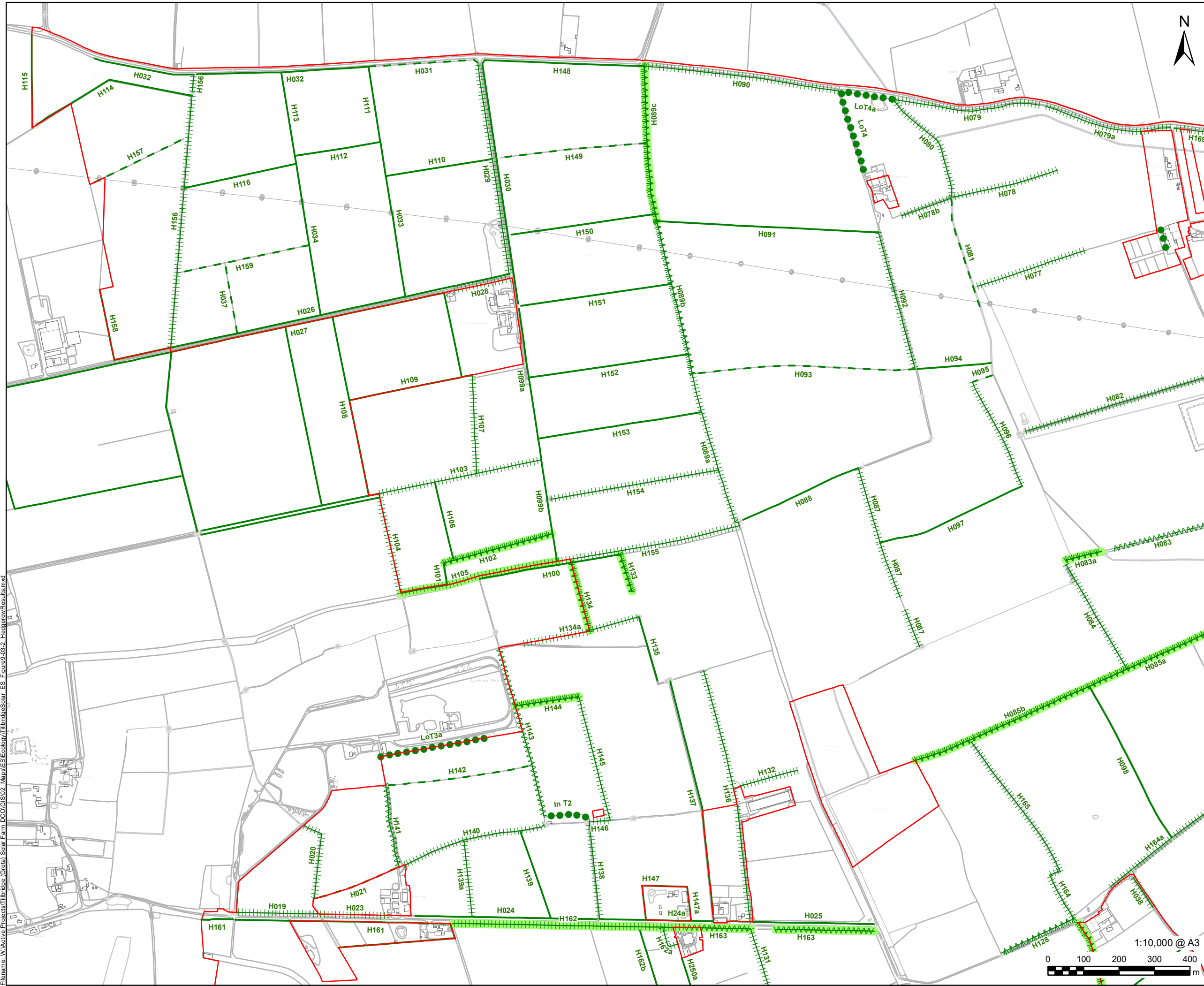
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Appendix A Figures

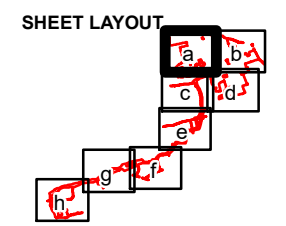
Figure 9-3-1: Arable flora survey results

Figure 9-3-2: Hedgerow survey results





- LEGEND**
- Order Limits
 - Phase 1 Habitat**
 - Broadleaved Parkland/Scattered Tree Line
 - Intact Hedge - Native Species-Rich
 - Intact Hedge - Species-Poor
 - Defunct Hedge - Native Species-Rich
 - Defunct Hedge - Species-Poor
 - Hedge with Trees - Native Species-Rich
 - Hedge with Trees - Species-Poor
 - Ecologically Important Hedgerows



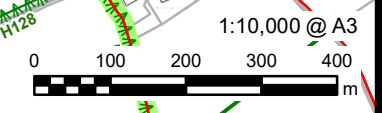
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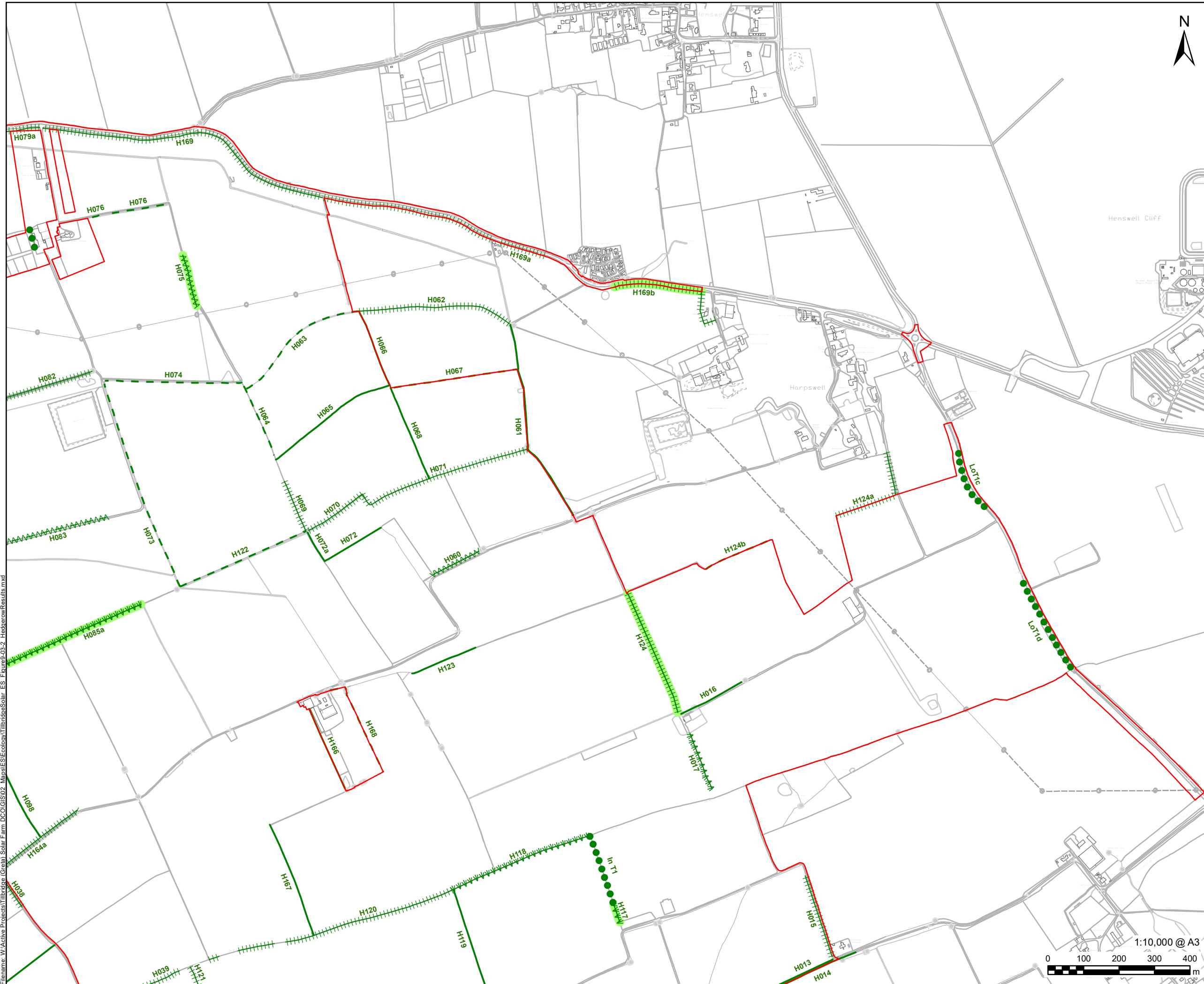
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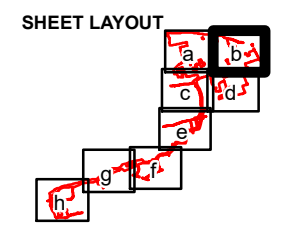
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- LEGEND**
- Order Limits
 - Phase 1 Habitat**
 - Broadleaved Parkland/Scattered Tree Line
 - ||||| Intact Hedge - Native Species-Rich
 - Intact Hedge - Species-Poor
 - - - Defunct Hedge - Native Species-Rich
 - - - Defunct Hedge - Species-Poor
 - ||||| Hedge with Trees - Native Species-Rich
 - ||||| Hedge with Trees - Species-Poor
 - Ecologically Important Hedgerows



