

## Viking CCS Pipeline

# Environmental Statement Volume IV – Appendix 6-5: Hedgerow Survey Report

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#### **Table of Contents**

1	Intro	duction	. 1
	1.2	General Background to the Proposed Development	. 1
	1.3	Purpose of the Survey	. 2
	1.4	Definition of a Hedgerow	. 2
2	Rele	vant Legislation and Policy	. 3
	2.1	Hedgerow Regulations 1997	. 3
	2.2	Other Legislation	. 3
	2.3	Planning Policy	. 4
3	Meth	nodology	. 7
	3.1	Survey Scope	. 7
	3.2	Survey Methods	. 7
	3.3	Desk Study	. 8
	3.4	Field Survey	. 8
	3.5	Approach to Ecological Evaluation	. 9
	3.6	Limitations	. 9
	3.7	Approach to Missing Data	10
4	Resu	ults	10
	4.1	Overview of the Hedgerows in the Study Area	10
	4.2	Important Hedgerows	11
	4.3	Species-Rich Hedgerows	12
	4.4	Priority Hedgerows	35
	4.5	Nature Conservation Evaluation	
	4.6	Conclusions	35
	4.7	References	36
Anne	ex A	Hedgerow Regulations Criteria	37
Anne	ex B	Survey Data	40

#### **Figures**

Figure 1: H	ledgerow Survey	Results	15	)
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#### **Tables**

Table 1: Local Policies in Relation to Hedgerows for the Proposed Development         Table 2: Geographic scales of biodiversity value listed in descending order of         importance and cross-referenced to the relevant published evaluation criteria for	. 4
hedgerows (based on CIEEM, 2018)	9
Table 3: Showing the Classification and Species Richness of Hedgerows under the	
Hedgerow Regulations 1997	
Table 4: Ecological Features of the Hedgerows Surveyed, and Confirmation of	
Whether they are Species-rich or Important Under Paragraphs 6 & 7 of the	
Hedgerow Regulations	40
Table 5: Summary of Hedgerows Located Parallel to BOATs and Whether they are	
Important Under Paragraph 8 of the Hedgerow Regulations	47



Table 6: Woody Species (trees and shrubs) Recorded from Each of the Twenty	
Hedgerows Surveyed	. 52



## **1** Introduction

- 1.1.1 This Appendix has been prepared to accompany the Viking CCS Pipeline *Environmental Statement (ES) Volume II Chapter 6: Ecology and Biodiversity (Application Document 6.2.6)* and details the methodologies used whilst compiling information and ecological baseline conditions relating to Hedgerows.
- 1.1.2 Baseline data presented in this Appendix has been used to inform the assessment within *ES Volume II Chapter 6: Ecology and Biodiversity (Application Document 6.2.6).*

#### **1.2 General Background to the Proposed Development**

- 1.2.1 The Viking CCS Pipeline ('the Proposed Development') comprises a new 24 " (609 mm) diameter onshore pipeline of approximately 55.5 km in length, which will transport Carbon Dioxide (CO<sub>2</sub>) from the Immingham industrial area to the Theddlethorpe area on the Lincolnshire coast, where it will connect into the existing 36 " (921 mm) diameter offshore LOGGS pipeline.
- 1.2.2 The Proposed Development is an integral part of the overall Viking CCS Project, which intends to transport compressed and conditioned CO<sub>2</sub> received at a facility at Immingham to store in depleted gas reservoirs under the Southern North Sea. The offshore elements of the Viking CCS Project, including the transport of CO<sub>2</sub> through the LOGGS pipeline to the Viking gas fields under the North Sea, are subject to a separate consenting process.
- 1.2.3 The key components of the Proposed Development comprise:
  - Immingham Facility;
  - Approximately 55.5 km 24 inch (") onshore steel pipeline (including cathodic protection);
  - Three Block Valve Stations;
  - Theddlethorpe Facility;
  - Existing LOGGS pipeline and isolation valve to the extent of the Order Limits at Mean Low Water Springs (MLWS);
  - Permanent access to facilities;
  - Mitigation and landscaping works;
  - Temporary construction compounds, laydown, parking and welfare facilities;
  - Temporary access points during construction.
- 1.2.4 Further details of each element of the Proposed Development are set out in Chapter 3 of the Environmental Statement (*Application Document 6.2.3*).

### **1.3 Purpose of the Survey**

1.3.1 The purpose of the survey was to collect data to allow an assessment of the relative nature conservation value of the hedgerow resource associated with the Proposed Development. Hedgerows are a highly valued landscape feature that is characteristic of much of lowland Britain. They are important for landscape, archaeological, cultural and agricultural reasons, and are a significant wildlife habitat. Hedgerows provide an essential refuge for many woodland, farmland plants and animals, and act as wildlife corridors allowing movement and dispersal between other habitats (Ref 1).

### **1.4 Definition of a Hedgerow**

1.4.1 The hedgerow survey followed the definition given in the Hedgerow Survey Handbook (Ref 1) approach and used the broad definition of a hedgerow developed by the Hedgerow Action Plan Working Group. This defines a hedgerow as:

'A hedgerow is defined as any boundary line of trees or shrubs over 20m long and less than 5m wide at the base, 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. This includes 'classic' shrubby hedgerows, lines of trees, shrubby hedgerows with trees and very gappy hedgerows (where each shrubby section may be less than 20m long, but the gaps are less than 20m).'

- 1.4.2 Individual hedgerows are defined by the extent of any gaps, and connections to other hedgerows.
- 1.4.3 Another critical consideration is defining where an individual hedgerow starts and stops. To ensure that definable lengths of hedgerow are identified and surveyed consistently, individual hedgerows have been identified with reference to (Ref 1):
  - the point at which a hedgerow stops and there is a gap of more than 20m to the next hedgerow (e.g. where the hedgerow ends in the middle of a field); and
  - the point at which the hedgerow links to a woodland, stands of scrub or a pond.

## 2 Relevant Legislation and Policy

#### 2.1 Hedgerow Regulations 1997

- 2.1.1 The Hedgerows Regulations 1997 (the Regulations) (Ref 2), made under the Environment Act 1995, were introduced in England and Wales in 1997 in order to protect this characteristic element of the countryside. The Regulations were amended by the Hedgerows (Amendment) (England) Regulations 2002.
- 2.1.2 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 (as is the case here). However, the Regulations still have value in these circumstances because the prescribed survey methods result in detailed contextual information to inform ecological impact assessment.
- 2.1.3 The Regulations specify the criteria to be used to determine which hedgerows are important. The criteria relate to the value of the hedgerows from an archaeological, historical, landscape or ecological perspective (refer to Annex A). Hedgerows that are younger than 30 years old are excluded if supportive evidence of age can be provided, as are any hedgerows that mark the boundary of a house.
- 2.1.4 In addition, the Regulations only apply to hedgerows that are of a certain length. These are:
  - Hedgerows that are 20 metres or more long; or
  - Hedgerows that are less than 20 metres long, if they are connected at each end to another hedgerow – thereby forming a continuous network of hedgerows. The length of the adjoining hedgerows is immaterial, the significant factor being the connection; and
  - Any stretch within one of these hedgerows.
- 2.1.5 Any hedgerows that are over 30 years old and qualify under any one of the criteria would be termed 'important'.

### 2.2 Other Legislation

- 2.2.1 Section 40 of the Natural Environment and Rural Communities (NERC) Act 2006 (as amended)) (Ref 3) places a duty on all public authorities in England and Wales to provide for the enhancement and improvement of biodiversity. There are also legally binding targets for the recovery of wildlife-rich habitat.
- 2.2.2 Section 41 (s41) of the NERC Act 2006 includes a list of habitats and plant species of principal importance for nature conservation in England which is to be used by decision-makers to guide the implementation of their duties under section 40 of the Act. This s41 list includes boundary and linear features including hedgerows.
- 2.2.3 Biodiversity net gain will be required under the Town and Country Planning Act 1990, from November 2023. Biodiversity Net Gain calculations and considerations, including data regarding hedgerows have been assessed and summarised and can be found in *Biodiversity Net Gain Report (Application Document 6.7)*.
- 2.2.4 The overarching National Planning Policy for Energy (EN-1) (Ref 4) sets out national policy for energy infrastructure and is part of a suite of National Policy Statements (NPS) issued

by the Department of Energy and Climate Change. Part 5.3 relates to biodiversity and requires that Environmental Statements (ES) clearly set out any effects on internationally, nationally and locally designated sites of ecological conservation importance, on protected species and on habitats (including hedgerows) and other species identified as being of principal importance for the conservation of biodiversity. It also requires that the applicant shows how the Proposed Development has taken advantage of opportunities to conserve and enhance biodiversity conservation interests.

2.2.5 The National Planning Policy Framework (NPPF) (Ref 5) sets out the Governments planning policies for England and how these are to be applied. It identifies overarching objectives, including environmental (such as protecting and enhancing our natural environment including hedgerows). The NPPF does not apply directly to NSIP projects but can still be important or relevant to decision making. Chapter 15 of the NPPF 'Conserving and enhancing the natural environment' sets out the requirements to consider in relation to ecology and biodiversity.

### 2.3 Planning Policy

2.3.1 Details of the relevant Local Plan policies is provided in **Table 1**.

#### Table 1: Local Policies in Relation to Hedgerows for the Proposed Development

Planning Document	Policy Reference	Description	
Central Lincolnshire. Local Plan (CLCP) – Adopted April 2023 (Ref 6)	and West Lind	ludes the City of Lincoln Council, North Kesteven Council lsey District Council. Part of the Proposed Development falls ndsey District Council; the CLCP replaces the West Lindsey	
	Policy S53: Design and Amenity	Incorporate and retain as far as possible existing natural features including hedgerows, trees, and waterbodies particularly where these features offer a valuable habitat to support biodiversity, aligned with policies in the Natural Environment chapter of the Local Plan.	
	Policy S66: Trees, Woodland, and Hedgerows	Proposals for new development will be expected to retain existing hedgerows where appropriate and integrate them fully into the design having regard to their management requirements. Proposals for new development will not be supported that would result in the loss of hedges of high landscape, heritage, amenity or biodiversity value unless the need for, and benefits of, the development clearly outweigh the loss and this loss can be clearly demonstrated to be unavoidable.	
		Development requiring the loss of a hedgerow protected under The Hedgerow Regulations will only be supported where it would allow for a substantially improved overall approach to the design and landscaping of the development that would outweigh the loss of the hedgerow. Where any hedges are lost, suitable replacement planting or restoration of existing hedges, will be required within the	

Planning Document	Policy Reference	Description		
		site or the locality, including appropriate provision for maintenance and management.		
North East Lincolnshire Council Local Plan (2013 – 2032) (Ref 7)	Policy SO6 – Built, Historic and Natural Environment	<ul> <li>Ensure the development needs of the borough are met in a way that safeguards and enhances the quality of the natural environment and ensures that development needs are met in a way that minimises harm. This is to be done by:</li> <li>Safeguarding designated and protected important species and habitats;</li> <li>Deliver net gains in biodiversity;</li> <li>Deliver development in locations of least environmental value.</li> </ul>		
	Policy 9 – Habitat Mitigation South Humber Bank	Proposals which adversely affect the Humber Estuary SPA/Ramsar site due to the loss of functionally linked land will be required to provide mitigation to comply with the requirements of Habitats Regulations.		
	Policy 41 – Biodiversity and Geodiversity	<ul> <li>Regard to biodiversity when considering development proposals seeking specifically to:</li> <li>Establish and secure appropriate management of long-mitigation areas, managed specifically to protect the integrity of internationally important biodiversity sites;</li> <li>Designate Local Wildlife Sites in recognition of particular wildlife value;</li> <li>Protect, manage and enhance international, national and local sites of biological conservation importance, having regard to the hierarchy of designated sites, and the need for appropriate buffer zones;</li> <li>Minimise the loss of biodiversity features, or where loss is unavoidable and justified ensure appropriate mitigation and compensation measures are provided;</li> <li>Create opportunities to retain, protect, restore and enhance features of biodiversity value including priority habitats and species; and</li> <li>Take opportunities to retain, protect and restore the connectivity between components of the Borough's ecological network.</li> <li>Any development which would, either individually or cumulatively, result in significant harm to biodiversity which cannot be avoided, adequately mitigated or as a last resort compensated for, will be refused.</li> </ul>		
	Policy 42: Landscape	Retain and protect trees and hedgerows which offer value for amenity, biodiversity and landscape.		

Planning Document	Policy Reference	Description
East Lindsey Core Strategy 2018	SP24 – Biodiversity and Geodiversity	Development Proposals should seek to protect and enhance the biodiversity value of land and buildings, and minimise fragmentation and maximise opportunities for connection between natural habitats.
(Ref 8)		<ul> <li>Aims to protect sites designated internationally, nationally or locally for their biodiversity importance, species populations and habitats identified in the Lincolnshire Biodiversity Action Plan and the Natural Environment and Rural Communities (NERC) Act. Development which could adversely affect such sites will only be permitted if:</li> <li>There is no alternative solution and there are overriding reasons of public interest for the development;</li> <li>There is no alternative solution and the reasons for the development clearly outweigh the biodiversity value of the site; and</li> <li>The reasons for the development clearly outweigh the need to protect the site in the long term.</li> <li>In exceptional circumstances where adverse impacts are demonstrated to be unavoidable any damage will be kept to a minimum and appropriate mitigation measures will be instated.</li> <li>Ancient woodland and veteran trees will only be allowed to be affected where the wider benefits clearly outweigh the protection of the trees.</li> </ul>
The North Lincolnshire Core Strategy 2006 - 2026	Policy CS1 – Spatial Strategy for North Lincolnshire	Internationally and nationally designated sites of conservation importance of the Humber Estuary and Thorne and Hatfield Moors will be protected and enhanced. In the Humber Estuary areas, a strategic approach to the creation of habitats will be adopted.
(Ref 9)	Policy CS16 – North Lincolnshire's Landscape, Greenspace and Waterscape	Requires protection of trees and hedgerows.
	Policy CS17 – Biodiversity	<ul> <li>Promotes effective stewardship of North Lincolnshire's wildlife through:</li> <li>Safeguarding national and international protected sites for nature conservation from inappropriate development;</li> <li>Appropriate consideration being given to European and nationally important habitats and species;</li> <li>Maintaining and promoting a North Lincolnshire network of local wildlife sites and corridors;</li> </ul>

Planning Document	Policy Reference	Description
		<ul> <li>Ensuring development protects and enhances features of biological interest;</li> <li>Ensuring development seeks to produce a net gain in biodiversity by designing in wildlife, and ensuring any unavoidable impacts are appropriately mitigated for; and Supporting wildlife enhancements that contribute to the habitat restoration targets set out in the North Lincolnshire's Nature Map and in national, regional and local biodiversity action plan.</li> </ul>

## 3 Methodology

### 3.1 Survey Scope

- 3.1.1 The scope of this survey was to identify and characterise all hedgerows that are:
  - Important under the Hedgerow Regulations;
  - Species-rich hedgerows;
  - A priority habitat (s41 habitat) under the NERC Act 2006;
  - Habitats that meet the requirements of hedgerows under UK Habitat Classifications; and
  - Used as stock-proof boundaries, or act as landscaping or garden boundary functions.
- 3.1.2 The criteria used to identify important hedgerows are given in Annex A.
- 3.1.3 Hedgerows can be species-rich or species-poor. A species-rich hedgerow has on average five or more woody native and/or archaeophyte species per 30m length. However, (consistent with the Regulations) where the hedgerow concerned occurs in North East Lincolnshire this threshold is reduced to four or more woody species. This should be assessed with reference to the species list provided in Appendix 11 of the Hedgerow Survey Handbook (Ref 1). Species-poor hedgerows are those with an average of four or less woody species per 30 m survey section, or three woody species where the hedgerow concerned is in North East Lincolnshire.
- 3.1.4 Priority hedgerows are those consisting predominantly (i.e. 80% or more cover) of at least one woody UK native tree or shrub species.
- 3.1.5 Climbers such as honeysuckle and bramble are recognised as integral to many hedgerows, however they require other woody plants to be present to form a hedgerow, as such they are not considered trees or shrubs for the purposes of survey.