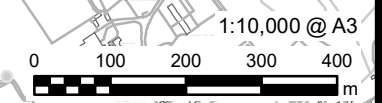
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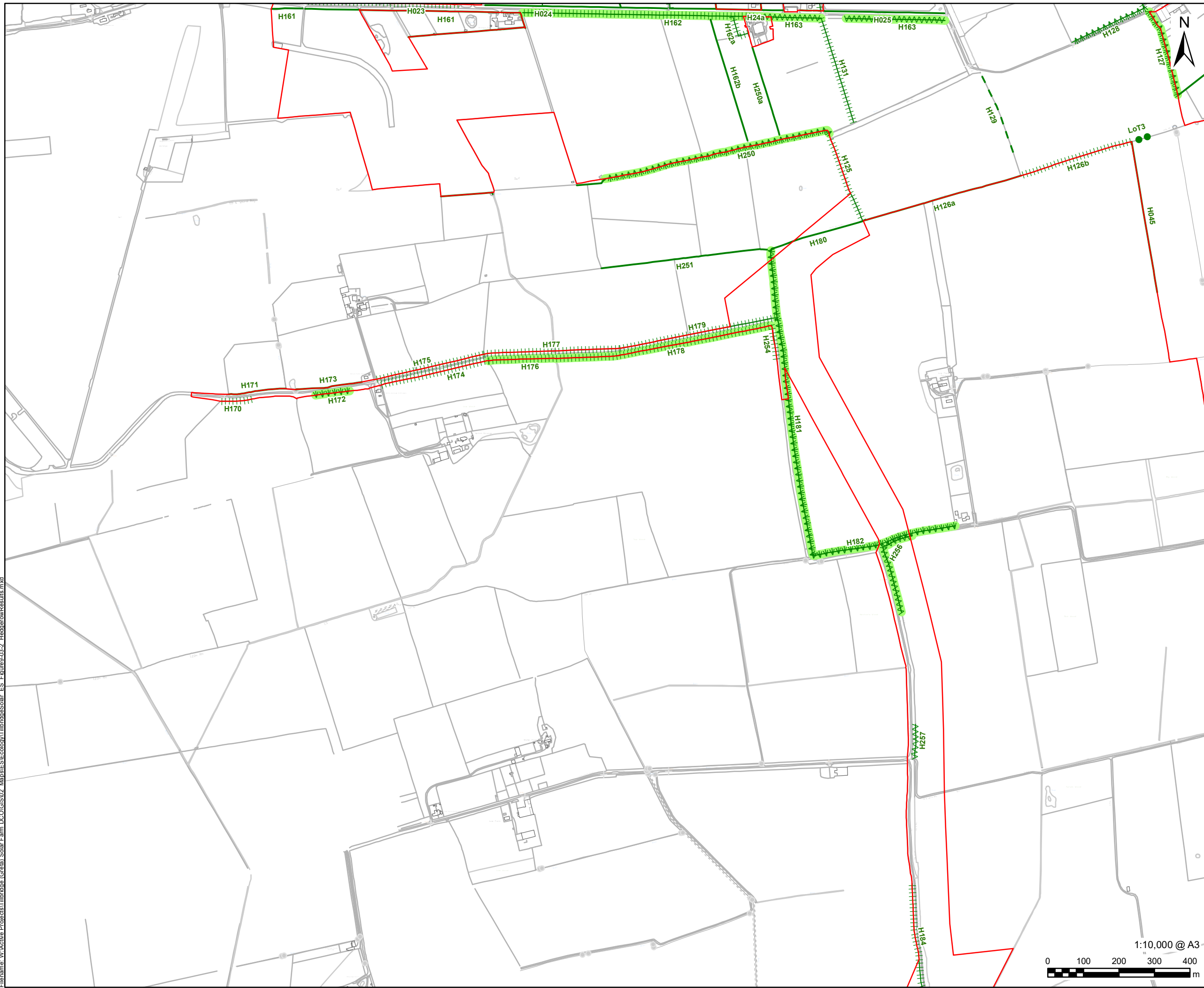
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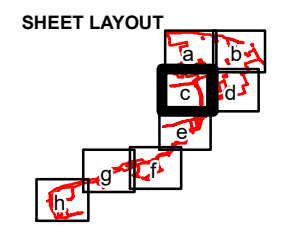
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- LEGEND**
- Order Limits
 - Phase 1 Habitat**
 - Broadleaved Parkland/Scattered Tree Line
 - ~ Intact Hedge - Native Species-Rich
 - Intact Hedge - Species-Poor
 - - - Defunct Hedge - Species-Poor
 - ~ Hedge with Trees - Native Species-Rich
 - ||||| Hedge with Trees - Species-Poor
 - Ecologically Important Hedgerows



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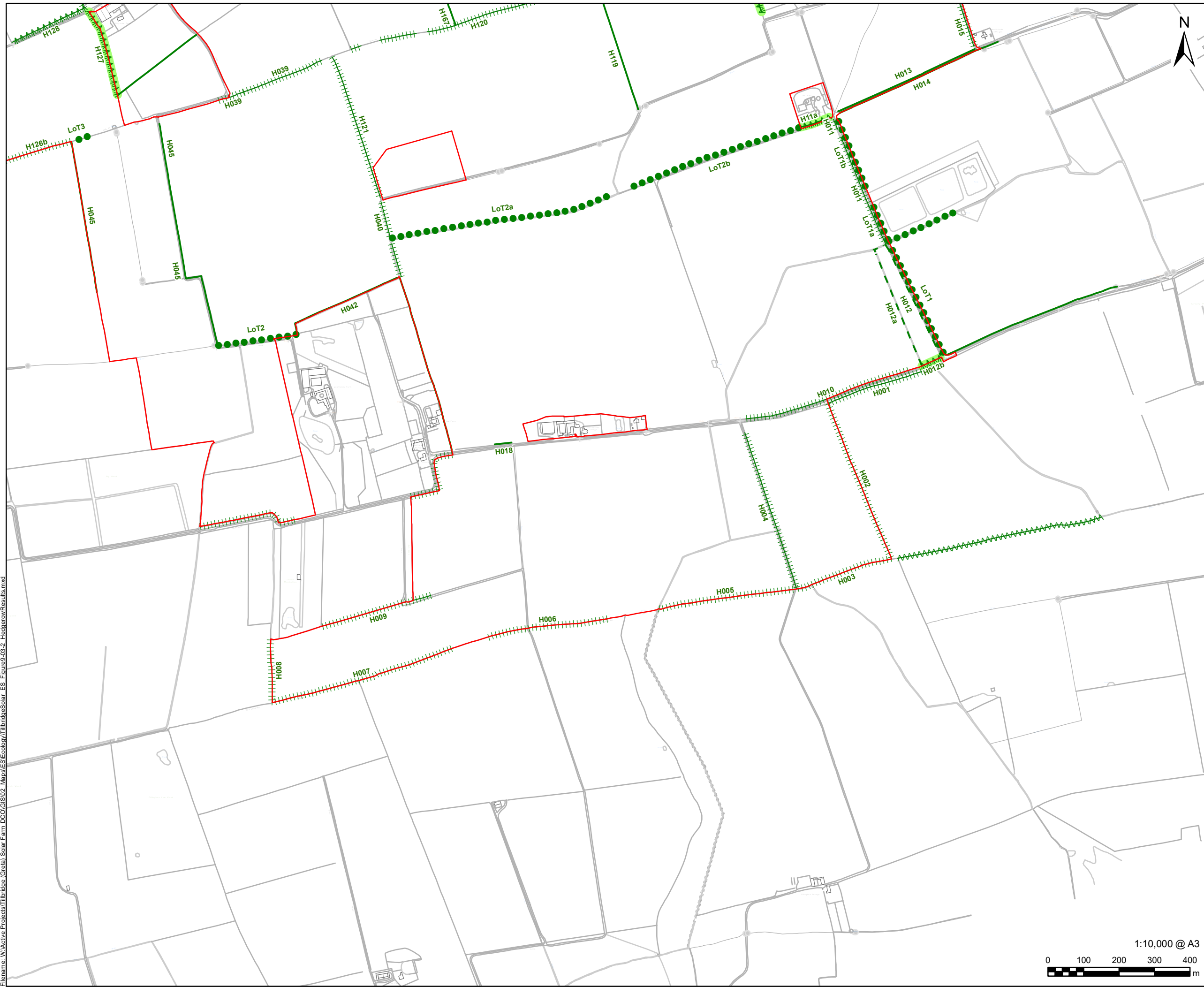
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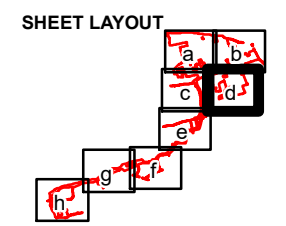
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- LEGEND**
- Order Limits
 - Phase 1 Habitat**
 - Broadleaved Parkland/Scattered Tree Line
 - ~ Intact Hedge - Native Species-Rich
 - Intact Hedge - Species-Poor
 - - - Defunct Hedge - Species-Poor
 - ~ Hedge with Trees - Native Species-Rich
 - + + + + Hedge with Trees - Species-Poor
 - Ecologically Important Hedgerows



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PROJECT NUMBER
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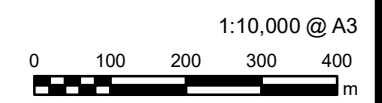
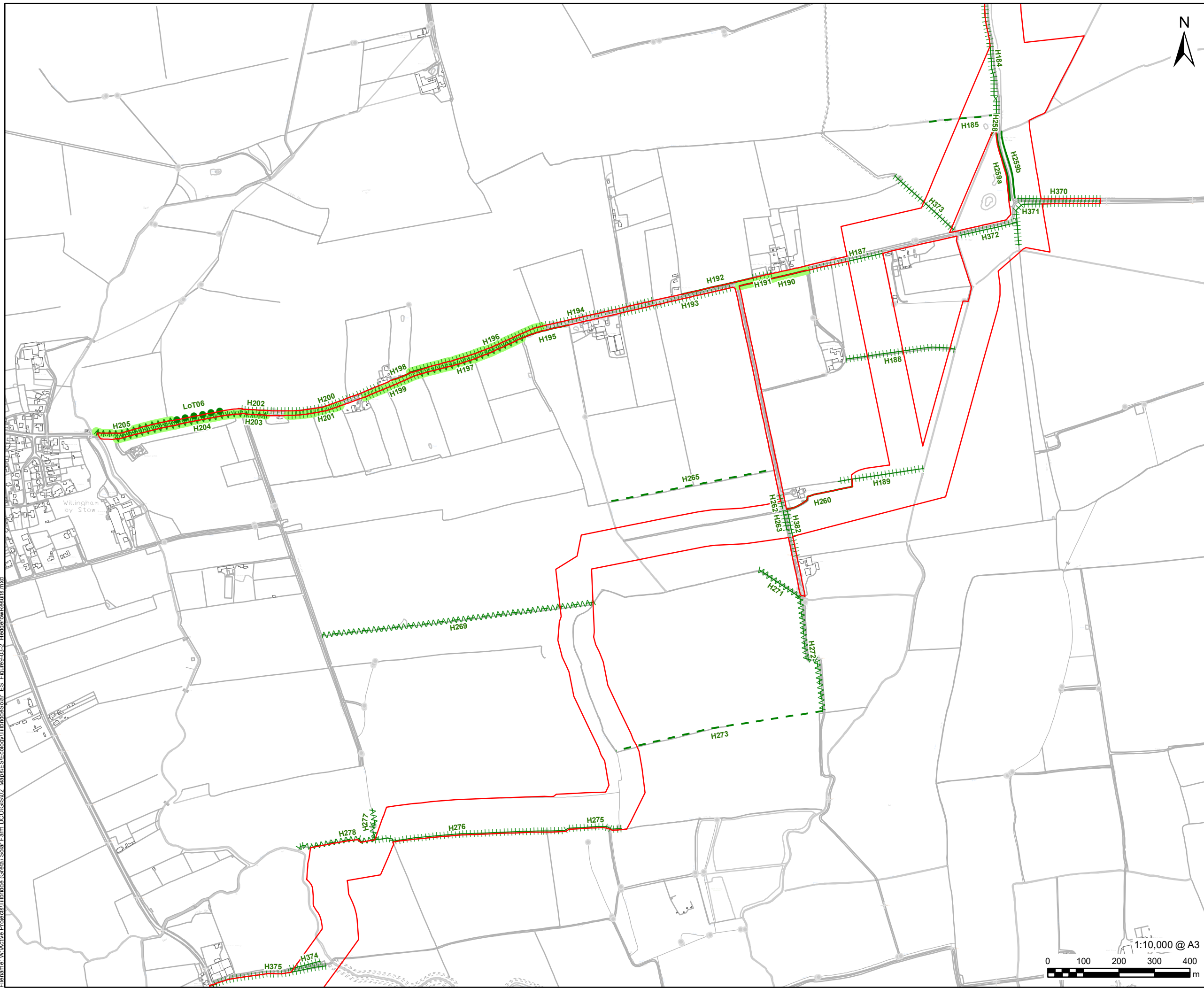
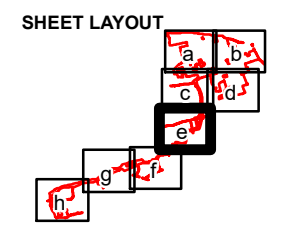


FIGURE NUMBER
Figure 9-3-2d

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- LEGEND**
- Order Limits
 - Phase 1 Habitat**
 - Broadleaved Parkland/Scattered Tree Line
 - ~ Intact Hedge - Native Species-Rich
 - Intact Hedge - Species-Poor
 - - - Defunct Hedge - Native Species-Rich
 - - - Defunct Hedge - Species-Poor
 - ~ Hedge with Trees - Native Species-Rich
 - + + + + Hedge with Trees - Species-Poor
 - Ecologically Important Hedgerows



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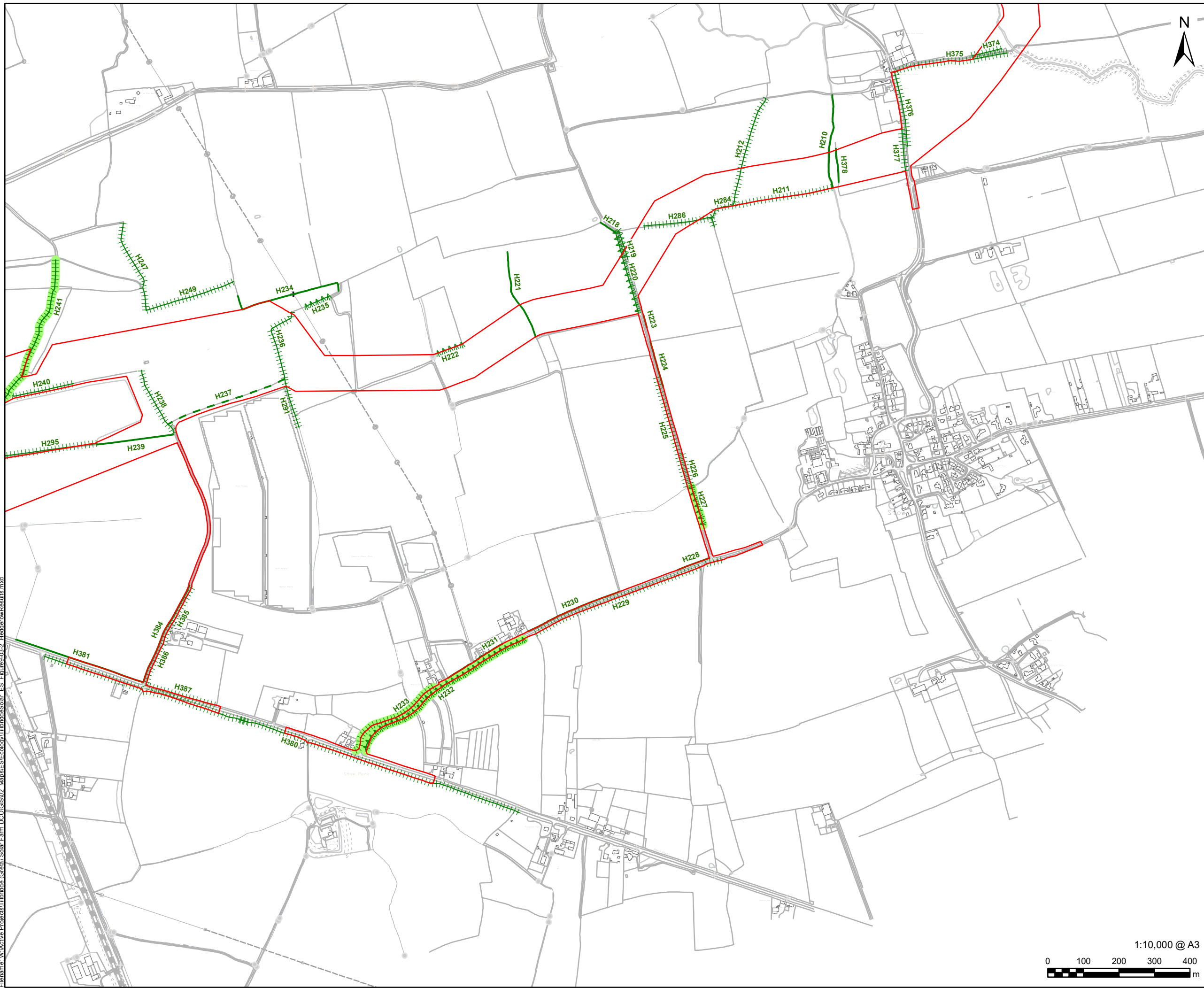
PROJECT NUMBER
60677969

FIGURE TITLE
Hedgerow Survey Results

FIGURE NUMBER
Figure 9-3-2e

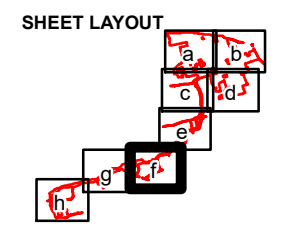


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LEGEND

	Order Limits
	Phase 1 Habitat
	Intact Hedge - Native Species-Rich
	Intact Hedge - Species-Poor
	Defunct Hedge - Species-Poor
	Hedge with Trees - Native Species-Rich
	Hedge with Trees - Species-Poor
	Ecologically Important Hedgerows



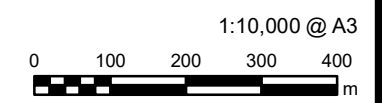
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ISSUE PURPOSE
DCO Submission