### 3.2 Survey Methods

- 3.2.1 A team of experienced ecologists from AECOM conducted a series of desk studies and field surveys along the route of the Proposed Development between March 2022 and May 2023. The surveys included:
  - A detailed desk study to identify historic hedges and protected species that may be present within hedgerows along the route;
  - Phase 1 Habitat and Condition Assessment surveys to identify and assess the condition of habitats (including hedgerows) along the route of the Proposed Development; and
  - Dedicated hedgerow surveys to assess each the importance and species richness of each accessible hedgerow.

#### 3.3 Desk Study

- 3.3.1 A detailed desk study was completed from data obtained in March 2022 from the Lincolnshire Environmental Records Centre (LERC) to define areas with protected and notable species. This was coupled with data from the Multi-Agency Geographic Information for the Countryside (MAGIC) website (Ref 10), and data shared from a previous project of the land at VPI Immingham (Ref 11).
- 3.3.2 Historic maps were consulted from the later 19<sup>th</sup> century to identify assets and features of archaeological and historical interest and to assess changes to land use and landscape change. In addition, 1:10,000 series Ordnance survey maps were also reviewed to identify changes that have occurred between the early 1950s and the early 1990s. Aerial photography, enclosure maps and historic estate maps were also consulted where available from The Genealogist website (Ref 12).

### 3.4 Field Survey

- 3.4.1 A walkover survey was conducted between March 2022 and May 2023 to identify and map the habitats present in the Survey Area (DCO Site Boundary plus a 50m buffer). This survey followed the Phase 1 habitat survey methodology (Ref 13).
- 3.4.2 This survey was 'extended' to ground truth historical map and records centre data and to assess all hedgerows against the 'Wildlife and Landscape' criteria detailed in the Hedgerow Regulations (refer to Annex A). All hedgerows were appraised against the definitions given in Section 3.1 for species-rich and/or priority hedgerows. Where tree standards were present, these were assessed for their notability, age and veteran status.
- 3.4.3 Each hedgerow was inspected in its entirety with data gathered on the number of qualifying tree and shrub species present within 30m survey sections. The number of 30m survey sections required was determined by length of the hedgerow concerned (as measured prior to or during survey) as follows:
  - where the length of the hedgerow did not exceed 30m all qualifying tree and shrub species present in the hedgerow were counted;
  - where the hedgerow was 31-100 m long, qualifying tree and shrub species were counted for the central stretch of 30 m stretch of hedgerow;
  - where the hedgerow was 101-200 m long it was divided into equal halves and qualifying tree and shrub species were counted for the central stretch of 30 m in each half of the hedgerow. A mean species count was derived based on this; and

• where the hedgerow was greater than 201 m long it was divided into equal thirds and qualifying tree and shrub species were counted for the central stretch of 30 m in each third of the hedgerow. A mean species count was derived based on this.

#### 3.5 Approach to Ecological Evaluation

- 3.5.1 The Regulations have been applied to identify those hedgerows that qualify as important under the Regulations. However, the Regulations are intended for a very specific purpose and it is not appropriate that they be applied as the sole criteria for determining the biodiversity value of hedgerows. Instead, Chartered Institute of Ecology and Environmental Management (Ref 14) guidance has been followed to assess the biodiversity value of the habitat within the site. This allows resources to be assigned to one of the following geographic scales of value: international, national, regional, county, borough/district and local (**Table 2**).
- 3.5.2 The assignment of value to a specific resource requires that the assessor make use of relevant published evaluation criteria (where available). The published evaluation criteria for hedgerows are listed in **Table 2** against the relevant geographic scale of biodiversity value and are described in more detail below. Where published evaluation criteria do not exist, then it has been necessary for the assessing ecologist to apply their best judgement, supported by a reasoned argument.
- 3.5.3 There are no criteria established that would allow the identification of hedgerows of county or higher importance, although general guidance given in Hill et al. (Ref 15) has been considered where relevant. Whilst hedgerows are a habitat of principal importance in the planning process and are suffering a nationwide deterioration in extent and quality, the habitat has not yet declined to the extent that an individual hedgerow network is likely to be considered to be of more than county nature conservation value. This is supported by guidance given in Hill et al. (Ref 15).
- 3.5.4 There are no relevant criteria for the identification of hedgerows at borough level or below.

Table 2: Geographic scales of biodiversity value listed in descending order of importance and cross-referenced to the relevant published evaluation criteria for hedgerows (based on CIEEM, 2018)

Geographic scale of value	Published evaluation criteria
International	No published criteria, not applicable.
National	No published criteria but guidance given in Hill <i>et al</i> . (2005).
County	No published criteria but guidance given in Hill et al. (2005).
Borough	Not applicable
Local	Not applicable

### 3.6 Limitations

3.6.1 Access was not granted within limited areas of the DCO Site Boundary meaning a small percentage of hedgerows have not been surveyed. In these instances, the hedgerows have

been located on aerial and satellite photography (**Figure 1**) but have not been assessed for their importance, species richness or for their priority habitat status.

3.6.2 Ecological desk studies are a valuable tool for understanding the distribution of species and the impact of human activities on ecosystems. However, there are a number of limitations to these studies. These studies rely on people, companies and authorities to provide and record data. This means that the data may be incomplete or inaccurate, as it is based on the observations of others. Additionally, the data may be biased, as it may be more likely to reflect the presence of common or easily observed species. If a species has been recorded in a particular area, it does not necessarily mean that it is still present. Species can move out of an area over time. As the hedgerows have been surveyed by suitably experienced ecologists post data collection this is not seen as a significant limitation.

### **3.7 Approach to Missing Data**

- 3.7.1 Where it has not been possible to achieve 100% survey coverage, the assessment has been based on a reasonable precautionary approach that assumes the hedgerow is native and species-rich. This precautionary approach is considered appropriate to identify and assess the main effects which the Proposed Development is likely to have on hedgerows within the DCO Site Boundary.
- 3.7.2 Where hedgerows have not been accessed it was not possible to complete a survey against the wildlife and landscape criteria of the Hedgerow Regulations 1997 (Ref 2). It therefore remains possible that these hedgerows may be protected by the Hedgerow Regulations 1997 (Ref 2) and a field survey will be completed to confirm this prior to any works that may require removal of hedgerows.

## 4 Results

### 4.1 Overview of the Hedgerows in the Study Area

- 4.1.1 A total of 104 hedgerows were assessed to determine their importance, species richness and priority status within the area covered by the DCO Site Boundary (Figure 1). A further 22 hedgerows were not assessed due to access constraints. In some instances, historic mapping data used alongside up-to-date satellite imagery has allowed the definition of several non-surveyed hedgerows to be confirmed as important under sections 1, 3 and 5 of the Regulations (see paragraphs 4.7 4.13).
- 4.1.2 Of the 104 successfully surveyed hedgerows within the DCO Site Boundary, a total of 89 hedgerows were assessed as being of 30 years of age or older accounting for 86% of all surveyed hedgerows. The mean number of species of the successfully surveyed hedgerows was 3 and the median number of species of the successfully surveyed hedgerows was also 3. The most abundant species typically found within hedgerows along the route of the Proposed Development included common hawthorn (*Crataegus mongyna*), recorded in 86% of surveyed hedges, and blackthorn (*Prunus spinosa*), recorded in 84% of all surveyed hedgerows. The most abundant tree species present as standards were ash (*Fraxinus excelsior*) and pedunculate oak (*Quercus robur*) recorded in 32% and 9% of hedgerows respectively. Tree standards were present in 43 of the 104 surveyed hedgerows accounting for 41% of all hedgerows surveyed.

- 4.1.3 Within North Lincolnshire a total of six hedgerows were successfully surveyed within the DCO Site Boundary. There were no hedgerows within the DCO Site Boundary within North Lincolnshire that were not surveyed. Of the six surveyed hedgerows, five were assessed as being of 30 years of age or older (Annex B). The mean number of species within the hedgerows surveyed within North Lincolnshire was 3.8 with a median of 3.5 species. The most common species within the surveyed hedgerows within North Lincolnshire were hawthorn and blackthorn.
- 4.1.4 Within North East Lincolnshire a total of 25 hedgerows were successfully surveyed within the DCO Site Boundary. There were 11 hedgerows that were identified from aerial photography and satellite imagery which were not surveyed due to access constraints (Figure 1). Of the surveyed hedgerows 23 were assessed as being of 30 years of age or older (Annex B). The mean and median number of species for the surveyed hedgerows within North East Lincolnshire was 3.12 and 3 respectively. Hawthorn and blackthorn were the most commonly recorded species.
- 4.1.5 Within West Lindsey a total of two hedgerows were successfully surveyed. There were five hedgerows that were identified from aerial photography and satellite imagery which were not surveyed due to access constraints (**Figure 1**). Of the two assessed hedgerows both were assessed of being 30 years old or more (Annex B). The mean and median number of species within West Lindsey were two and two respectively. Hawthorn, ash and crab apple (*Malus sylvestris*) were the most commonly recorded species.
- 4.1.6 Within East Lindsey a total of 71 hedgerows were successfully surveyed. There were four hedgerows that were identified from aerial photography and satellite imagery which were not surveyed due to access constraints (**Figure 1**). Of the surveyed hedgerows 59 of the hedgerows were assessed as being 30 years old or more (Annex B). The mean and median number of species within the surveyed hedgerows within East Lindsey were 3 and 3 respectively. The most recorded species were hawthorn, blackthorn, ash and pedunculate oak.

### 4.2 Important Hedgerows

- 4.2.1 There were a total of 41 hedgerows that were classified as important from the 104 surveyed hedgerows. A further five hedgerows were classified as important from the non-surveyed hedgerows based on historic mapping and satellite imagery under criteria 1-5 of the Hedgerow Regulations 1997 (**Figure 1**). All hedgerows assessed qualified as priority habitat as defined by the NERC Act 2006.
- 4.2.2 A total of three hedgerows were classified as important under both criteria 1 & 5 of the Hedgerow Regulations 1997; there was only one hedgerow classified as important under both criteria 3 and 5. There were 24 hedgerows classified as important under criteria 5 only, and a further six hedgerows classified under both criteria 7 and 8. A total of 12 hedgerows were classified as important under criteria 8 only (see **Table 3** below, **Annex B** and **Figure 1**). No hedgerows were classed as important under criteria 6 of the Regulations (Ref 2) within the DCO Site Boundary.
- 4.2.3 In total, 28 hedgerows were classified as important under the historic and archaeological criteria and 18 under the wildlife and landscape criteria.
- 4.2.4 Within North Lincolnshire a total of one hedgerow was classified as important under the Regulations criteria. This hedgerow was classified under criteria 8 of the Regulations (see **Table 3** below, Annex B and **Figure 1**).

- 4.2.5 Within North East Lincolnshire a total of 14 hedgerows were assessed as being important under the Regulations. Of these, one hedgerow was classified as important under both criteria 1 and 5, one hedgerow was classified as important under both criteria 3 and 5, five hedgerows were classified as important under criteria 5 only, with three classified under criteria 8 only. A further four hedgerows were classified under both criteria 7 and 8 of the Regulations (see **Table 3** below, Annex B and **Figure 1**).
- 4.2.6 Within West Lindsey a total of 7 hedgerows were assessed as being important under the Regulations. Of these, six were classified as important under criteria 5 and one was classified under both criteria 5 and criteria 1 (see **Table 3** below, Annex B and **Figure 1**).
- 4.2.7 Within East Lindsey a total of 24 hedgerows were assessed as being important under the Regulations. Of these, one hedgerow was classified under both criteria 1 and 5. There were 13 hedgerows classified under criteria 5, and a further eight hedgerows classified under criteria 8. Two hedgerows were classified as important under both criteria 7 and 8 (see Table 3 below, Annex B and Figure 1).

#### 4.3 Species-Rich Hedgerows

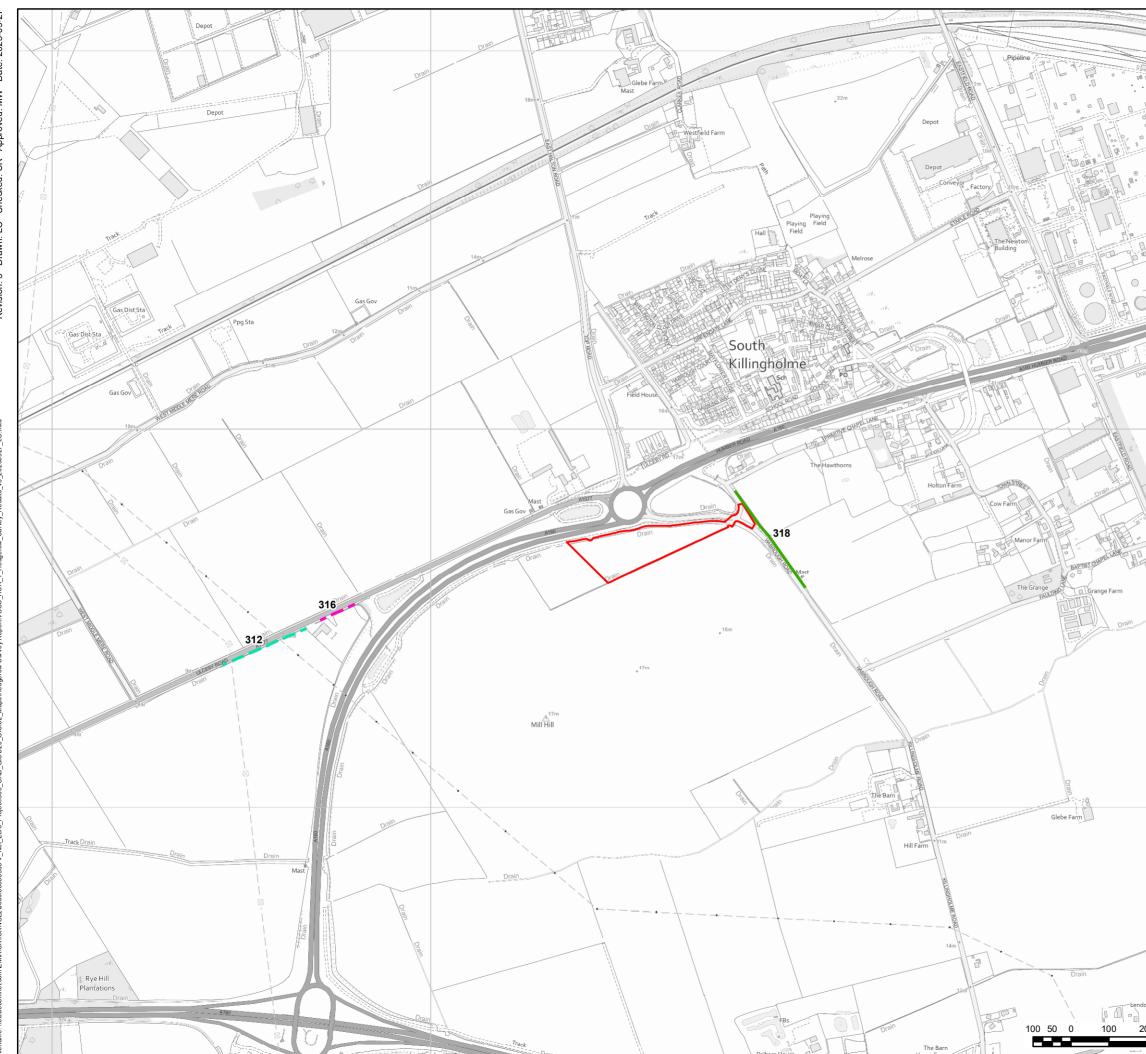
- 4.3.1 Of the 104 successfully surveyed hedgerows 18 were classified as species rich accounting for 17% of all the surveyed hedgerows (**Figure 1**). Of the species rich hedgerows, 13 were also "important" hedgerows. The remaining 86 surveyed hedgerows were classified as species poor accounting for 83% of all hedgerows (See **Table 3** below).
- 4.3.2 Within North Lincolnshire a total of one hedgerow was classified as species rich, this hedgerow was not classified as important under the Regulations. There were seven hedgerows classified as species rich in North East Lincolnshire. Of these five were also assessed to be important hedgerows. There were no hedgerows assessed as being species rich in west Lindsey. Within East Lindsey a total of 10 hedgerows were classified as species rich, of these eight were also classed as important hedgerows (See **Table 3** below and Annex B).