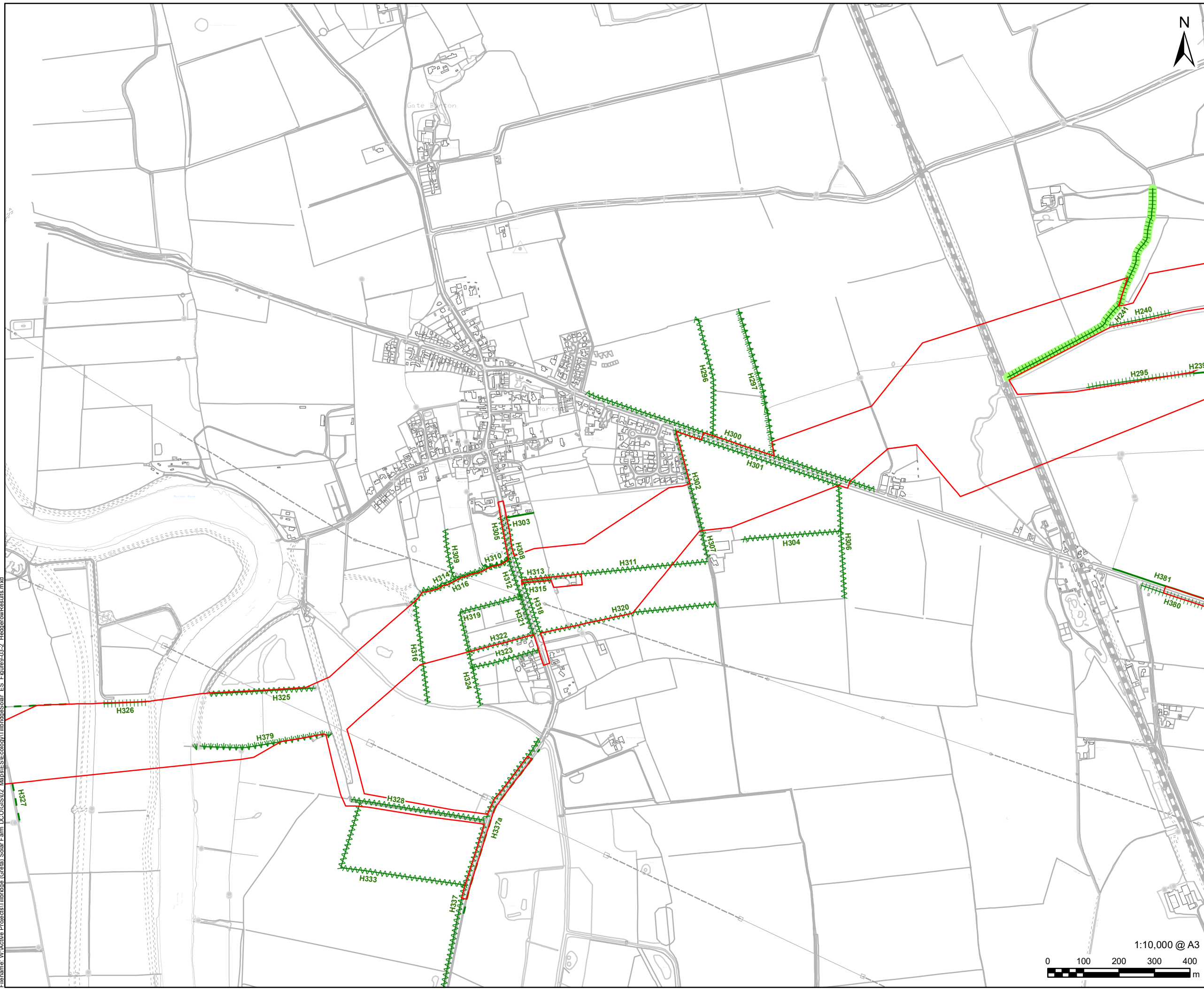
PROJECT NUMBER
60677969

FIGURE TITLE
Hedgerow Survey Results

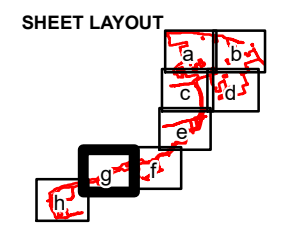
FIGURE NUMBER
Figure 9-3-2f



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- LEGEND**
- Order Limits
 - Phase 1 Habitat**
 - Intact Hedge - Native Species-Rich
 - Intact Hedge - Species-Poor
 - Defunct Hedge - Species-Poor
 - Hedge with Trees - Native Species-Rich
 - Hedge with Trees - Species-Poor
 - Ecologically Important Hedgerows



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ISSUE PURPOSE
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PROJECT NUMBER
60677969

FIGURE TITLE
Hedgerow Survey Results

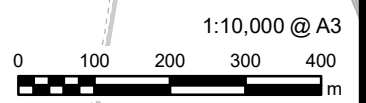
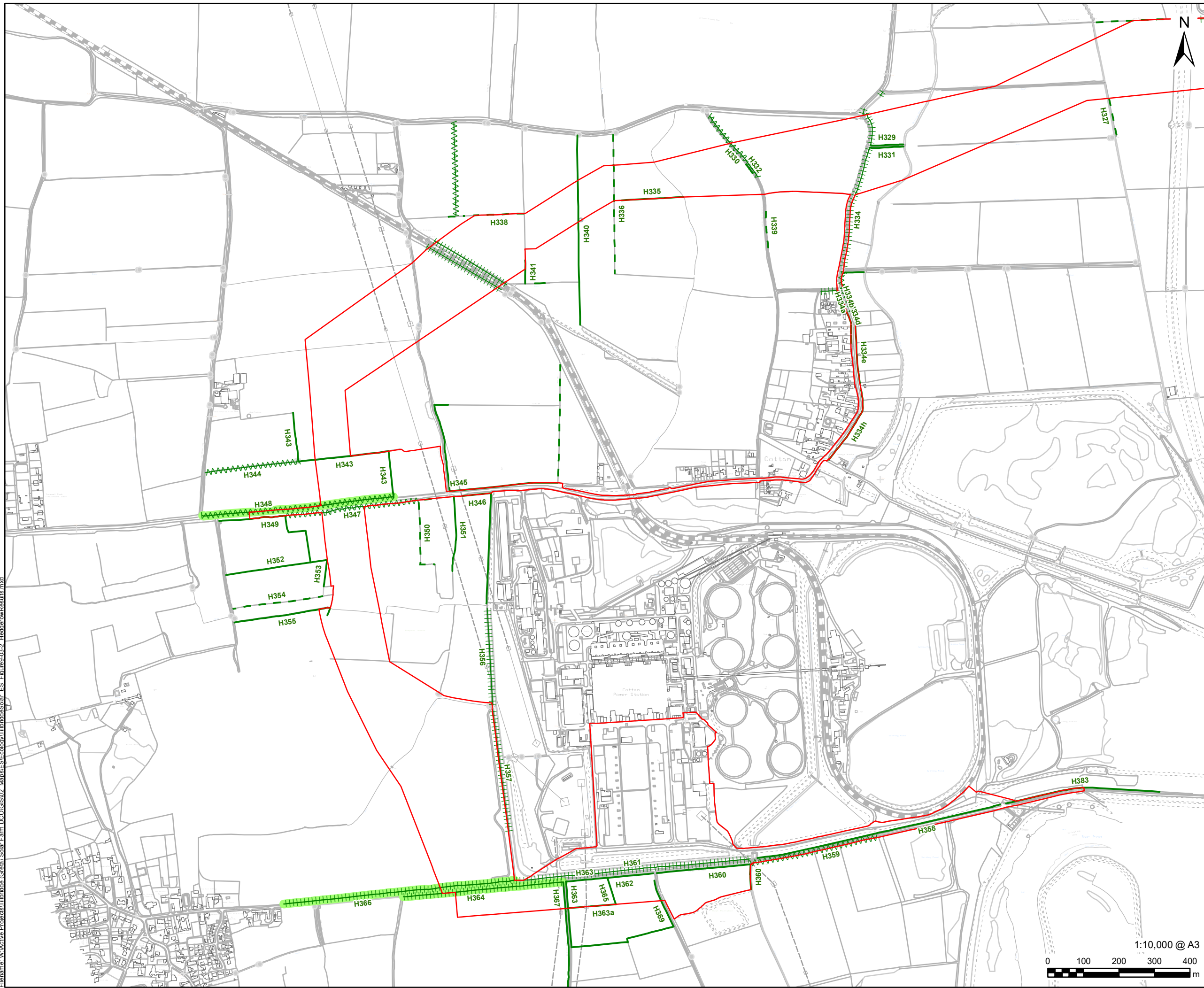


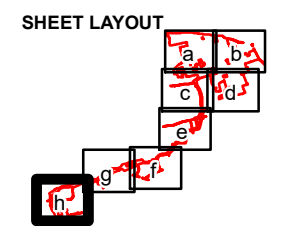
FIGURE NUMBER
Figure 9-3-2g

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LEGEND

	Order Limits
Phase 1 Habitat	
	Intact Hedge - Native Species-Rich
	Intact Hedge - Species-Poor
	Defunct Hedge - Native Species-Rich
	Defunct Hedge - Species-Poor
	Hedge with Trees - Species-Poor
	Ecologically Important Hedgerows



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ISSUE PURPOSE
DCO Submission

PROJECT NUMBER
60677969

FIGURE TITLE
Hedgerow Survey Results

FIGURE NUMBER
Figure 9-3-2h



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Appendix B Hedgerow Regulations and Schedules

'The Hedgerow Regulations (1997) apply to any hedgerow growing in, or adjacent to, any common land, protected land, or land used for agriculture, forestry or the breeding or keeping of horses, ponies or donkeys, if—

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

For the purposes of section 97 (hedgerows) of the Environment Act 1995 and these Regulations, a hedgerow is "important" if it, or the hedgerow of which it is a stretch,

- (a) has existed for 30 years or more; and
- (b) satisfies at least one of the criteria listed in Part II of Schedule 1.'

Schedule 1 Part 11 Criteria: Wildlife and landscape

'6. (1) The hedgerow—

- (a) contains species listed or categorised as mentioned in sub-paragraph(3); or
- (b) is referred to in a record held immediately before the relevant date by a biological record centre maintained by, or on behalf of, a local authority within the meaning of the Local Government Act 1972(10), and in a form recognised by the Nature Conservancy Council for England, the Countryside Council for Wales(11) or the Joint Nature Conservation Committee(12), as having contained any such species—
 - (i) in the case of animals and birds, subject to sub-paragraph (2), within the period of five years immediately before the relevant date.
 - (ii) in the case of plants, subject to sub-paragraph (2), within the period of ten years immediately before the relevant date;

(2) Where more than one record referable to the period of five or, as the case may be, ten years before the relevant date is held by a particular biological record centre, and the more (or most) recent record does not satisfy the criterion specified in sub-paragraph (1)(b), the criterion is not satisfied (notwithstanding that an earlier record satisfies it).

(3) The species referred to in sub-paragraph (1) are those—

- (a) listed in Part I (protection at all times) of Schedule 1 (birds which are protected by special penalties), Schedule 5 (animals which are protected) or Schedule 8 (plants which are protected) to the Wildlife and Countryside Act 1981(13);
- (b) categorised as a declining breeder (category 3) in "Red Data Birds in Britain" Batten LA, Bibby CJ, Clement P, Elliott GD and Porter RF (Eds.),

published in 1990 for the Nature Conservancy Council and the Royal Society for the Protection of Birds (ISBN 0 85661 056 9); or

(c) categorised as “endangered”, “extinct”, “rare” or “vulnerable” in Britain in a document mentioned in sub-paragraph (4).

(4) The documents referred to in sub-paragraph (3)(c) are—

a) of the books known as the British Red Data Books:

1. “Vascular Plants” Perring FH and Farrell L, 2nd Edition, published in 1983 for the Royal Society for Nature Conservation (ISBN 0 902484 04 4);
2. “Insects” Shire DB (Ed.), published in 1987 for the Nature Conservancy Council (ISBN 0 86139 380 5); and
3. “Invertebrates other than insects” Bratton JH (Ed.), published in 1991 for the Joint Nature Conservation Committee (ISBN 1 873701 00 4); and
4. “Stoneworts” Stewart NF and Church JM, published in 1992 for the Joint Nature Conservation Committee (ISBN 1 873701 24 1).

7. (1) Subject to sub-paragraph (2), the hedgerow includes—

- (a) at least seven woody species;
- (b) at least six woody species, and has associated with it at least 3 of the features specified in sub-paragraph (4);
- (c) at least six woody species, including one of the following:
 - Black-poplar tree *Populus nigra* ssp *betulifolia*;
 - Large-leaved Lime *Tilia platyphyllos*;
 - Small-leaved Lime *Tilia cordata*;
 - Wild Service-tree *Sorbus torminalis*; or
- (d) at least five woody species, and has associated with it at least 4 of the features specified in sub-paragraph (4), and the number of woody species in a hedgerow shall be ascertained in accordance with sub-paragraph (3).