Hedgerow ID	Criteria met	Species rich	Local Planning Authority
32b	5	Yes	East Lindsey
113	5	No	East Lindsey
118	5	No	East Lindsey
120	5	Yes	East Lindsey
124	5	No	East Lindsey
112	5	No	North East Lincolnshire
227	5	No	North East Lincolnshire
243	5	No	North East Lincolnshire
302	5	No	North East Lincolnshire

## Table 3: Showing the Classification and Species Richness of Hedgerows under theHedgerow Regulations 1997

Hedgerow ID	Criteria met	Species rich	Local Planning Authority
411	5	Un-surveyed	North East Lincolnshire
74	8	Yes	North East Lincolnshire
90	8	No	North East Lincolnshire
125	5	No	East Lindsey
117	8	Yes	North East Lincolnshire
287	5	No	East Lindsey
326	5	No	East Lindsey
350	5	No	East Lindsey
353	5	No	East Lindsey
355	5	No	East Lindsey
358a	5	No	East Lindsey
360	5	No	East Lindsey
68	1 & 5	No	North East Lincolnshire
249	3 & 5	No	North East Lincolnshire
72	7&8	No	North East Lincolnshire
91	7 & 8	Yes	North East Lincolnshire
14	8	Yes	East Lindsey
15	8	Yes	East Lindsey
16	8	Yes	East Lindsey
121	8	No	East Lindsey
122	8	No	East Lindsey
98	7 & 8	Yes	North East Lincolnshire
309	5	No	West Lindsey
318	8	No	North Lincolnshire
270	8	No	East Lindsey
280	8	Yes	East Lindsey

Hedgerow ID	Criteria met	Species rich	Local Planning Authority
281	8	Yes	East Lindsey
65	1 & 5	No	East Lindsey
224	7&8	Yes	East Lindsey
282	7&8	No	East Lindsey
370	5	No	West Lindsey
373	5	No	West Lindsey
392	5	Un-surveyed	West Lindsey
393	5	Un-surveyed	West Lindsey
394	5	Un-surveyed	West Lindsey
395	1 & 5	Un-surveyed	West Lindsey
231	7&8	No	North East Lincolnshire







DCO Site Boundary

Hedgerow Type

- Important Hedgerow Species Poor
- Species Poor Hedgerow
- - Species Rich Hedgerow

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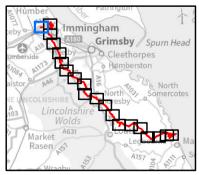
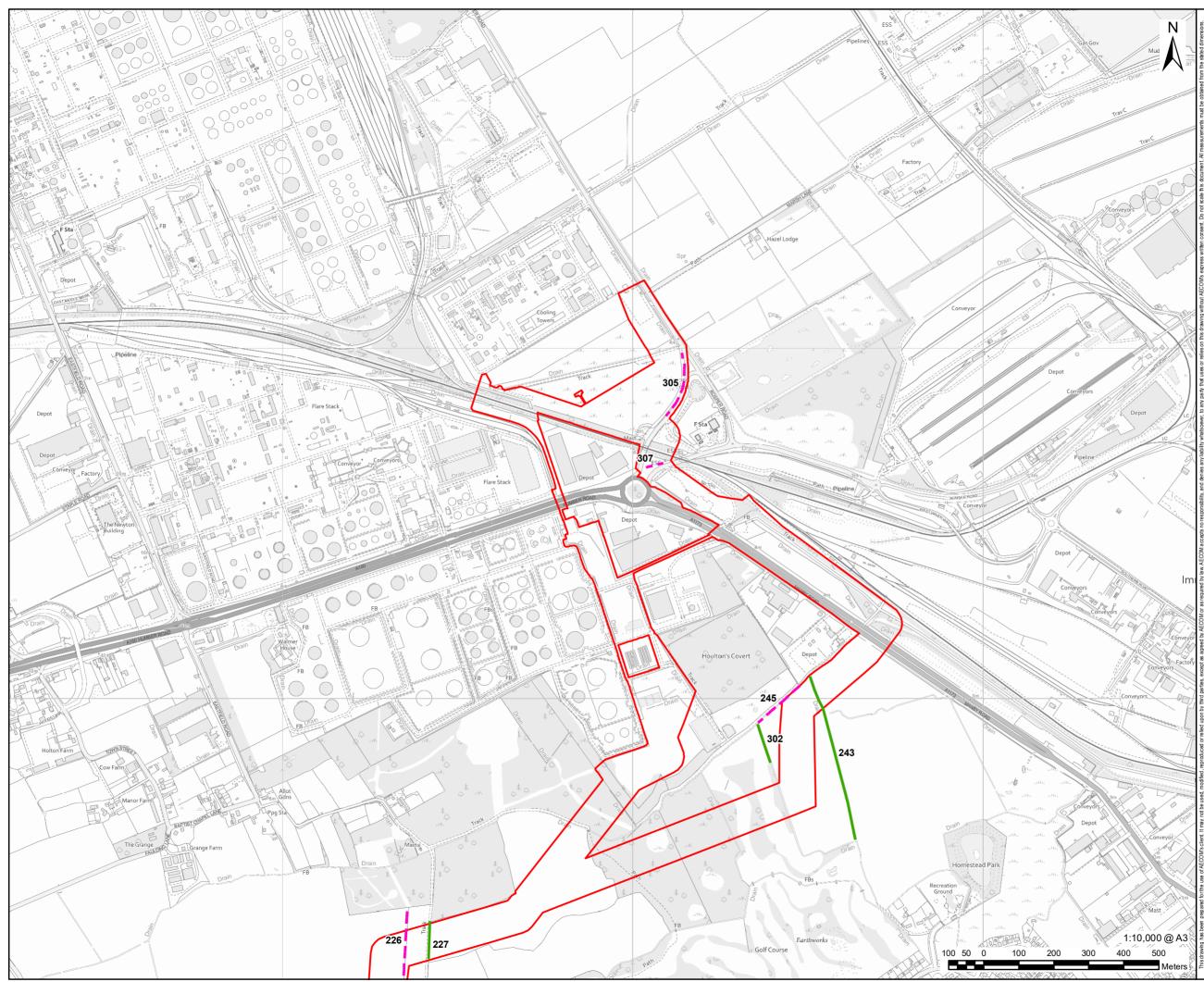


FIGURE TITLE Figure 1 (1 of 20) Hedgerow Survey Results





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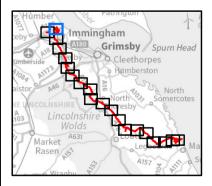
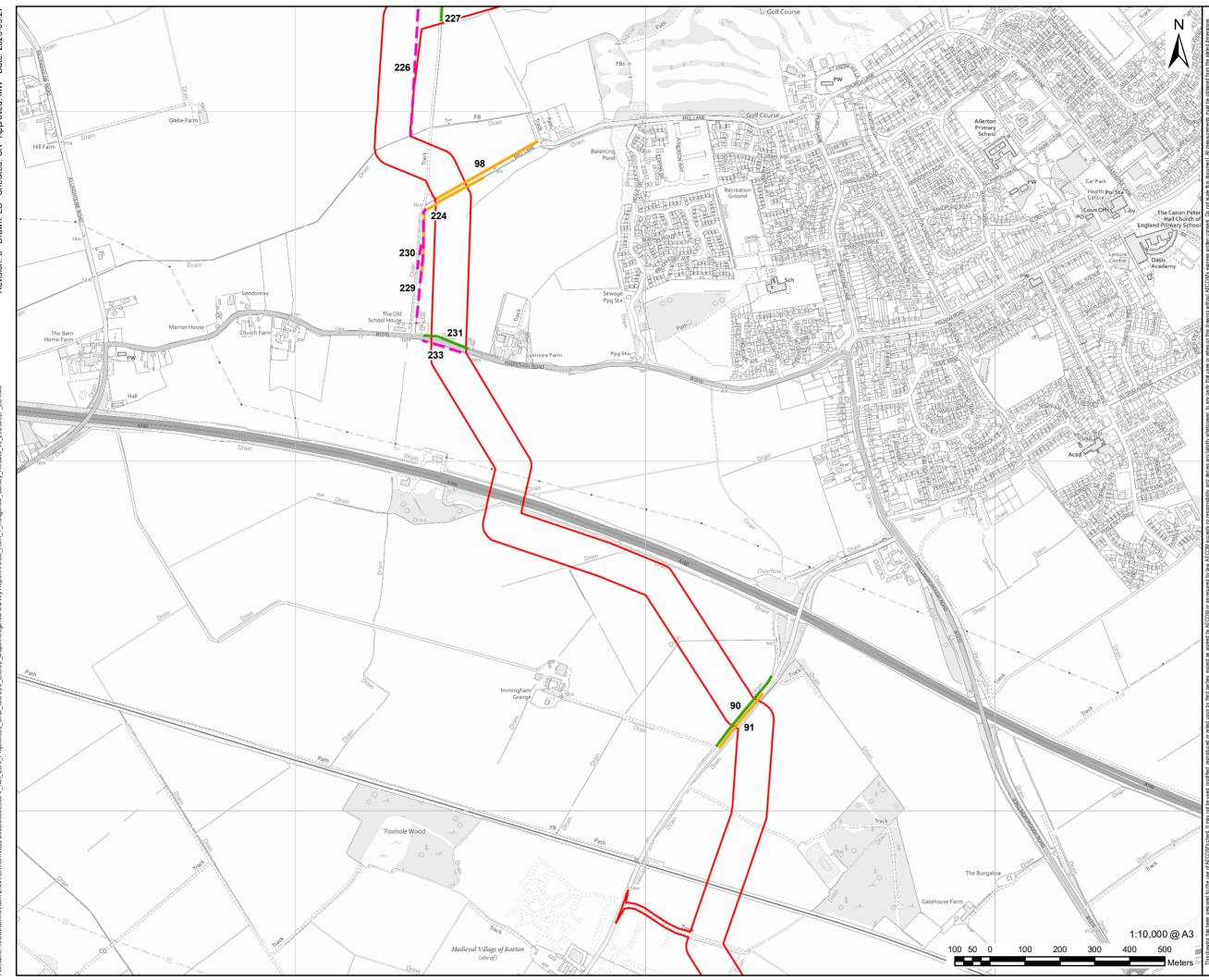


FIGURE TITLE Figure 1 (2 of 20) Hedgerow Survey Results





Hedgerow Type Important Hedgerow - Species Poor

- Important Hedgerow Species Rich
- Species Poor Hedgerow

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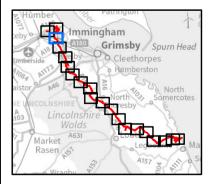
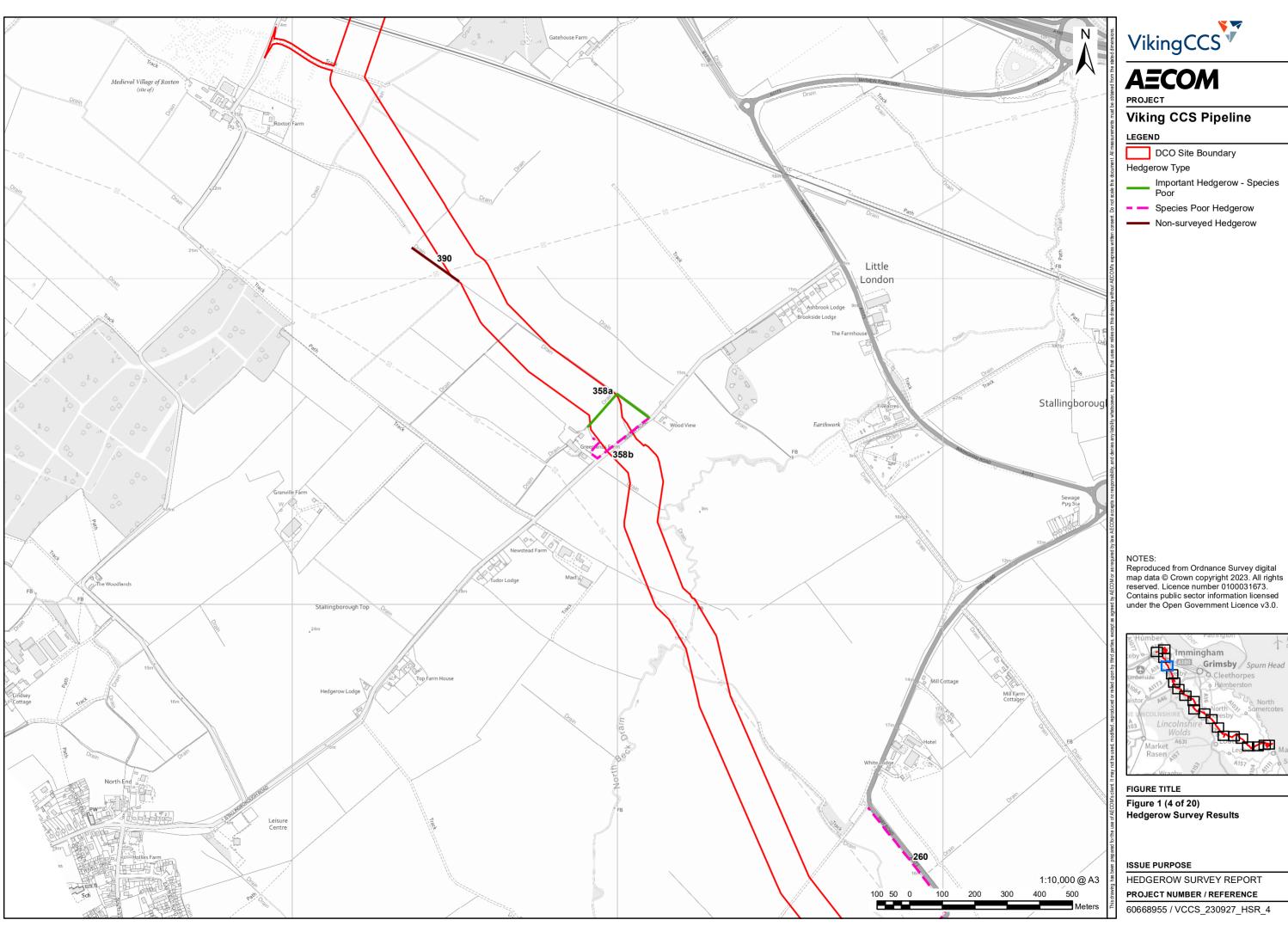
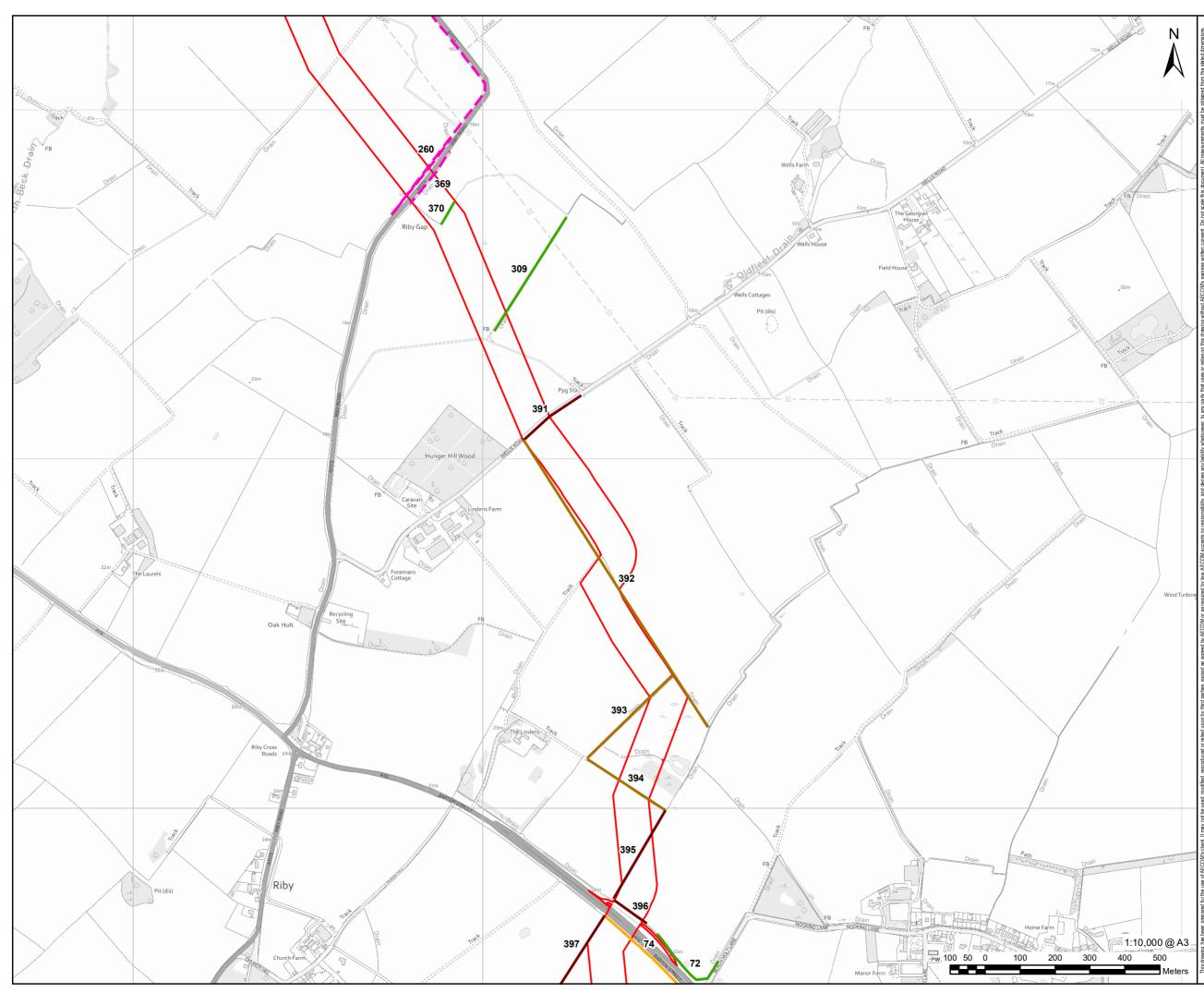


FIGURE TITLE Figure 1 (3 of 20) Hedgerow Survey Results

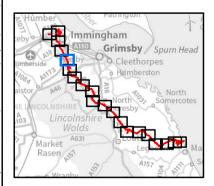




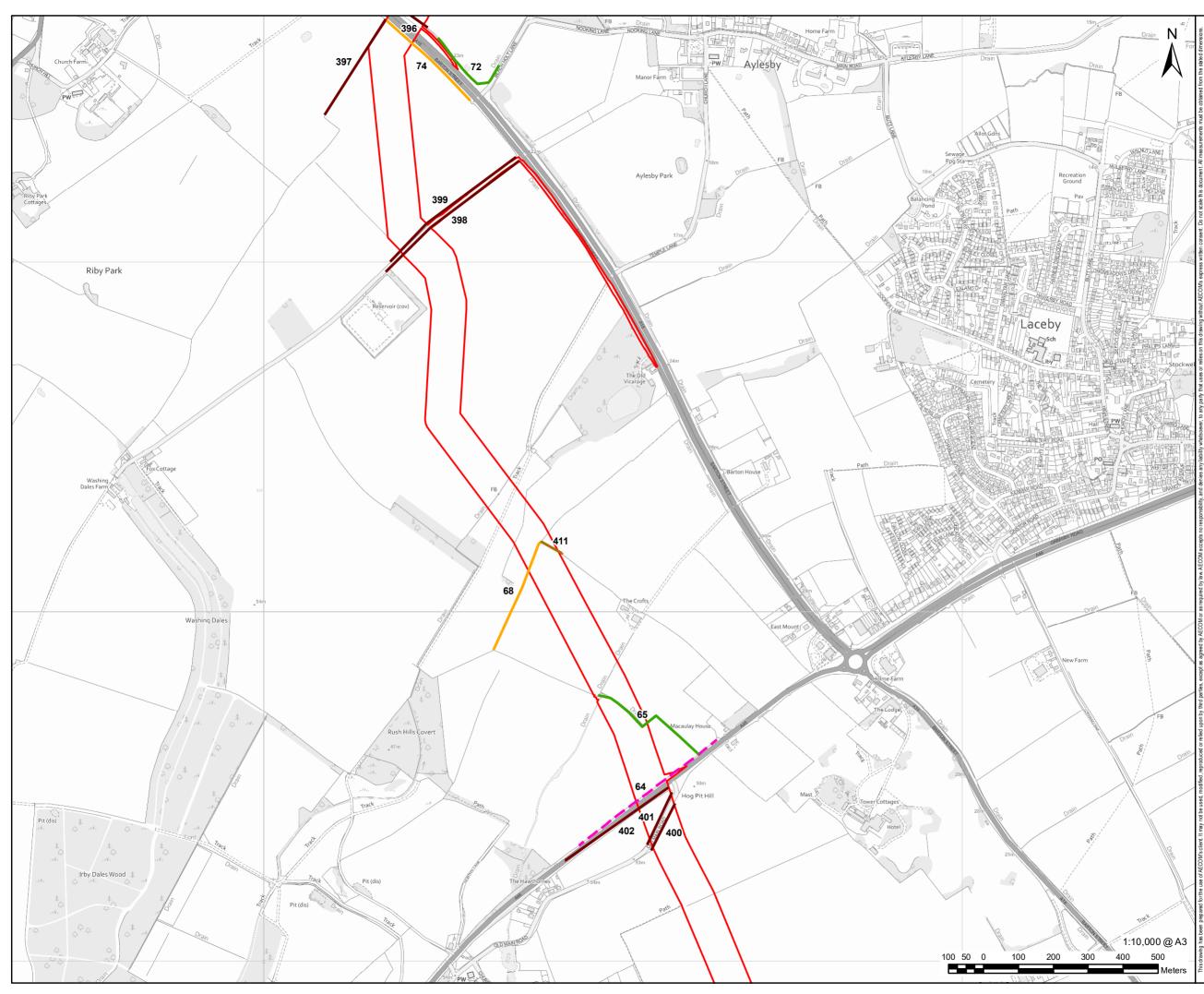


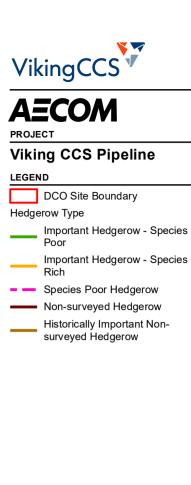
- Important Hedgerow Species Poor
- Important Hedgerow Species Rich
- Species Poor Hedgerow
- Non-surveyed Hedgerow
- Historically Important Nonsurveyed Hedgerow

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#### FIGURE TITLE Figure 1 (5 of 20) Hedgerow Survey Results



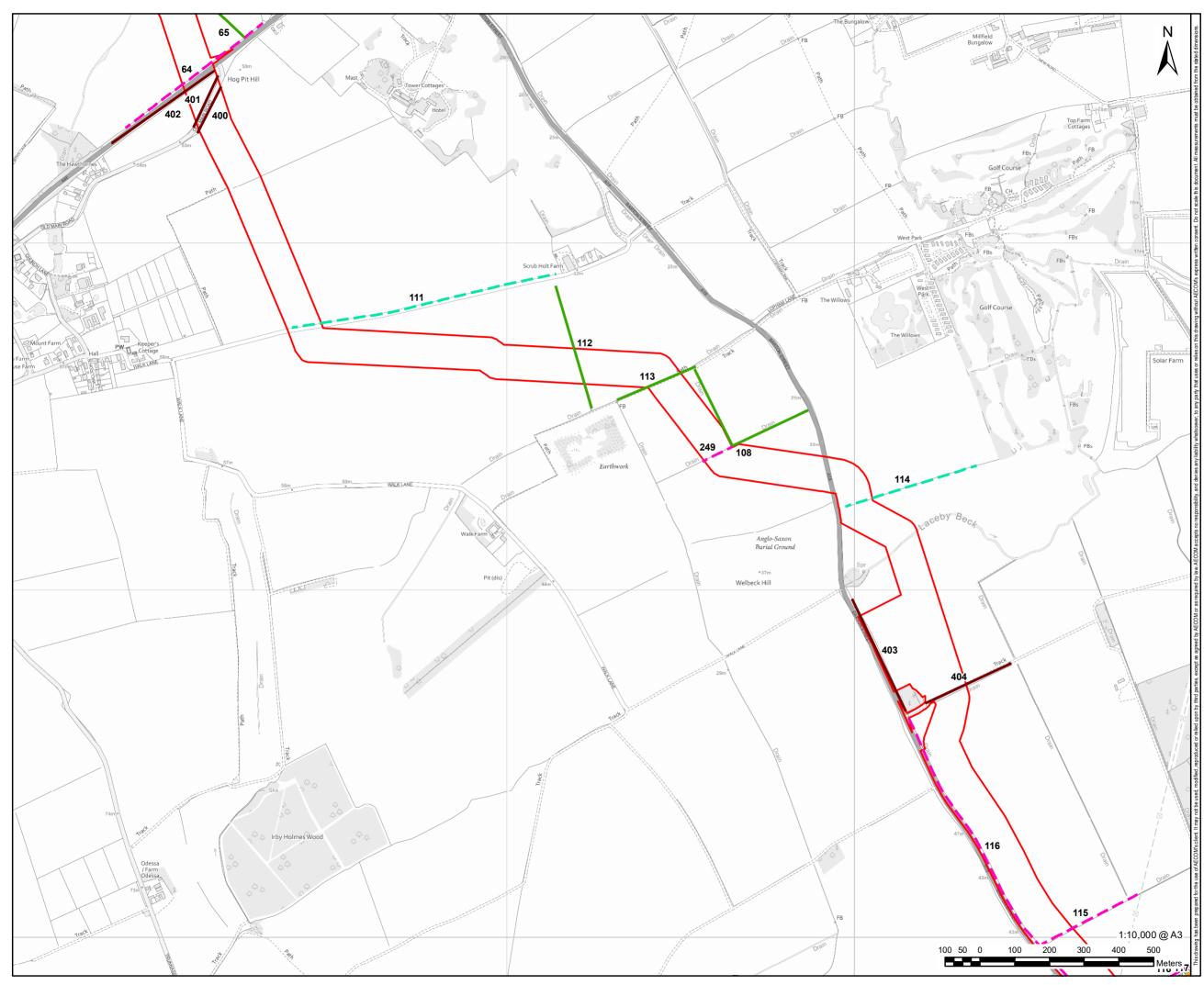


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FIGURE TITLE Figure 1 (6 of 20) Hedgerow Survey Results







- DCO Site Boundary Hedgerow Type
- Important Hedgerow Species Poor
- Important Hedgerow Species Rich
- Species Poor Hedgerow
- Species Rich Hedgerow
- Non-surveyed Hedgerow

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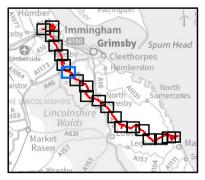
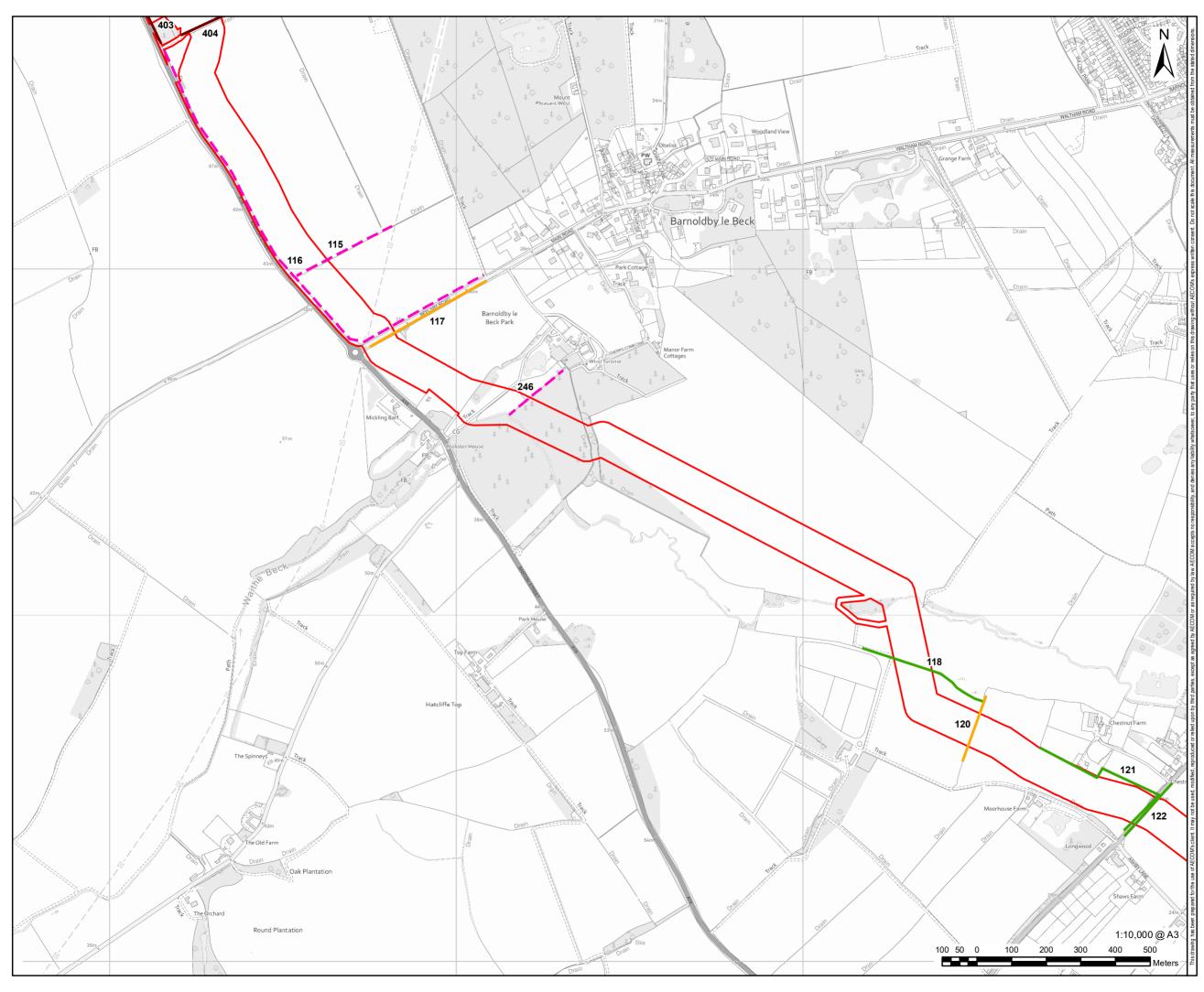


FIGURE TITLE Figure 1 (7 of 20) Hedgerow Survey Results





#### Viking CCS Pipeline

#### LEGEND

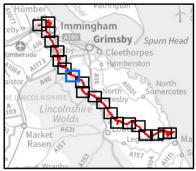
DCO Site Boundary

Hedgerow Type

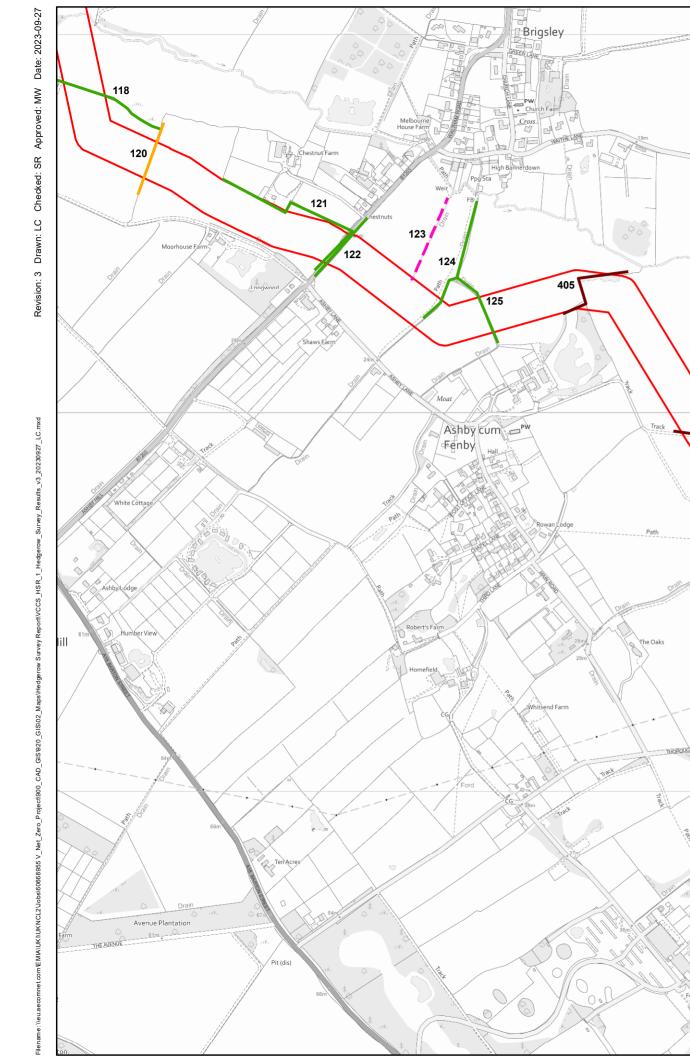
- Important Hedgerow Species Poor
- Important Hedgerow Species Rich
- Species Poor Hedgerow
- Non-surveyed Hedgerow