(2) Where the hedgerow in question is situated wholly or partly in the county (as constituted on 1st April 1997) of the City of Kingston upon Hull, Cumbria, Darlington, Durham, East Riding of Yorkshire, Hartlepool, Lancashire, Middlesbrough, North East Lincolnshire, North Lincolnshire, Northumberland, North Yorkshire, Redcar and Cleveland, Stockton-on-Tees, Tyne and Wear, West Yorkshire or York(14), the number of woody species mentioned in paragraphs (a) to (d) of sub-paragraph (1) is to be treated as reduced by one.

(3) For the purposes of sub-paragraph (1) (and those of paragraph 8(b))—

- (a) where the length of the hedgerow does not exceed 30 metres, count the number of woody species present in the hedgerow;
- (b) where the length of the hedgerow exceeds 30 metres, but does not exceed 100 metres, count the number of woody species present in the central stretch of 30 metres;

(c) where the length of the hedgerow exceeds 100 metres, but does not exceed 200 metres, count the number of woody species present in the central stretch of 30 metres within each half of the hedgerow and divide the aggregate by two;

(d) where the length of the hedgerow exceeds 200 metres, count the number of woody species present in the central stretch of 30 metres within each third of the hedgerow and divide the aggregate by three.

(4) The features referred to in sub-paragraph (1)(b) and (d) (which include those referred to in paragraph 8(b)) are—

(a) a bank or wall which supports the hedgerow along at least one half of its length;

(b) gaps which in aggregate do not exceed 10% of the length of the hedgerow;

(c) where the length of the hedgerow does not exceed 50 metres, at least one standard tree;

(d) where the length of the hedgerow exceeds 50 metres but does not exceed 100 metres, at least 2 standard trees;

(e) where the length of the hedgerow exceeds 100 metres, such number of standard trees (within any part of its length) as would when averaged over its total length amount to at least one for each 50 metres;

(f) at least 3 woodland species within one metre, in any direction, of the outermost edges of the hedgerow;

(g) a ditch along at least one half of the length of the hedgerow;

(h) connections scoring 4 points or more in accordance with sub-paragraph (5);

(i) a parallel hedge within 15 metres of the hedgerow.

(5) For the purposes of sub-paragraph (4)(h) a connection with another hedgerow scores one point and a connection with a pond or a woodland in which the majority of trees are broad-leaved trees scores 2 points; and a hedgerow is connected with something not only if it meets it but also if it has a point within 10 metres of it and would meet it if the line of the hedgerow continued.

8. The hedgerow—

(a) is adjacent to a bridleway or footpath, within the meaning of the Highways Act 1980(15), a road used as a public path, within the meaning of section 54 (duty to reclassify roads used as public paths) of the Wildlife and Countryside Act 1981(16), or a byway open to all traffic, within the meaning of Part III of the Wildlife and Countryside Act 1981(17), and

(b) includes at least 4 woody species, ascertained in accordance with paragraph 7(3) and at least 2 of the features specified in paragraph 7(4)(a) to (g).'

Schedule 3 Woody Species

Alder (*Alnus glutinosa*)
Apple, crab (*Malus sylvestris*)
Ash (*Fraxinus excelsior*)
Aspen (*Populus tremula*)
Beech (*Fagus sylvatica*)
Birch, downy (*Betula pubescens*)
Birch, silver (*Betula pendula*)
Black-poplar (*Populus nigra sub-species betulifolia*)
Blackthorn (*Prunus spinosa*)
Box (*Buxus sempervirens*)
Broom (*Cytisus scoparius*)
Buckthorn (*Rhamnus cathartica*)
Buckthorn, alder (*Frangula alnus*)
Butcher's-broom (*Ruscus aculeatus*)
Cherry, bird (*Prunus padus*)
Cherry, wild (*Prunus avium*)
Cotoneaster, wild (*Cotoneaster integerrimus*)
Currant, downy (*Ribes spicatum*)
Currant, mountain (*Ribes alpinum*)
Dogwood (*Cornus sanguinea*)
Elder (*Sambucus nigra*)
Elm (*Ulmus species*)
Gooseberry (*Ribes uva-crispa*)
Gorse (*Ulex europaeus*)
Gorse, dwarf (*Ulex minor*)
Gorse, western (*Ulex gallii*)
Guelder rose (*Viburnum opulus*)
Hawthorn (*Crataegus monogyna*)
Hawthorn, midland (*Crataegus laevigata*)
Hazel (*Corylus avellana*)
Holly (*Ilex aquifolium*)

Hornbeam (*Carpinus betulus*)
Juniper, common (*Juniperus communis*)
Lime, large-leaved (*Tilia platyphyllos*)
Lime, small-leaved (*Tilia cordata*)
Maple, field (*Acer campestre*)
Mezereum (*Daphne mezereum*)
Oak, pedunculate (*Quercus robur*)
Oak, sessile (*Quercus petraea*)
Osier (*Salix viminalis*)
Pear, Plymouth (*Pyrus cordata*)
Pear, wild (*Pyrus pyraster*)
Poplar, grey (*Populus x canescens*)
Poplar, white (*Populus alba*)
Privet, wild (*Ligustrum vulgare*)
Rose (*Rosa species*)
Rowan (*Sorbus aucuparia*)
Sea-buckthorn (*Hippophae rhamnoides*)
Service-tree, wild (*Sorbus torminalis*)
Spindle (*Euonymus europaeus*)
Spurge-laurel (*Daphne laureola*)
Walnut (*Juglans regia*)
Wayfaring-tree (*Viburnum lantana*)
Whitebeam (*Sorbus species*)
Willow (*Salix species*)
Yew (*Taxus baccata*)

Appendix C Hedgerow Survey Results

Hedgerow Reference (see Figure 9-3-2)	Length (metres)	>30yrs old?	Mean number of qualifying species	Standard tree for every 50m?	3 woodland herbs within 1m of hedge	Gaps <10% of hedge?	Bank wall along at least half of the hedge?	Ditch at least half the length?	Connections scoring 4 or more points?	Parallel hedge within 15m?	Protected species (as defined by the Regs?)	PRoW running parallel?	Species rich?	Important hedgerow?
2	460	Yes	4	Yes	No	Yes	No	Yes	No	No	No	No	No	No
3	270	Yes	4	Yes	No	Yes	No	Yes	No	No	No	No	No	No
4	249	Yes	4	No	No	No	No	No	No	No	No	No	No	No
5	145	Yes	3	No	No	Yes	No	No	No	No	No	No	No	No
6	250	Yes	2	Yes	No	Yes	No	No	No	No	No	No	No	No
7	520	Yes	4	Yes	No	Yes	No	No	No	No	No	No	No	No
8	170	Yes	3	No	No	Yes	No	No	Yes	No	No	No	No	No
9	310	Yes	3	No	No	Yes	No	No	No	No	No	No	No	No
10	480	Yes	3	No	No	No	No	Yes	No	Yes	No	No	No	No
11	465	Yes	4	No	No	Yes	No	Yes	No	No	No	No	No	No
12	335	Yes	2	No	No	No	No	Yes	No	No	No	No	No	No
12a	338	Yes	2	No	No	No	No	Yes	No	No	No	No	No	No
12b	55	Yes	5	No	No	Yes	No	Yes	No	Yes	No	No	Yes	Yes
13	410	Yes	2	No	No	Yes	No	No	No	Yes	No	No	No	No
15	270	Yes	3	Yes	No	No	No	Yes	No	No	No	No	No	No
16	190	Yes	2	No	No	Yes	No	Yes	No	No	No	No	No	No

Hedgerow Reference (see Figure 9-3-2)	Length (metres)	>30yrs old?	Mean number of qualifying species	Standard tree for every 50m?	3 woodland herbs within 1m of hedge	Gaps <10% of hedge?	Bank wall along at least half of the hedge?	Ditch at least half the length?	Connections scoring 4 or more points?	Parallel hedge within 15m?	Protected species (as defined by the Regs?)	PROW running parallel?	Species rich?	Important hedgerow?
17	175	Yes	5	Yes	No	Yes	No	No	No	Yes	No	No	No	No
18	40	Yes	4	No	No	Yes	No	No	No	No	No	No	No	No
19	205	Yes	2	No	No	Yes	No	No	No	No	No	No	No	No
20	185	Yes	2	Yes	No	No	No	Yes	No	No	No	No	No	No
21	245	Yes	2	No	N	No	Yes	No	No	No	No	No	No	No
23	180	Yes	4	No	No	No	No	No	No	No	No	No	No	No
24	652	Yes	3	No	No	Yes	No	No	No	No	No	No	No	No
24a	182	Yes	4	No	No	Yes	No	No	No	Yes	No	No	No	No
25	335	Yes	3	No	No	Yes	No	No	Yes	No	No	No	No	No
26	1115	Yes	3	No	No	Yes	No	No	Yes	Yes	No	No	No	No
27	940	Yes	3	No	No	Yes	No	No	No	Yes	No	No	No	No
28	160	Yes	2	No	No	Yes	No	No	No	Yes	No	No	No	No
29	590	Yes	3	No	No	Yes	No	No	Yes	Yes	No	No	No	No
30	680	Yes	3	No	No	Yes	No	No	Yes	Yes	No	No	No	No
31	780	Yes	2	No	No	No	No	No	Yes	Yes	No	No	No	No
32	470	Yes	1	No	No	Yes	No	No	No	Yes	No	No	No	No

Hedgerow Reference (see Figure 9-3-2)	Length (metres)	>30yrs old?	Mean number of qualifying species	Standard tree for every 50m?	3 woodland herbs within 1m of hedge	Gaps <10% of hedge?	Bank wall along at least half of the hedge?	Ditch at least half the length?	Connections scoring 4 or more points?	Parallel hedge within 15m?	Protected species (as defined by the Regs?)	PROW running parallel?	Species rich?	Important hedgerow?
33	340	Yes	2	No	No	Yes	No	No	Yes	No	No	No	No	No
34	450	Yes	1	No	No	Yes	No	No	Yes	No	No	No	No	No
37	195	Yes	2	No	No	No	No	No	No	No	No	No	No	No
38	118	Yes	3	Yes	No	Yes	No	Yes	No	No	No	No	No	No
39	290	Yes	2	No	No	No	No	No	No	No	No	No	No	No
40	205	Yes	2	No	No	Yes	No	No	Yes	No	No	No	No	No
42	300	Yes	2	No	No	Yes	No	Yes	No	No	No	No	No	No
43	30	Yes	2	No	No	Yes	No	Yes	No	No	No	No	No	No
45	440	Yes	2	No	No	Yes	No	No	No	No	No	No	No	No
60	145	Yes	5	No	No	Yes	No	Yes	No	No	No	No	Yes	No
61	170	Yes	3	No	No	Yes	No	Yes	No	No	No	No	No	No
63	315	Yes	2	No	No	Yes	No	No	Yes	No	No	No	No	No
64	225	Yes	3	No	No	Yes	No	No	Yes	No	No	No	No	No
65	360	Yes	3	No	No	Yes	No	Yes	Yes	No	No	No	No	No
66	210	Yes	2	No	No	Yes	No	Yes	Yes	No	No	No	No	No
67	325	Yes	2	No	No	No	No	Yes	No	No	No	No	No	No

Hedgerow Reference (see Figure 9-3-2)	Length (metres)	>30yrs old?	Mean number of qualifying species	Standard tree for every 50m?	3 woodland herbs within 1m of hedge	Gaps <10% of hedge?	Bank wall along at least half of the hedge?	Ditch at least half the length?	Connections scoring 4 or more points?	Parallel hedge within 15m?	Protected species (as defined by the Regs?)	PROW running parallel?	Species rich?	Important hedgerow?
68	235	Yes	3	No	No	Yes	No	Yes	Yes	No	No	No	No	No
69	210	Yes	4	No	No	Yes	No	Yes	Yes	No	No	No	No	No
70	180	Yes	4	Yes	No	Yes	No	Yes	No	No	No	No	No	No
71	460	Yes	2	No	No	Yes	No	Yes	No	No	No	No	No	No
72	190	Yes	3	No	No	Yes	No	Yes	No	No	No	No	No	No
72a	185	Yes	3	No	No	Yes	No	Yes	No	No	No	No	No	No
73	610	Yes	3	No	No	No	No	Yes	Yes	No	No	No	No	No
74	385	Yes	3	No	No	No	No	Yes	Yes	No	No	No	No	No
75	140	Yes	6	No	No	Yes	No	No	No	No	No	No	Yes	Yes
76	215	Yes	3	No	No	No	No	No	No	No	No	No	No	No
77	190	Yes	2	No	No	No	No	Yes	No	No	No	No	No	No
78	290	Yes	4	Yes	No	Yes	No	No	No	No	No	No	No	No
78b	115	Yes	4	Yes	No	Yes	No	Yes	No	No	No	No	No	No
79	415	Yes	3	No	No	Yes	No	No	No	No	No	No	No	No
79a	369	Yes	2	No	No	Yes	No	Yes	No	Yes	No	No	No	No
80	320	Yes	2	No	No	Yes	No	Yes	No	No	No	No	No	No

Hedgerow Reference (see Figure 9-3-2)	Length (metres)	>30yrs old?	Mean number of qualifying species	Standard tree for every 50m?	3 woodland herbs within 1m of hedge	Gaps <10% of hedge?	Bank wall along at least half of the hedge?	Ditch at least half the length?	Connections scoring 4 or more points?	Parallel hedge within 15m?	Protected species (as defined by the Regs?)	PROW running parallel?	Species rich?	Important hedgerow?
81	420	Yes	2	No	No	Yes	No	Yes	Yes	No	No	No	No	No
82	585	Yes	2	No	No	Yes	No	Yes	Yes	No	No	No	No	No
83	360	Yes	5	No	No	No	No	No	No	No	No	No	Yes	No
83a	95	Yes	6	No	No	Yes	No	Yes	Yes	No	No	No	Yes	Yes
84	330	Yes	4	No	No	Yes	No	Yes	Yes	No	No	No	No	No
85a	430	Yes	6	No	No	No	No	Yes	Yes	No	No	No	Yes	Yes
85b	620	Yes	6	No	No	Yes	No	Yes	Yes	No	No	No	Yes	Yes
87	515	Yes	4	No	No	Yes	No	No	No	No	No	No	No	No
88	345	Yes	2	No	No	Yes	No	No	Yes	No	No	No	No	No
89a	435	Yes	4	No	No	Yes	No	No	Yes	No	No	No	No	No
89b	445	Yes	5	No	No	Yes	No	No	Yes	No	No	No	Yes	No
89c	429	Yes	5	No	No	Yes	No	Yes	Yes	No	No	No	No	Yes
90	545	Yes	4	No	No	Yes	No	No	No	Yes	No	No	No	No
91	595	Yes	2	No	No	Yes	No	No	No	No	No	No	No	No
92	405	Yes	3	No	No	Yes	No	No	No	No	No	No	No	No
93	625	Yes	2	No	No	No	No	No	No	No	No	No	No	No

Hedgerow Reference (see Figure 9-3-2)	Length (metres)	>30yrs old?	Mean number of qualifying species	Standard tree for every 50m?	3 woodland herbs within 1m of hedge	Gaps <10% of hedge?	Bank wall along at least half of the hedge?	Ditch at least half the length?	Connections scoring 4 or more points?	Parallel hedge within 15m?	Protected species (as defined by the Regs?)	PROW running parallel?	Species rich?	Important hedgerow?
94	192	Yes	2	No	No	Yes	No	No	No	No	No	No	No	No
95	60	Yes	2	No	No	No	No	Yes	N	No	No	No	No	No
96	300	Yes	4	No	No	No	No	Yes	No	No	No	No	No	No
97	425	Yes	3	No	No	Yes	No	Yes	No	No	No	No	No	No
98	480	Yes	3	No	No	Yes	No	Yes	No	No	No	No	No	No
99a	200	Yes	3	No	No	Yes	Yes	No	No	No	No	No	No	No
99b	500	Yes	2	No	No	Yes	No	Yes	Yes	No	No	No	No	No
100	215	Yes	4	No	No	Yes	No	Yes	Yes	No	No	No	No	No
101	60	Yes	3	No	No	Yes	No	Yes	Yes	No	No	No	No	No
102	315	Yes	5	Yes	No	Yes	No	Yes	No	No	No	No	Yes	Yes
103	460	Yes	2	No	No	Yes	No	Yes	Yes	No	No	No	No	No
104	270	Yes	2	No	No	Yes	No	No	No	No	No	No	No	No
105	130	Yes	4	Yes	No	Yes	No	Yes	Yes	Yes	No	No	No	Yes
106	210	Yes	2	No	No	Yes	No	Yes	No	No	No	No	No	No
107	165	Yes	4	No	No	No	No	Yes	No	No	No	No	No	No
108	270	Yes	3	No	No	Yes	No	Yes	No	No	No	No	No	No

Hedgerow Reference (see Figure 9-3-2)	Length (metres)	>30yrs old?	Mean number of qualifying species	Standard tree for every 50m?	3 woodland herbs within 1m of hedge	Gaps <10% of hedge?	Bank wall along at least half of the hedge?	Ditch at least half the length?	Connections scoring 4 or more points?	Parallel hedge within 15m?	Protected species (as defined by the Regs?)	PROW running parallel?	Species rich?	Important hedgerow?
109	345	Yes	3	No	No	Yes	No	Yes	No	No	No	No	No	No
110	290	Yes	2	No	No	Yes	No	Yes	No	No	No	No	No	No
111	300	Yes	2	No	No	Yes	No	No	Yes	No	No	No	No	No
112	240	Yes	2	No	No	Yes	No	Yes	Yes	No	No	No	No	No
113	255	Yes	2	No	No	Yes	No	Yes	Yes	No	No	No	No	No
114	490	Yes	3	No	No	Yes	No	Yes	No	No	No	No	No	No
115	250	Yes	1	No	No	Yes	No	Yes	No	No	No	No	No	No
116	310	Yes	3	No	No	Yes	No	Yes	Yes	Yes	No	No	No	No
117	60	Yes	6	Yes	No	Yes	Yes	No	No	No	No	No	Yes	Yes
118	410	Yes	4	No	No	Yes	No	Yes	No	No	No	No	No	No
119	385	Yes	3	No	No	Yes	No	Yes	No	No	No	No	No	No
120	765	Yes	2	No	No	No	No	Yes	Yes	No	No	No	No	No
121	415	Yes	3	Yes	No	Yes	No	Yes	No	No	No	No	No	No
122	380	Yes	3	No	No	No	No	Yes	Yes	No	No	No	No	No
123	190	Yes	4	No	No	Yes	No	Yes	No	No	No	No	No	No
124	350	Yes	4	Yes	No	Yes	No	Yes	No	No	No	No	No	Yes

Hedgerow Reference (see Figure 9-3-2)	Length (metres)	>30yrs old?	Mean number of qualifying species	Standard tree for every 50m?	3 woodland herbs within 1m of hedge	Gaps <10% of hedge?	Bank wall along at least half of the hedge?	Ditch at least half the length?	Connections scoring 4 or more points?	Parallel hedge within 15m?	Protected species (as defined by the Regs?)	PROW running parallel?	Species rich?	Important hedgerow?
124a	174	Yes	2	No	No	Yes	No	No	No	No	No	No	No	No
124b	174	Yes	3	Yes	No	Yes	No	Yes	No	No	No	No	No	No
125	250	Yes	4	Yes	No	No	No	No	Yes	No	No	No	No	No
126a	455	Yes	4	No	No	Yes	No	Yes	Yes	No	No	No	No	No
126b	320	Yes	4	Yes	No	No	No	Yes	Yes	No	No	No	No	No
127	335	Yes	5	Yes	No	Yes	No	Yes	No	No	No	No	Yes	Yes
128	210	Yes	5	No	No	Yes	No	No	No	No	No	No	Yes	No
129	235	Yes	3	No	No	No	No	Yes	Yes	No	No	No	No	No
131	300	Yes	4	Yes	No	Yes	No	No	No	No	No	No	No	No
132	160	Yes	4	Yes	No	Yes	No	No	Yes	No	No	No	No	No
133	115	Yes	6	No	No	Yes	No	Yes	No	No	No	No	Yes	Yes
134	190	Yes	7	Yes	No	Yes	No	Yes	Yes	No	No	No	Yes	Yes
134a	275	Yes	4	Yes	No	No	No	No	No	No	No	No	No	No
135	200	Yes	3	No	No	Yes	No	Yes	No	No	No	No	No	No
136	650	Yes	4	No	No	Yes	No	Yes	No	No	No	No	No	No
137	670	Yes	4	No	No	No	No	Yes	No	No	No	No	No	No