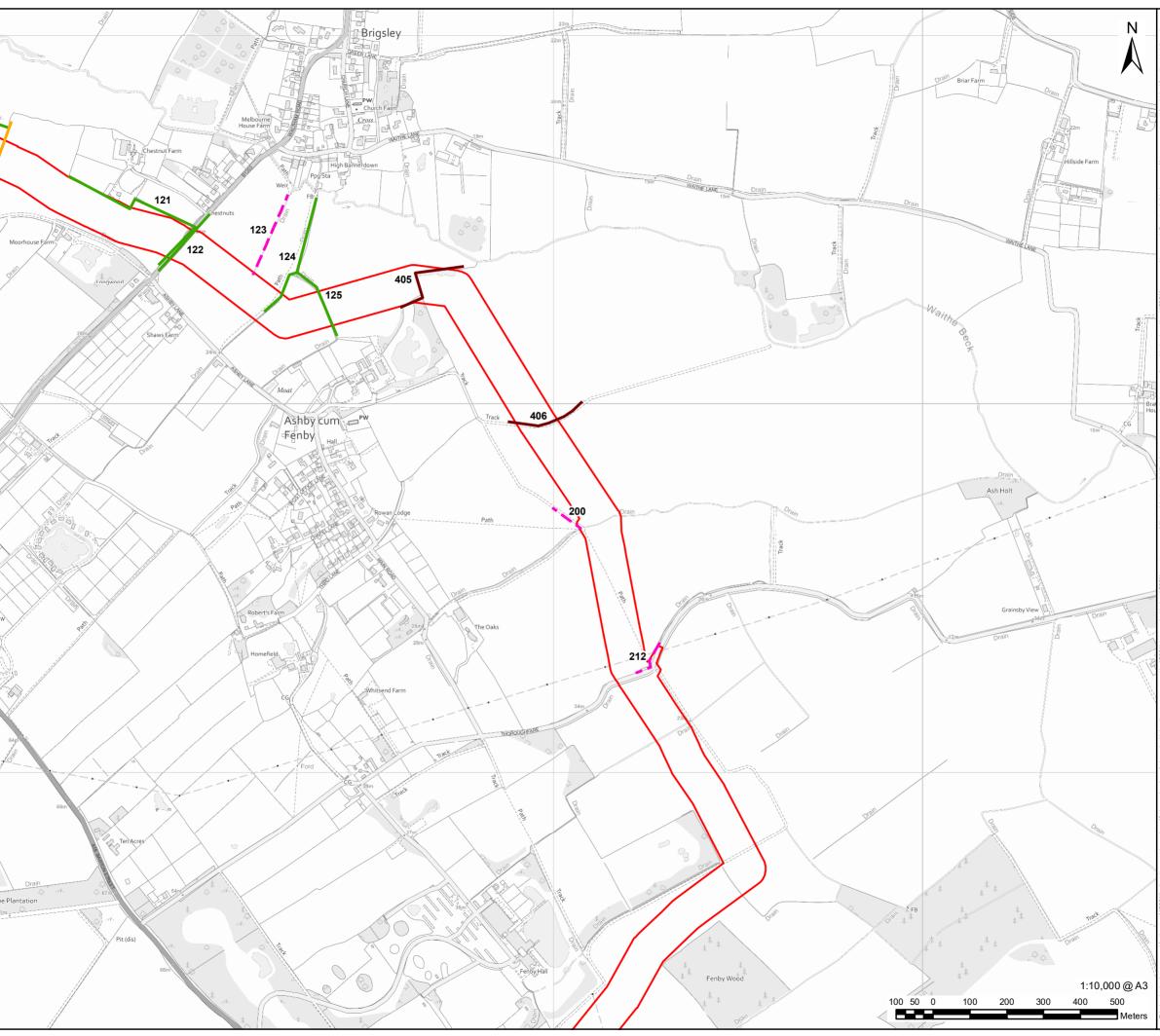
#### NOTES:

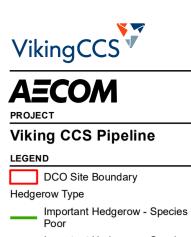
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#### FIGURE TITLE Figure 1 (8 of 20) Hedgerow Survey Results







- Important Hedgerow Species Rich
- - Species Poor Hedgerow
- Non-surveyed Hedgerow

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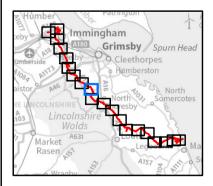
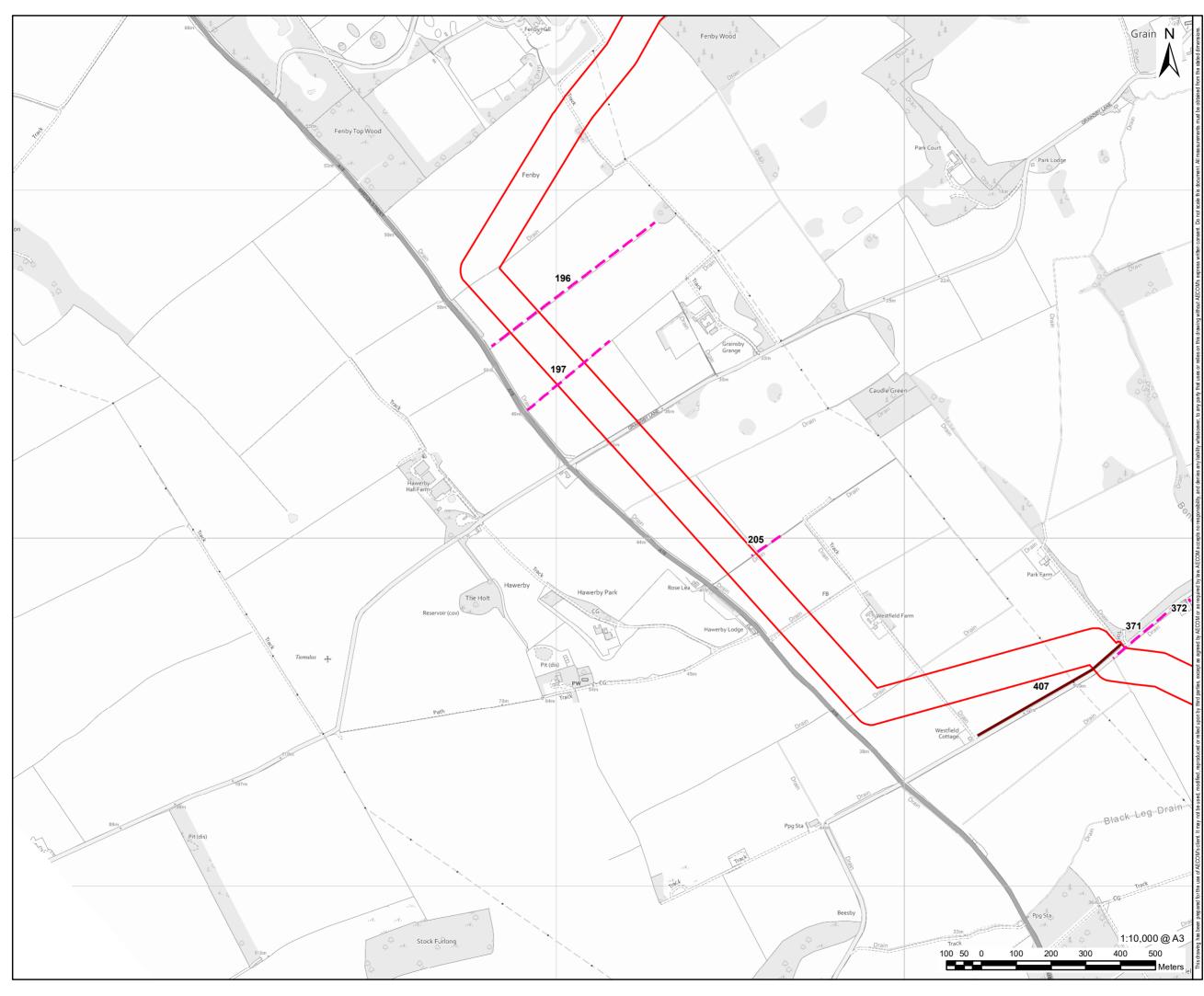


FIGURE TITLE Figure 1 (9 of 20) Hedgerow Survey Results





Non-surveyed Hedgerow

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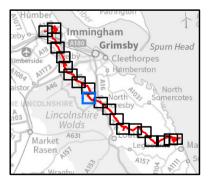
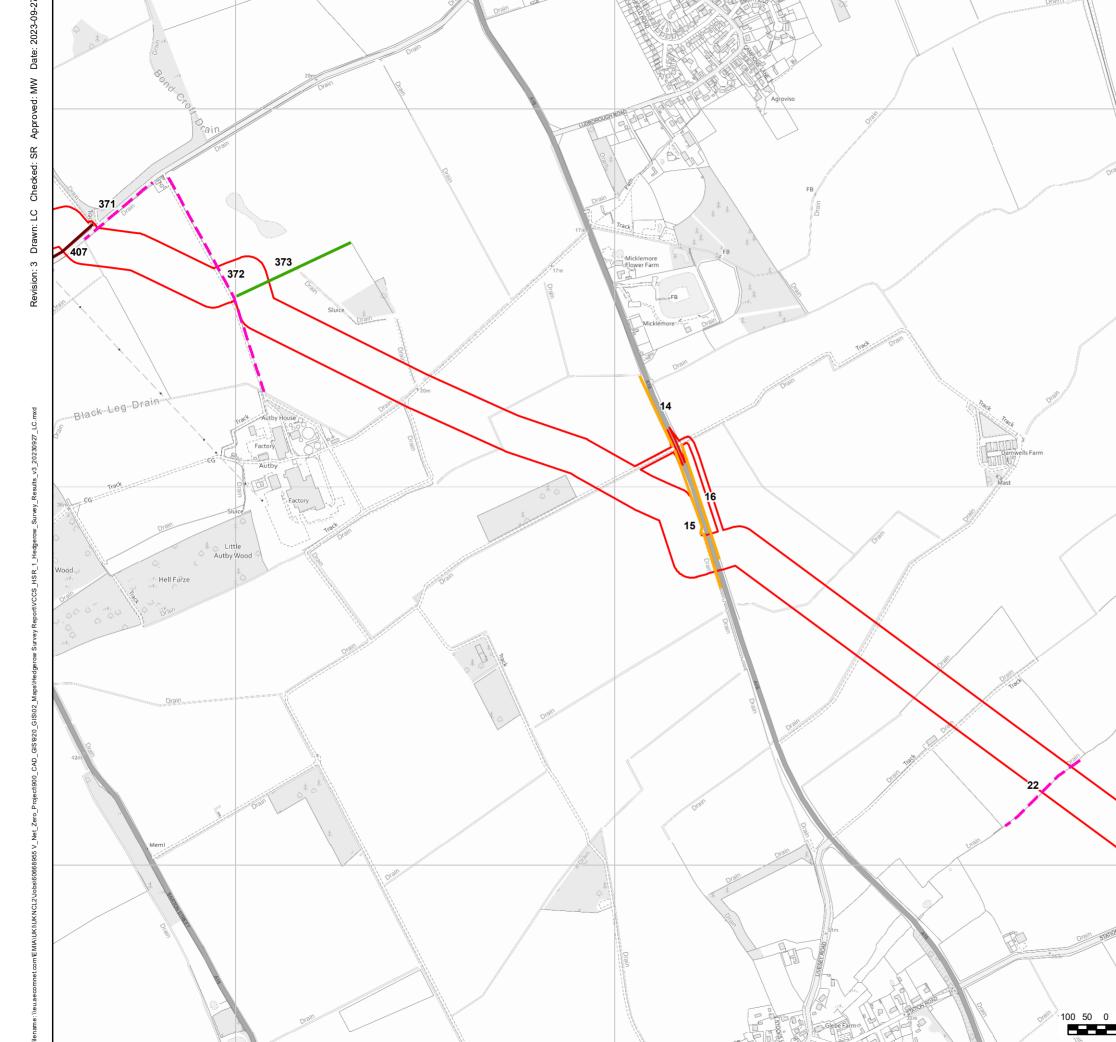


FIGURE TITLE Figure 1 (10 of 20) Hedgerow Survey Results

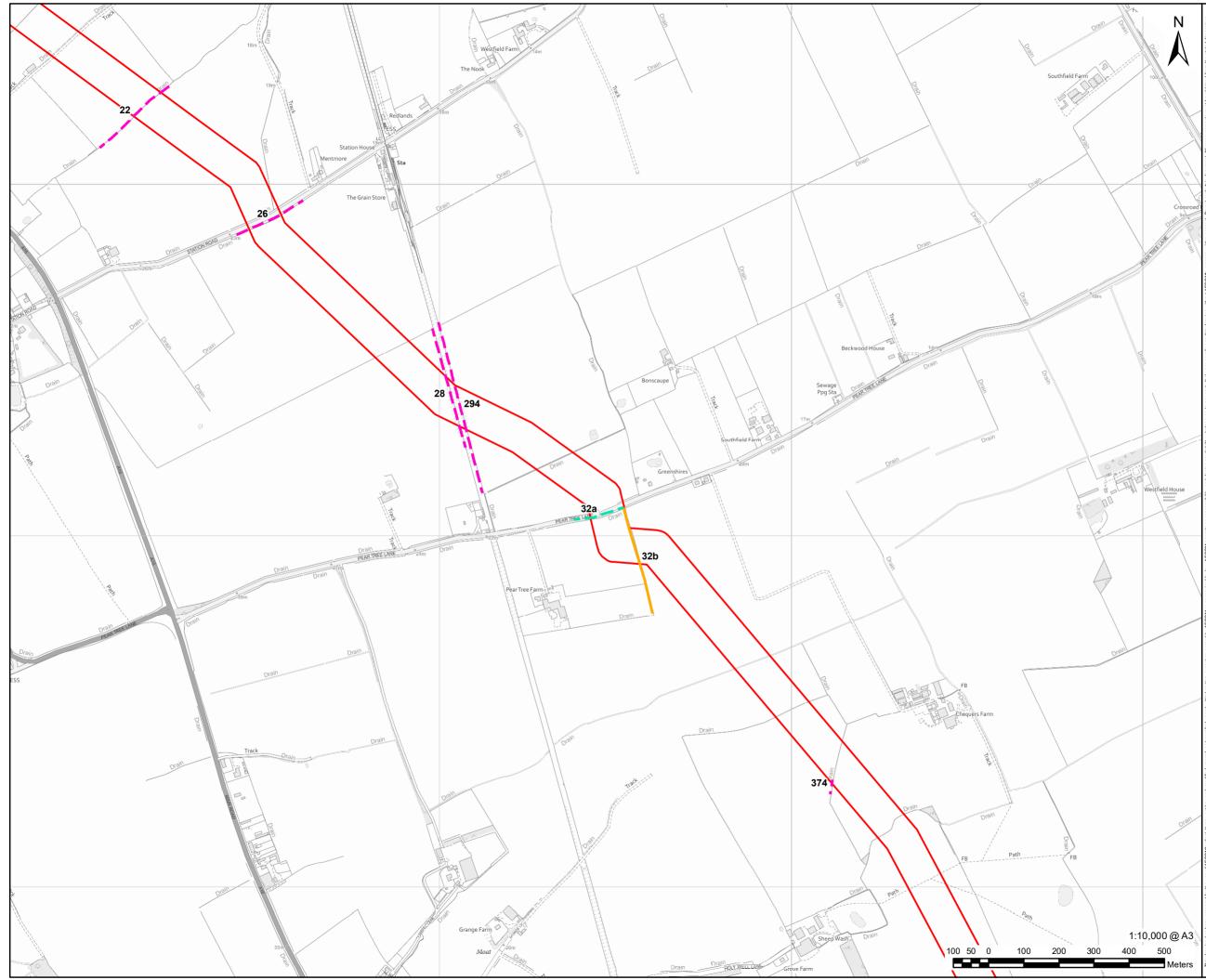


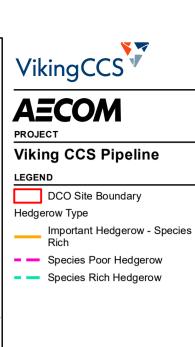


100



Hedgerow Survey Results





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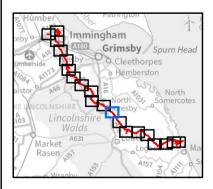
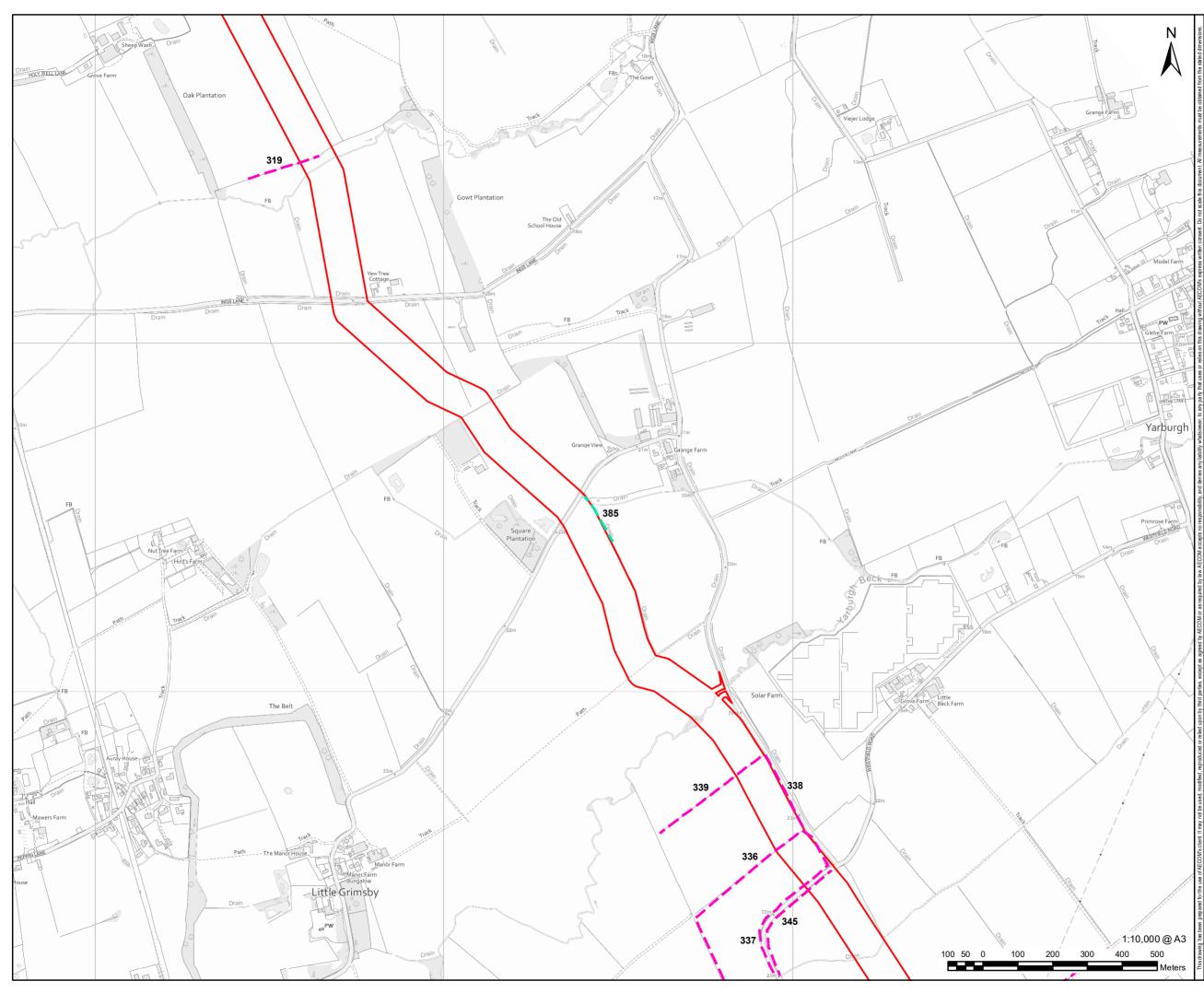


FIGURE TITLE Figure 1 (12 of 20) Hedgerow Survey Results





Hedgerow Type - - Species Poor Hedgerow - Species Rich Hedgerow

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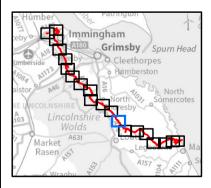
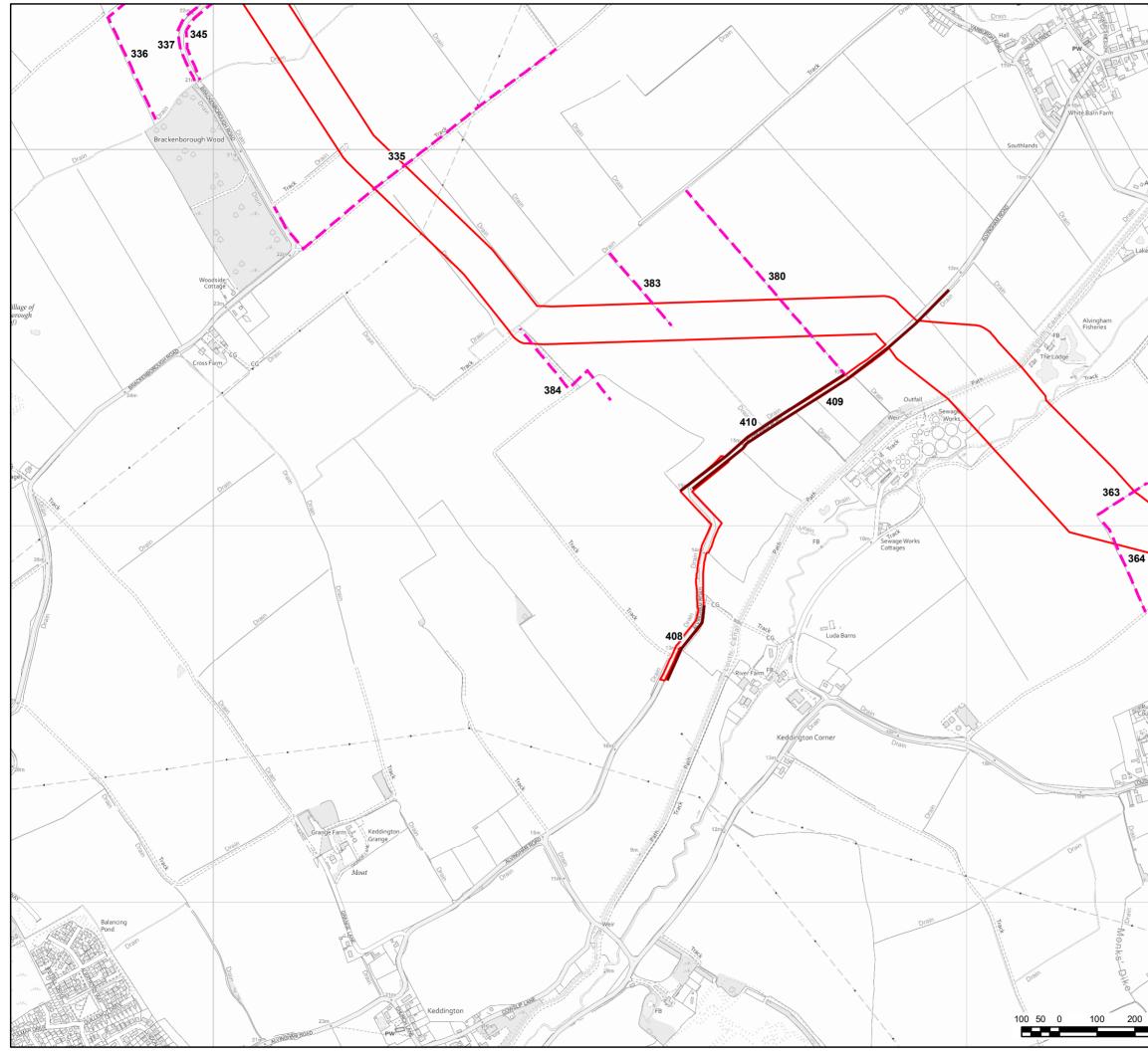


FIGURE TITLE Figure 1 (13 of 20) Hedgerow Survey Results

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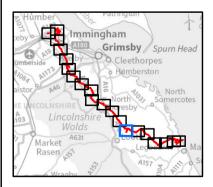
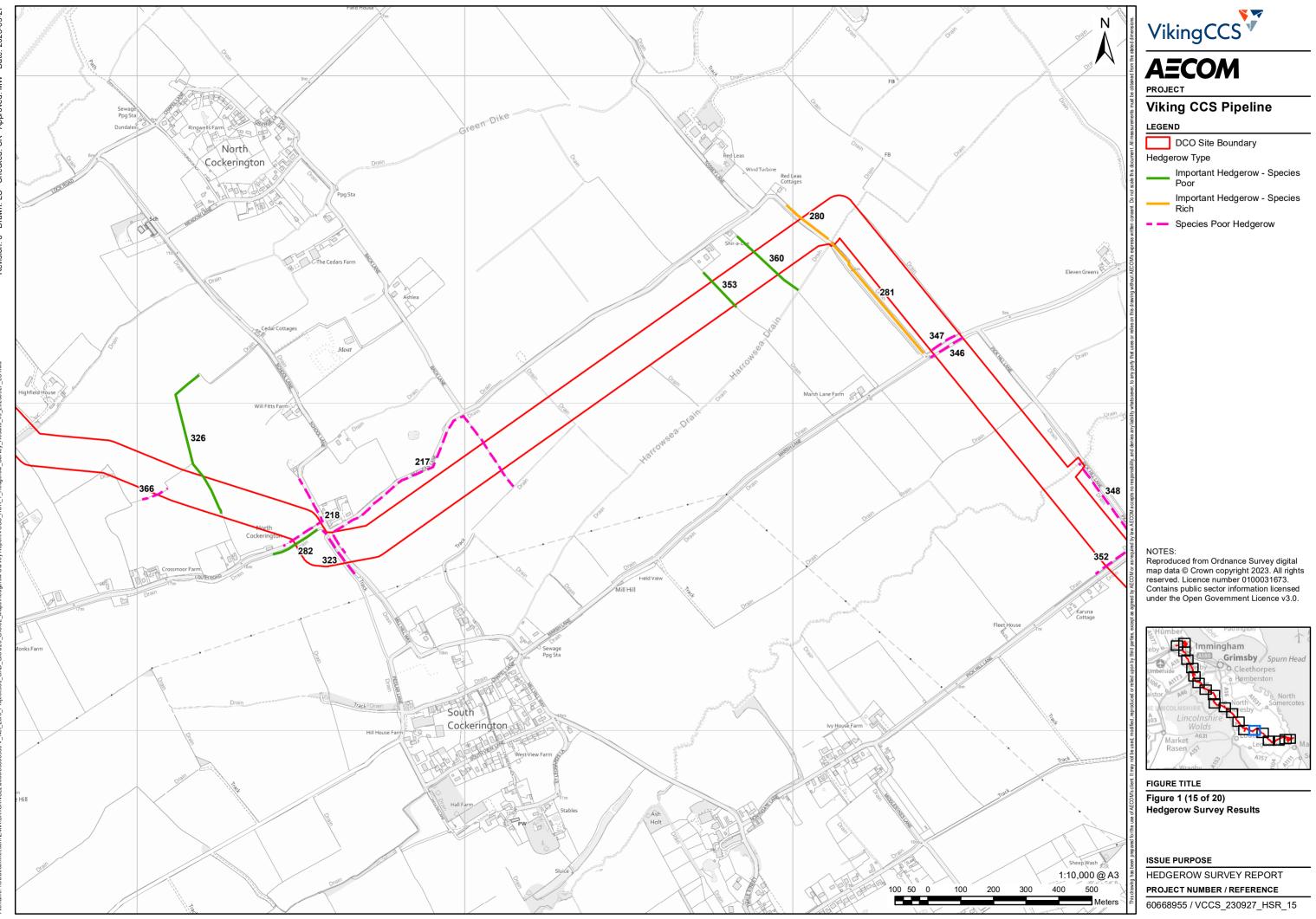
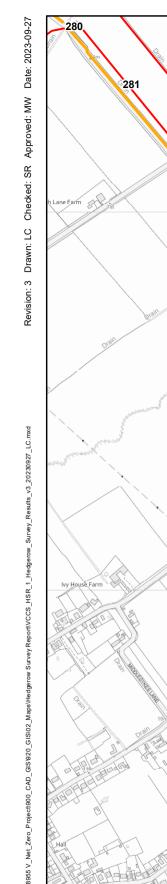
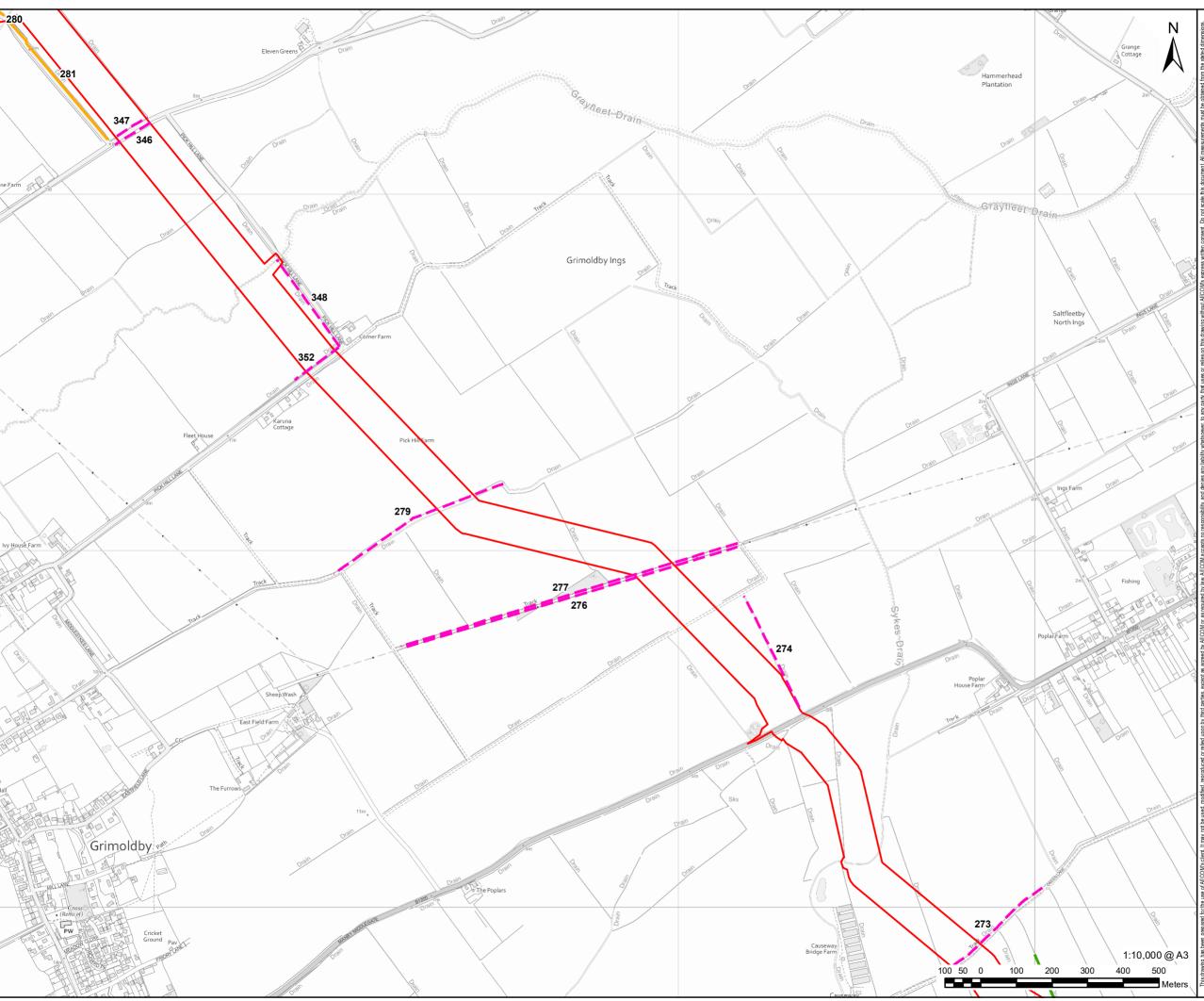