Hedgerow Reference (see Figure 9-3-2)	Length (metres)	>30yrs old?	Mean number of qualifying species	Standard tree for every 50m?	3 woodland herbs within 1m of hedge	Gaps <10% of hedge?	Bank wall along at least half of the hedge?	Ditch at least half the length?	Connections scoring 4 or more points?	Parallel hedge within 15m?	Protected species (as defined by the Regs?)	PROW running parallel?	Species rich?	Important hedgerow?
138	260	Yes	4	No	No	Yes	No	Yes	Yes	No	No	No	No	No
139a	218	Yes	3	No	No	Yes	No	No	No	No	No	No	No	No
140	415	Yes	4	No	No	Yes	No	No	Yes	No	No	No	No	No
141	225	Yes	5	No	No	Yes	No	Yes	No	No	No	No	Yes	No
142	395	Yes	3	No	No	No	No	No	No	No	No	No	No	No
143	305	Yes	5	No	No	Yes	No	No	Yes	No	No	No	Yes	No
144	180	Yes	6	Yes	No	Yes	No	No	No	No	No	No	Yes	Yes
145	335	Yes	3	No	No	Yes	No	No	No	No	No	No	No	No
146	55	Yes	3	Yes	No	Yes	No	Yes	Yes	No	No	No	No	No
147	224	Yes	4	No	No	Yes	No	No	No	No	No	No	No	No
147a	97	Yes	4	No	No	Yes	No	No	No	No	No	No	No	No
148	440	Yes	2	No	No	Yes	No	Yes	No	Yes	No	No	No	No
149	405	Yes	3	No	No	No	No	No	No	No	No	No	No	No
150	405	Yes	3	No	No	Yes	No	Yes	No	No	No	No	No	No
151	435	Yes	2	No	No	Yes	No	No	No	No	No	No	No	No
152	440	Yes	2	No	No	Yes	No	Yes	No	No	No	No	No	No

Hedgerow Reference (see Figure 9-3-2)	Length (metres)	>30yrs old?	Mean number of qualifying species	Standard tree for every 50m?	3 woodland herbs within 1m of hedge	Gaps <10% of hedge?	Bank wall along at least half of the hedge?	Ditch at least half the length?	Connections scoring 4 or more points?	Parallel hedge within 15m?	Protected species (as defined by the Regs?)	PROW running parallel?	Species rich?	Important hedgerow?
153	445	Yes	2	No	No	Yes	No	No	No	No	No	No	No	No
154	470	Yes	2	No	No	Yes	No	Yes	No	No	No	No	No	No
155	505	Yes	4	No	No	No	No	Yes	Yes	No	No	No	No	No
156	760	Yes	2	No	No	Yes	No	Yes	Yes	No	No	No	No	No
157	255	Yes	2	No	No	No	No	No	No	No	No	No	No	No
158	195	Yes	1	No	No	Yes	No	No	No	No	No	No	No	No
159	360	Yes	3	No	No	No	No	Yes	No	No	No	No	No	No
161	535	Yes	3	Yes	No	No	No	Yes	No	Yes	No	No	No	No
162	580	Yes	4	Yes	No	Yes	No	Yes	No	Yes	No	No	No	Yes
163	264	Yes	6	No	No	Yes	No	No	No	Yes	No	No	Yes	Yes
164	165	Yes	3	No	No	Yes	No	Yes	No	No	No	No	No	No
164a	345m	Yes	3	Yes	No	Yes	No	No	No	No	No	No	No	No
165	435	Yes	3	No	No	No	No	Yes	No	No	No	No	No	No
166	235	Yes	2	No	No	Yes	No	Yes	No	No	No	No	No	No
167	315	Yes	4	No	No	Yes	No	Yes	No	No	No	No	No	No
168	245	Yes	2	No	No	No	No	Yes	No	No	No	No	No	No

Hedgerow Reference (see Figure 9-3-2)	Length (metres)	>30yrs old?	Mean number of qualifying species	Standard tree for every 50m?	3 woodland herbs within 1m of hedge	Gaps <10% of hedge?	Bank wall along at least half of the hedge?	Ditch at least half the length?	Connections scoring 4 or more points?	Parallel hedge within 15m?	Protected species (as defined by the Regs?)	PROW running parallel?	Species rich?	Important hedgerow?
169	369	Yes	2	Yes	No	Yes	No	Yes	No	Yes	No	No	No	No
169a	124	Yes	4	Yes	No	No	No	Yes	No	Yes	No	No	No	No
169b	247	Yes	4	Yes	No	Yes	No	Yes	No	Yes	No	No	No	Yes
170	81	Yes	4	Yes	No	Yes	No	No	No	Yes	No	No	No	No
171	145	Yes	4	No	No	Yes	No	No	No	Yes	No	No	No	No
172	96	Yes	6	No	No	Yes	Yes	No	No	Yes	No	No	Yes	Yes
173	213	Yes	4	No	No	Yes	No	Yes	No	Yes	No	No	No	No
174	291	Yes	3	Yes	No	Yes	No	Yes	No	Yes	No	No	No	No
175	316	Yes	3	No	No	Yes	No	No	No	Yes	No	No	No	No
176	377	Yes	4	Yes	No	Yes	No	Yes	No	Yes	No	No	No	Yes
177	390	Yes	4	No	No	Yes	No	No	Yes	Yes	No	No	No	No
178	407	Yes	4	No	No	Yes	No	Yes	No	No	No	No	No	Yes
179	419	Yes	3	No	No	Yes	No	Yes	No	Yes	No	No	No	No
180	447	Yes	4	No	No	Yes	No	Yes	Yes	No	No	No	No	No
181	870	Yes	5	No	No	Yes	No	Yes	No	Yes	No	No	Yes	Yes
182	397	Yes	5	No	No	Yes	No	Yes	No	Yes	No	No	Yes	Yes

Hedgerow Reference (see Figure 9-3-2)	Length (metres)	>30yrs old?	Mean number of qualifying species	Standard tree for every 50m?	3 woodland herbs within 1m of hedge	Gaps <10% of hedge?	Bank wall along at least half of the hedge?	Ditch at least half the length?	Connections scoring 4 or more points?	Parallel hedge within 15m?	Protected species (as defined by the Regs?)	PROW running parallel?	Species rich?	Important hedgerow?
184	193	Yes	4	No	No	Yes	No	Yes	No	Yes	No	No	No	No
185	193	Yes	3	No	No	No	No	Yes	No	No	No	No	No	No
187	204	Yes	3	No	No	Yes	No	Yes	No	Yes	No	No	No	No
188	287	Yes	2	No	No	Yes	No	No	No	No	No	No	No	No
189	287	Yes	4	No	No	Yes	No	No	No	No	No	No	No	No
190	182	Yes	4	No	No	Yes	No	Yes	Yes	Yes	No	No	No	Yes
191	42	Yes	4	Yes	No	Yes	No	No	No	Yes	No	No	No	No
192	198	Yes	2	No	No	Yes	No	Yes	No	Yes	No	No	No	No
193	322	Yes	3	No	No	Yes	No	Yes	No	Yes	No	No	No	No
194	340	Yes	3	No	No	Yes	No	Yes	Yes	Yes	No	No	No	No
195	124	Yes	4	No	No	Yes	No	Yes	No	Yes	No	No	No	No
196	355	Yes	4	No	No	Yes	No	Yes	Yes	Yes	No	No	No	Yes
197	302	Yes	6	No	No	Yes	No	Yes	Yes	Yes	No	No	Yes	Yes
198	57	Yes	4	No	No	Yes	No	Yes	No	Yes	No	No	No	No
199	156	Yes	4	No	No	Yes	No	Yes	Yes	Yes	No	No	No	Yes
200	300	Yes	3	No	No	Yes	No	Yes	No	Yes	No	No	No	No

Hedgerow Reference (see Figure 9-3-2)	Length (metres)	>30yrs old?	Mean number of qualifying species	Standard tree for every 50m?	3 woodland herbs within 1m of hedge	Gaps <10% of hedge?	Bank wall along at least half of the hedge?	Ditch at least half the length?	Connections scoring 4 or more points?	Parallel hedge within 15m?	Protected species (as defined by the Regs?)	PROW running parallel?	Species rich?	Important hedgerow?
201	186	Yes	4	Yes	No	Yes	No	Yes	No	Yes	No	No	No	Yes
202	95	Yes	4	No	No	Yes	No	Yes	No	Yes	No	No	No	No
203	52	Yes	5	Yes	No	Yes	No	No	No	Yes	No	No	Yes	Yes
204	351	Yes	6	Yes	No	Yes	No	No	Yes	Yes	No	No	Yes	Yes
205	175	Yes	5	Yes	No	Yes	No	Yes	No	Yes	No	No	Yes	Yes
210	257	Yes	3	No	No	Yes	No	Yes	No	No	No	No	No	No
211	276	Yes	3	No	No	Yes	No	Yes	No	No	No	No	No	No
212	300	Yes	3	No	No	Yes	No	Yes	No	No	No	No	No	No
219	64	Yes	5	No	No	No	No	No	No	Yes	No	Yes	Yes	No
220	217	Yes	5	No	No	Yes	No	Yes	No	No	no	Yes	Yes	No
221	249	Yes	4	No	No	No	No	Yes	No	No	No	No	No	No
222	79	Yes	5	Yes	No	No	No	No	No	No	No	No	No	No
223	34	Yes	2	No	No	No	No	No	No	No	No	Yes	No	No
224	129	Yes	2	No	No	Yes	Yes	No	No	Yes	No	Yes	No	No
225	308	Yes	4	No	No	No	No	Yes	No	Yes	No	Yes	No	No
226	60	Yes	3	No	No	Yes	Yes	No	No	Yes	No	Yes	No	No

Hedgerow Reference (see Figure 9-3-2)	Length (metres)	>30yrs old?	Mean number of qualifying species	Standard tree for every 50m?	3 woodland herbs within 1m of hedge	Gaps <10% of hedge?	Bank wall along at least half of the hedge?	Ditch at least half the length?	Connections scoring 4 or more points?	Parallel hedge within 15m?	Protected species (as defined by the Regs?)	PROW running parallel?	Species rich?	Important hedgerow?
227	116	Yes	5	Yes	No	Yes	No	Yes	No	No	No	Yes	Yes	Yes
228	93	Yes	2	No	No	No	No	Yes	No	Yes	No	No	No	No
229	543	Yes	3	No	No	Yes	No	Yes	No	Yes	No	No	No	No
230	271	Yes	3	No	No	Yes	No	Yes	No	Yes	No	No	No	No
231	181	Yes	4	No	No	Yes	No	Yes	No	Yes	No	No	No	No
232	597	Yes	5	No	No	Yes	No	Yes	No	Yes	No	No	Yes	Yes
233	267	Yes	4	Yes	No	Yes	No	No	Yes	Yes	No	No	No	Yes
234	296	No	4	No	No	Yes	No	No	No	No	No	No	No	No
236	188	Yes	4	No	No	Yes	No	Yes	No	No	No	No	No	No
237	352	Yes	3	Yes	No	No	Yes	No	No	No	No	No	No	No
238	209	Yes	4	No	no	Yes	No	No	No	No	No	No	No	No
239	205	Yes	4	No	No	Yes	Yes	No	No	No	No	No	No	No
240	183	Yes	3	Yes	No	Yes	No	Yes	No	No	No	No	No	No
241	653	Yes	4	Yes	No	Yes	No	Yes	Yes	No	No	No	No	Yes
358	430	Yes	4	Yes	No	Yes	No	No	No	Yes	No	No	No	No
370	234	Yes	2	No	No	Yes	No	Yes	No	Yes	No	No	No	No

Hedgerow Reference (see Figure 9-3-2)	Length (metres)	>30yrs old?	Mean number of qualifying species	Standard tree for every 50m?	3 woodland herbs within 1m of hedge	Gaps <10% of hedge?	Bank wall along at least half of the hedge?	Ditch at least half the length?	Connections scoring 4 or more points?	Parallel hedge within 15m?	Protected species (as defined by the Regs?)	PROW running parallel?	Species rich?	Important hedgerow?
371	343	Yes	2	No	No	Yes	No	No	No	Yes	No	No	No	No
372	163	Yes	3	No	No	Yes	No	No	No	Yes	No	No	No	No
376	212	Yes	3	No	No	Yes	No	No	No	Yes	No	No	No	No
377	120	Yes	4	Yes	No	Yes	No	No	No	Yes	No	No	No	No
380	790	Yes	3	No	No	Yes	No	Yes	No	Yes	No	No	No	No
381	365	Yes	2	No	No	Yes	No	Yes	No	Yes	No	No	No	No
382	128	Yes	2	No	No	Yes	No	No	No	Yes	No	No	No	No
387	205	Yes	4	Yes	No	Yes	No	No	No	Yes	No	No	No	No

Appendix D NVC Survey Results

Project Name	Tillbridge	Date	6/9/2023	Recorders	MP	Area	G1 – Upton Grange Road Verges LWS	Photo ref.	See below	Sheet no.
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Broad vegetation type	Swamp Mire Heath Maritime	Grassland X Tall-herb fen Open habitat	Substrate	Acid Calcareous X Neutral X Not known	Condition	Improved Semi-improved X Unimproved Not relevant				
Hydrology	Wet Dry X	Transitional	Age/origin	Sown/recent origin Semi-natural X	Aspect	n/a	Slope	n/a	Water Depth	n/a
Layers Mean Height	0.9 m	0.5 m		cm		m	Habitat Area	3000	m x	10 m
Layers Cover	50 %	95 %		%		%	Quadrat/sample size	4	m x	4 m

Quadrat	1		2		3		4		5		6		Frequency (I-V)
Quadrat Grid Reference	SK90028 87382		SK90031 87360		SK90032 87299		SK90039 87277		SK90068 87110		SK90166 86821		
Species List	%	Domin	%	Domin	%	Domin	%	Domin	%	Domin	%	Domin	
<i>Sanguisorba officinalis</i>		6		3		5		5		4		5	V
<i>Laythrus pratensis</i>		3		3		2		2				2	IV
<i>Trifolium pratensis</i>		4		3		2						2	III
<i>Filipendula ulmaria</i>		4		5		4		2		4		2	V
<i>Arrhenatherum elatius</i>		2		3		2						2	III
<i>Elymus repens</i>		5		7		8		7		7		5	V
<i>Cirsium arvense</i>		1		1		2		3					III
<i>Centaurea nigra agg.</i>		3				2		2				6	III
<i>Dactylis glomerata</i>		4		4		3		3				2	IV
<i>Plantago lanceolata</i>		3		3		2				3			III

<i>Deschampsia cespitosa</i>		2		3			5			4	III
<i>Brachytheceium rutabulum</i>		3		3		3					III
<i>Lolium perenne</i>		4		3			2		4	3	IV
<i>Festuca arundinacea</i>		5		5		2					III
<i>Vicia cracca</i>				3		4					II
<i>Calystegia sepium</i>				1						1	II
<i>Cirsium vulgare</i>				1						1	II
<i>Poa trivialis</i>				2							I
<i>Festuca rubra agg.</i>		2		3		3					III
<i>Rumex obtusifolius</i>				1		2					II
<i>Carex hirta</i>						2					I
<i>Rumex acetosa</i>							1				I
<i>Festuca gigantea</i>						2	2		2		III
<i>Ranunculus repens</i>									1		I
<i>Prunus spinosa</i> (seedling)									1		I
<i>Anthriscus sylvestris</i>									1	2	II
<i>Agrimonia eupatoria</i>										2	I
<i>Brachypodium pinnatum</i>						3	2		3		III
Bare rock/hardstanding	0		0		0		0		0		
Bare soil	0		0		0		5		0	0	
Leaf litter/ thatch	20		10		20		30		20	20	
Permanent open water	0		0		0		0		0	0	

**Further information required,
see back of sheet**

Domin scale		1: few individuals, 2: several individuals, 3: many individuals, 4: 4-10%, 5: 11-25%, 6: 26-33%, 7: 34-50%, 8: 51-75%, 9: 76-90%, 10: 91-100%
Quadrat sizes		Short herbaceous 2x2m; tall and more open herb communities 4x4m; species poor, very tall herbaceous 10x10m; linear features such as streams, ditches, verges can use strips e.g. 1x4m, 2x8m.
Frequency		Number of quadrats which the species occurs in, use Roman numerals I to V, where I=20% of quadrats and V=100%.

Descriptive notes: Photos, negative indicators species (weeds), shrub/tree cover, management regime, other impacts, limitations

Photos below, see report text.



Photo 1. Overview of southern east-west section grassland

Photo 2. Close up of



Photo 3. Overview of north-south section north (survey limitation)

Photo 4. Cut section to the

Project Name	Tillbridge	Date	6/9/2023	Recorders	MP	Area	G2 – Willingham to Fillingham Road Verges LWS	Photo ref.	See below	Sheet no.	
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Broad vegetation type	Swamp	Grassland Tall-herb fen Open habitat	X	Substrate	Acid	Condition	Improved	X
	Mire				Calcareous		Semi-improved	
	Heath				Neutral		Unimproved	
	Maritime				Not known		Not relevant	

Hydrology	Wet Dry	Transitional X				Age/ origin	Sown/recent origin Semi-natural	<input type="checkbox"/> X	Aspect	n/a	Slope	n/a	Water Depth	n/a
Layers Mean Height	1.5	m	0.7	m		cm		m	Habitat Area			m x		m
Layers Cover	50	%	60	%		%		%	Quadrat/sample size		8	m x	1	m

Quadrat	1		2		3		4		5		Frequency (I-V)
Quadrat Grid Reference	SK919928 5403		SK920348 5414		SK9210385 431		SK9173285 335		SK9159085 303		
Species List	%	Domin	%	Domin	%	Domin	%	Domin	%	Domin	
<i>Arrhenatherum elatius</i>		3		5		4		5		4	V
<i>Elymus repens</i>		4		4		4		6		3	V
<i>Dactylis glomerata</i>		2		3		4		4		2	V
<i>Anthriscus sylvestris</i>		2		3		2		1			IV
<i>Filipendula ulmaria</i>		5		5		3		4		5	V
<i>Heracleum sphondylium</i>		3		3		3		4		3	V
<i>Sanguisorba officinalis</i>		4						2		4	III
<i>Agrimonia eupatoria</i>		2				2		3			III
<i>Lathyrus pratensis</i>		2		2		2		1			IV
<i>Brachypodium pinnatum</i>		4		4		4		3		6	V
<i>Festuca pratensis</i>		3		5		3		4		3	V
<i>Vicia cracca</i>		3		2		4					III
<i>Centaurea nigra agg.</i>		3				4		2		2	IV
<i>Prunus spinosa</i> (seedling)		2		4		4					III
<i>Equisetum arvense</i>		1				2					II
<i>Agrostis stolonifera</i>		3		5		2		3		5	V
<i>Rumex conglomerata</i>		2		1							II
<i>Galium verum</i>				3							I
<i>Trifolium pratense</i>						3				3	II
<i>Ranunculus acris</i>						2					I
<i>Festuca rubra</i>		2		2		2				2	IV
<i>Vicia sativa</i> sub-species <i>segetalis</i>								1			I
<i>Poa trivialis</i>								1			I
<i>Ranunculus repens</i>								1		1	II
<i>Phleum pratense</i>								2			I
<i>Trisetum flavescens</i>										2	I

<i>Bromus commutatus</i>										1	I
Bare rock/hardstanding	0		0		0		0		0		
Bare soil	0		0		0		0		0		
Leaf litter/ thatch	10		30		20		10		20		
Permanent open water	0		0		0		0		0		

Further information required, see back of sheet

Domin scale	1: few individuals, 2: several individuals, 3: many individuals, 4: 4-10%, 5: 11-25%, 6: 26-33%, 7: 34-50%, 8: 51-75%, 9: 76-90%, 10: 91-100%
Quadrat sizes	Short herbaceous 2x2m; tall and more open herb communities 4x4m; species poor, very tall herbaceous 10x10m; linear features such as streams, ditches, verges can use strips e.g. 1x4m, 2x8m.
Frequen cy	Number of quadrats which the species occurs in, use Roman numerals I to V, where I=20% of quadrats and V=100%.

Descriptive notes: Photos, negative indicators species (weeds), shrub/tree cover, management regime, other impacts, limitations

See report



Photo 1. Overview, note mown edge near road



Photo 2. Overview