FIGURE TITLE Figure 1 (14 of 20) Hedgerow Survey Results









#### LEGEND

DCO Site Boundary
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Hedgerow Type

- Important Hedgerow Species Poor
- Important Hedgerow Species Rich
- - Species Poor Hedgerow

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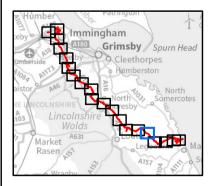
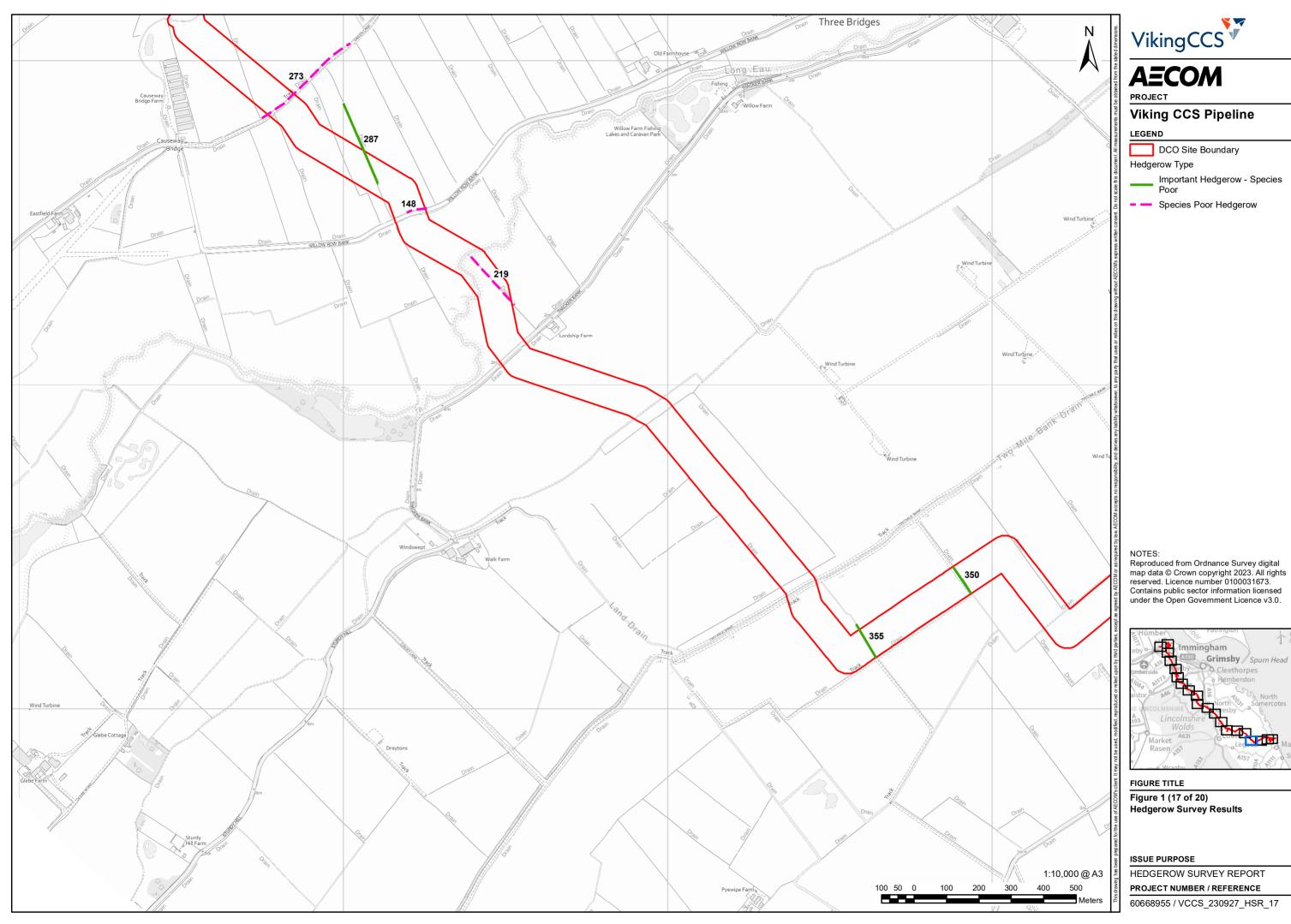
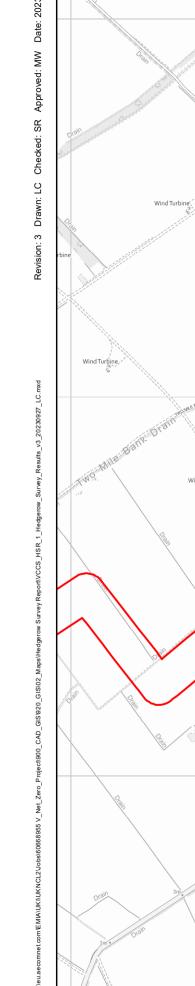
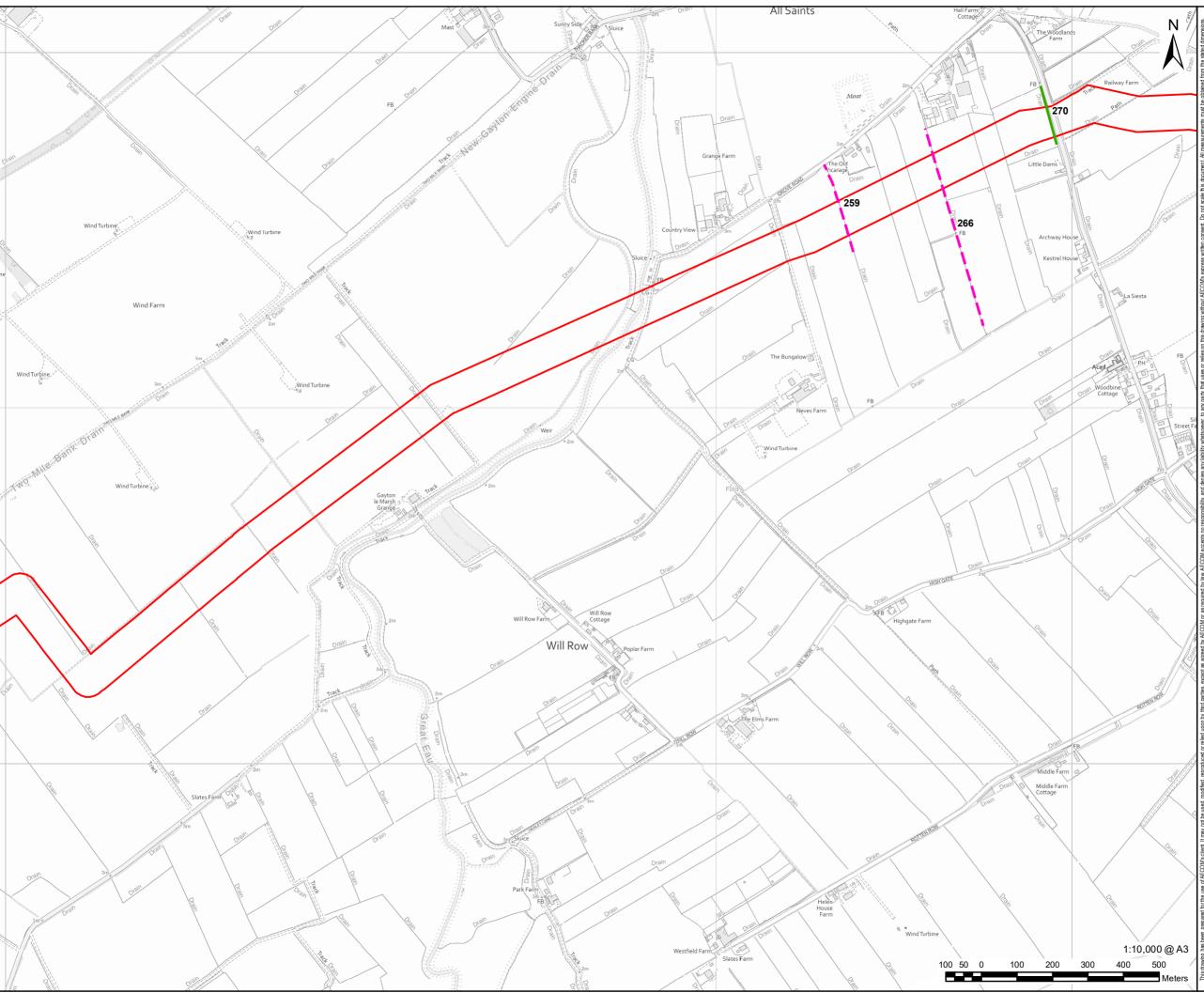


FIGURE TITLE Figure 1 (16 of 20) Hedgerow Survey Results









Hedgerow Type Important Hedgerow - Species Poor

- — Species Poor Hedgerow

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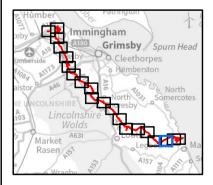
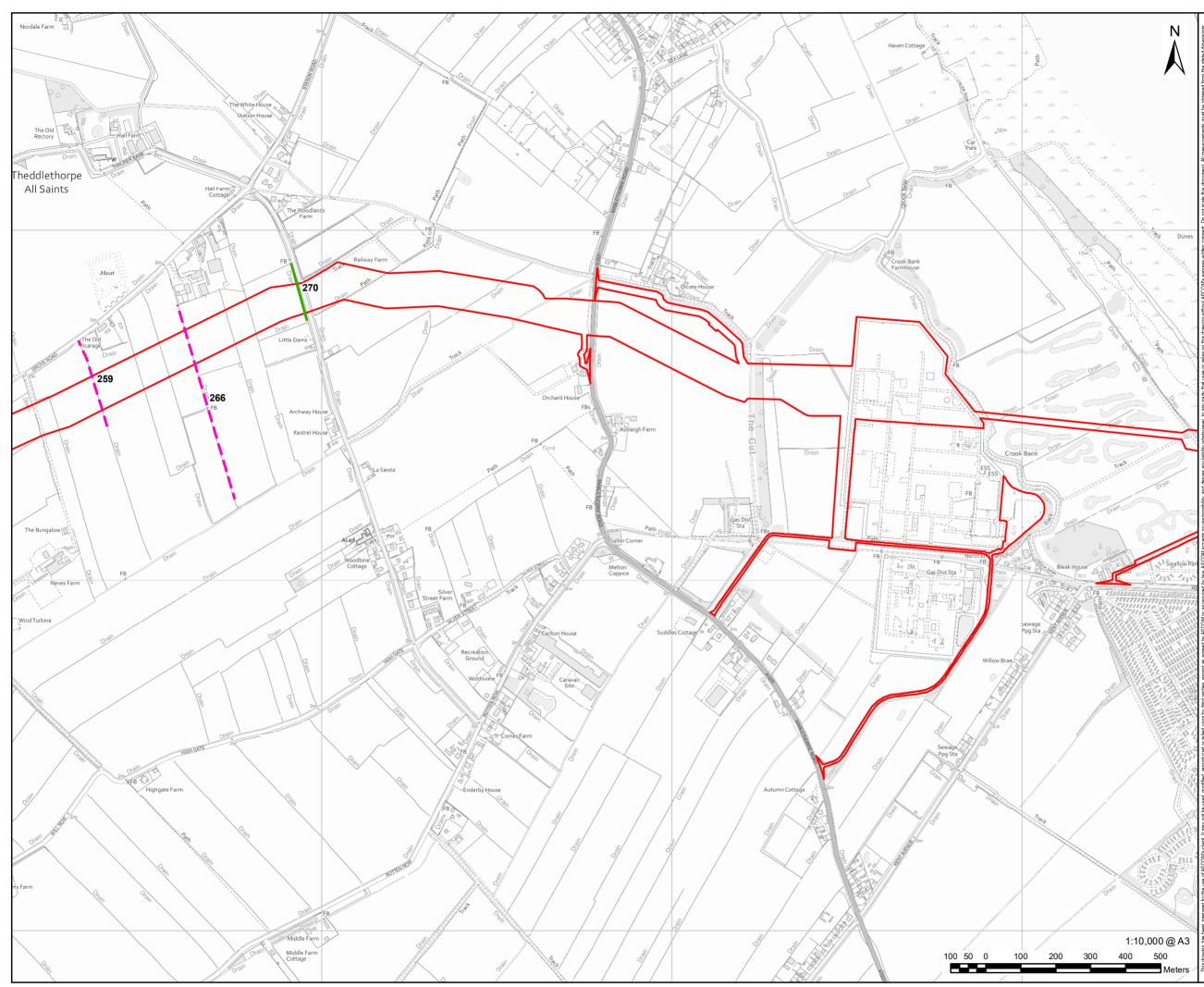


FIGURE TITLE Figure 1 (18 of 20) Hedgerow Survey Results





## Viking CCS Pipeline

#### LEGEND

PROJECT

DCO Site Boundary

Hedgerow Type

Important Hedgerow - Species Poor

- -- Species Poor Hedgerow

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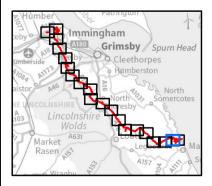
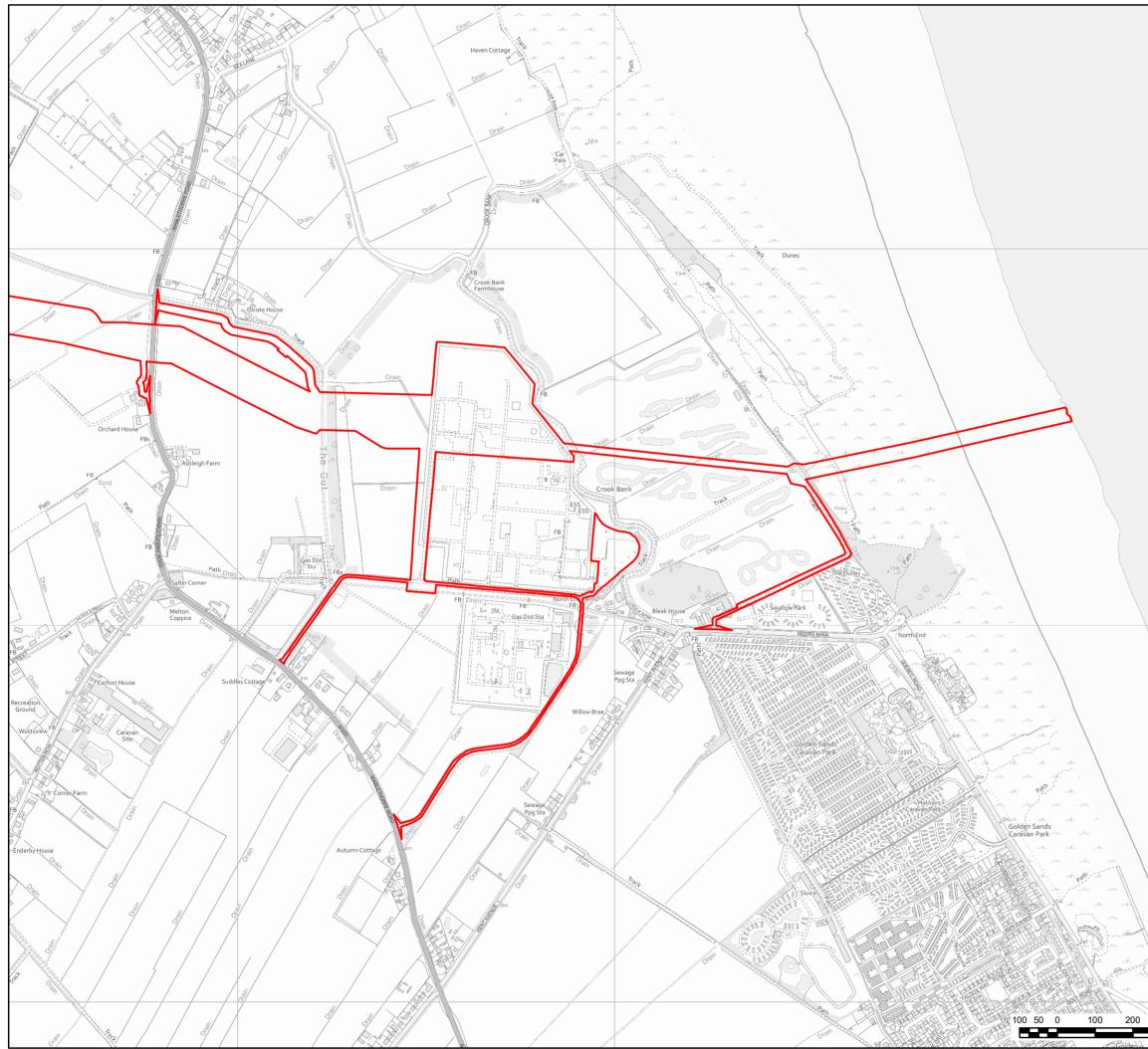


FIGURE TITLE Figure 1 (19 of 20) Hedgerow Survey Results

ISSUE PURPOSE HEDGEROW SURVEY REPORT PROJECT NUMBER / REFERENCE 60668955 / VCCS\_230927\_HSR\_19







LEGEND

DCO Site Boundary



Sand

300

1:10,000 @ A3

Meters

400 500

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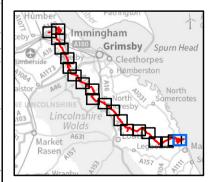


FIGURE TITLE Figure 1 (20 of 20) Hedgerow Survey Results

ISSUE PURPOSE HEDGEROW SURVEY REPORT PROJECT NUMBER / REFERENCE 60668955 / VCCS\_230927\_HSR\_20

## 4.4 **Priority Hedgerows**

4.4.1 All 104 of the surveyed hedgerows were predominantly comprised of native tree and shrub species, so all are examples of the s41 Priority Habitat. The 21 non-surveyed hedgerows can also be considered to be the priority habitat given they are present within an agricultural landscape where hedgerows are typically comprised of native species.

## 4.5 Nature Conservation Evaluation

4.5.1 Due to the paucity of ancient hedgerows across Lincolnshire they are not covered under Local Wildlife Site criteria (Ref 16).

## 4.6 Conclusions

- 4.6.1 Of the 104 suitably assessed hedgerows, 41 were considered important under the Regulations (**Figure 1**). A further five non-surveyed hedgerows were considered important based on historical maps/records coupled with up-to-date aerial photography and satellite imagery.
- 4.6.2 Of the 104 suitably assessed hedgerows, 18 were classified as species rich hedgerows.
- 4.6.3 All 104 surveyed hedgerows were considered a s41 Priority Habitat with regards to their species coverage as defined by NERC Act 2006, with all hedgerows containing 80%+ or more coverage of UK native woody species.
- 4.6.4 It is unknown whether the non-surveyed hedgerows met Priority Habitat, Important Hedgerow or Species Richness criteria, it therefore remains possible that these hedgerows may be protected by the Hedgerow Regulations 1997 and a field survey will be completed to confirm this prior to any works that may require a removal of a Hedgerow.
- 4.6.5 A diagrammatic summary of all hedgerows subject to assessment, together with the results of the assessment, is provided in **Figure 1**.
- 4.6.6 To remove a hedgerow, either in whole or in part, a developer must submit a Hedgerow Removal Notice to the local planning authority, unless permitted otherwise by planning consent. Once the formal notice is submitted, the local authority has 42 days (with a possible extension if agreed upon by the applicant) to decide whether to issue a Hedgerow Retention Notice.
- 4.6.7 In cases where a hedgerow is deemed important according to the Hedgerow Regulations 1997, the local authority has the discretion to issue a Hedgerow Retention Notice, although it is not obligatory. If the authority decides not to issue a notice for an important hedgerow, it is typically under the condition that the removal is offset by appropriate mitigation measures. These measures may include reinstatement or replanting to a predefined standard, or the establishment of an equivalent boundary in another location.
- 4.6.8 Although 41 hedgerows and five non-surveyed hedgerows within the DCO Site Boundary meet the criteria to be considered "important" under the Hedgerow Regulations 1997, it is crucial to recognize the inherent ecological significance of each individual hedgerow in its own right and its role within the broader hedgerow network. Apart from providing habitat for a diverse range of species, hedgerows also act as vital corridors for wildlife movement, playing a key role in maintaining landscape-scale habitat linkages across both rural and urban areas.

## 4.7 References

**Ref 1** *Defra (2007)* Hedgerow Survey Handbook. A standard procedure for local surveys in the UK. Defra, London.

**Ref 2** *Department of the Environment (1997)* The Hedgerow Regulations: A Guide to the Law and Good Practice. Department of the Environment: London.

**Ref 3** *H.M. Government (2006).* The Natural Environment and Rural Communities Act. HMSO, London. Available at:

https://www.legislation.gov.uk/ukpga/2006/16/pdfs/ukpga\_20060016\_en.pdf

**Ref 4** *Department of Energy and Climate Change (DECC) (2011).* National Policy Statement for Energy (EN-1). Available at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment\_ da ta/file/47854/1938-overarching-nps-for-energy-en1.pdf

**Ref 5** *Department for Levelling Up, Housing & Communities (2023).* National Planning Policy Framework (NPPF). Available at:

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment data/file/1182995/NPPF\_Sept\_23.pdf

**Ref 6** *Central Lincolnshire Plan Team (2023).* Central Lincolnshire Local Plan. Available at: <u>https://www.n-kesteven.gov.uk/central-lincolnshire</u>

**Ref 7** *North East Lincolnshire Council (2013)*. Planning for Growth. Local Plan 2013 to 2032 (Adopted 2018). Lincolnshire.

**Ref 8** *East Lindsey District Council (2018).* East Lindsey Local Plan Core Strategy. Available online at: <u>https://www.e-lindsey.gov.uk/media/9791/Core-</u> <u>Strategy/pdf/Final\_Version\_of\_Core\_Strategy\_2018.pdf?m=636821922732300000</u>

**Ref 9** *North Lincolnshire Council (2011).* North Lincolnshire Local Development Framework. Available online at:

https://m.northlincs.gov.uk/public/planningreports/corestratergy/adopteddpd/FullCoreStrategy.gv.pdf

**Ref 10** *MAGIC (2019)* Interactive Map. Available from: <u>http://magic.defra.gov.uk/MagicMap.aspx</u> [Accessed May 2023]

**Ref 11** *Ecological Services Ltd (2023).* Ecology and Nature Conservation Baseline Description. Lincoln

Ref 12 The Genealogist website. Available from:

**Ref 13** *Joint Nature Conservation Committee (2010)* Handbook for Phase 1 habitat survey - a technique for environmental audit. Available online at:

https://data.jncc.gov.uk/data/9578d07b-e018-4c66-9c1b-47110f14df2a/Handbook-Phase1-HabitatSurvey-Revised-2016.pdf

**Ref 14** *CIEEM (2018)* Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine version 1.2. Chartered Institute of Ecology and Environmental Management, Winchester. Available online at:

**Ref 15** *Hill, D., Fasham, M., Tucker, G., Shewry, M., & Shaw, P. (Eds.).* (2005). Handbook of biodiversity methods: survey, evaluation and monitoring. Cambridge University Press.

**Ref 16** *Greater Lincolnshire Nature Partnership (2013).* Local Wildlife Site Guidelines for Greater Lincolnshire. Lincolnshire.

# **Annex A Hedgerow Regulations Criteria**

### Wildlife and Landscape Criteria

4.7.1 In Lincolnshire a hedgerow is important for Wildlife and Landscape if it is at least 30 years old and meets one of the criteria for importance given below.

### 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, and in a form recognised by the Nature Conservancy Council for England, the Countryside Council for Wales or the Joint Nature Conservation Committee, 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 subparagraph (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;

(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" Shirt 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

(b) of the books known as the Red Data Books of Britain and Ireland:"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 7 woody species;

(b) at least 6 woody species, and has associated with it at least 3 of the features specified in sub-paragraph (4);

(c) at least 6 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 5 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, 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, 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, or a byway open to all traffic, within the meaning of Part III of the Wildlife and Countryside Act 1981, 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).

### Archaeology and History Criteria

4.7.2 In Lincolnshire a hedgerow is important for archaeology and historic if it meets the following criteria from Schedule 1 of the Hedgerow Regulations:

1. The hedgerow marks the boundary, or part of the boundary, of at least one historic parish or township; and for this purpose "historic" means existing before 1850.

2. The hedgerow incorporates an archaeological feature which is—

(a)included in the schedule of monuments compiled by the Secretary of State under section 1 (schedule of monuments) of the Ancient Monuments and Archaeological Areas Act 1979(7); or

(b)recorded at the relevant date in a Sites and Monuments Record.

3. The hedgerow—

(a)is situated wholly or partly within an archaeological site included or recorded as mentioned in paragraph 2 or on land adjacent to and associated with such a site; and

(b)is associated with any monument or feature on that site.

4. The hedgerow—

(a)marks the boundary of a pre-1600 AD estate or manor recorded at the relevant date in a Sites and Monuments Record or in a document held at that date at a Record Office; or

(b)is visibly related to any building or other feature of such an estate or manor.

5. The hedgerow—

(a)is recorded in a document held at the relevant date at a Record Office as an integral part of a field system pre-dating the Inclosure Acts(8); or

(b)is part of, or visibly related to, any building or other feature associated with such a system, and that system—

(i)is substantially complete; or

(ii)is of a pattern which is recorded in a document prepared before the relevant date by a local planning authority, within the meaning of the 1990 Act(9), for the purposes of development control within the authority's area, as a key landscape characteristic.

# **Annex B - Survey Data**

 Table 4: Ecological Features of the Hedgerows Surveyed, and Confirmation of Whether they are Species-rich or Important

 Under Paragraphs 6 & 7 of the Hedgerow Regulations

Hedge No.	Hedge Length (m)	>30 years old?	Mean number of qualifying woody species	*Significant number of trees (no. of trees in hedgerow)?	*3 woodland herbs within 1m of hedge margins?	*Gaps <10% of hedge?	*Bank or wall along at least half of the hedge?	*Ditch along at least half of the hedge?	*Connections scoring 4 points or more (points scored)?	*Parallel hedge within 15m?	Protected species (as defined by the Regs)?	Important Hedgerow?	Species-rich?
305	650		4	N (12)	No	Yes	No	Yes	No (2)	Yes	No	No	No
312	1100		6	N (10)	No	Yes	No	Yes	No (3)	Yes	No	No	Yes
316	140		1	N (2)	No	No	No	Yes	No (1)	Yes	No	No	No
318	570		4	N (8)	No	Yes	No	No	No (3)	Yes	No	Yes	No
307	50		1	N (0)	No	Yes	No	No	No (0)	No	No	No	No
245	200	Х	3	N (0)	No	No	No	Yes	No (2)	Yes	No	No	No
243	680		1	N (0)	No	Yes	No	No	No (2)	No	No	Yes	No
302	400		3	N (1)	No	Yes	No	No	No (1)	No	No	Yes	No
227	100		1	Y (10)	No	Yes	No	No	No (3)	No	No	Yes	No
226	470		2	N (4)	No	Yes	No	No	No (3)	No	No	No	No
98	380		7	Y (8)	No	Yes	No	No	Yes (5)	Yes	No	Yes	Yes
224	380		7	Y (8)	No	Yes	No	No	Yes (5)	Yes	No	Yes	Yes

Hedge No.	Hedge Length (m)	>30 years old?	Mean number of qualifying woody species	*Significant number of trees (no. of trees in hedgerow)?	*3 woodland herbs within 1m of hedge margins?	*Gaps <10% of hedge?	*Bank or wall along at least half of the hedge?	*Ditch along at least half of the hedge?	*Connections scoring 4 points or more (points scored)?	*Parallel hedge within 15m?	Protected species (as defined by the Regs)?	Important Hedgerow?	Species-rich?
230	70		2	N (0)	No	No	No	Yes	No (0)	Yes	No	No	No
229	320		4	N (4)	No	Yes	No	No	No (2)	Yes	No	No	No
231	150	$\checkmark$	4	Y (3)	No	Yes	No	Yes	No (1)	Yes	No	Yes	No
233	900	Х	2	N (0)	No	Yes	No	No	No (2)	Yes	No	No	No
90	450	✓	4	Y(28)	No	Yes	No	No	No (2)	Yes	No	Yes	No
91	450	✓	5	Y(23)	No	Yes	No	Yes	No (3)	Yes	No	Yes	Yes
358 a	130	~	2	N(0)	No	Yes	No	No	No (2)	No	No	Yes	No
358 b	130	~	2	N(0)	No	Yes	No	No	No (2)	Yes	No	No	No
260	120	✓	2	N(1)	No	Yes	No	No	No (2)	Yes	No	No	No
369	800	✓	2	N(9)	No	Yes	No	No	No (1)	Yes	No	No	No
370	100	✓	2	Y(6)	No	Yes	No	No	No (0)	No	No	Yes	No
309	420	✓	2	Y(15)	No	Yes	No	No	No (1)	No	No	Yes	No
74	550	✓	5	Y(14)	No	Yes	No	No	No (2)	Yes	No	Yes	Yes
72	680	✓	4	Y (17)	No	Yes	No	Yes	No (3)	Yes	No	Yes	No
68	340	✓	5	Y (10)	No	Yes	No	No	No (2)	No	No	Yes	Yes

Hedge No.	Hedge Length (m)	>30 years old?	Mean number of qualifying woody species	*Significant number of trees (no. of trees in hedgerow)?	*3 woodland herbs within 1m of hedge margins?	*Gaps <10% of hedge?	*Bank or wall along at least half of the hedge?	*Ditch along at least half of the hedge?	*Connections scoring 4 points or more (points scored)?	*Parallel hedge within 15m?	Protected species (as defined by the Regs)?	Important Hedgerow?	Species-rich?
64	600	✓	3	Y (24)	No	Yes	No	No	Yes (4)	Yes	No	No	No
111	1700	$\checkmark$	6	N (25)	No	Yes	No	No	No (2)	No	No	No	Yes
113	700	$\checkmark$	2	N (0)	No	No	No	Yes	No (3)	No	No	Yes	No
108	250	$\checkmark$	1	N (0)	No	Yes	No	Yes	No (2)	No	No	Yes	No
249	480	Х	2	N (0)	No	No	No	Yes	No (3)	No	No	No	No
114	650	$\checkmark$	NA	Y (43)	No	Yes	No	No	No (1)	No	No	No	Yes
116	1000	$\checkmark$	2	Y (20)	Yes	Yes	No	No	No (2)	Yes	No	No	No
115	280	х	NA	N (0)	No	Yes	No	No	No (1)	No	No	No	No
117	450	$\checkmark$	7	Y (14)	No	Yes	No	No	No (1)	Yes	No	Yes	Yes
246	210	$\checkmark$	3	N (4)	No	Yes	No	No	Yes (4)	No	No	No	No
118	750	$\checkmark$	4	Y (22)	No	Yes	No	No	Yes (5)	No	No	Yes	No
120	280	$\checkmark$	6	Y (6)	No	Yes	No	No	Yes (4)	No	No	Yes	Yes
121	220	✓	4	Y (16)	No	Yes	No	No	No (2)	Yes	No	Yes	No
122	480	✓	9	Y (10)	No	No	No	No	No (1)	Yes	No	Yes	No
123	240	✓	2	N (0)	No	No	No	No	No (1)	No	No	No	No
124	540	✓	NA	Y (14)	No	Yes	No	Yes	No (3)	No	No	Yes	No
125	220	$\checkmark$	NA	Y (13)	No	Yes	No	No	No (2)	No	No	Yes	No

Hedge No.	Hedge Length (m)	>30 years old?	Mean number of qualifying woody species	*Significant number of trees (no. of trees in hedgerow)?	*3 woodland herbs within 1m of hedge margins?	*Gaps <10% of hedge?	*Bank or wall along at least half of the hedge?	*Ditch along at least half of the hedge?	*Connections scoring 4 points or more (points scored)?	*Parallel hedge within 15m?	Protected species (as defined by the Regs)?	Important Hedgerow?	Species-rich?
200	420	$\checkmark$	4	N (0)	No	Yes	No	Yes	No (2)	No	No	No	No
196	590	Х	2	N (0)	No	Yes	No	No	No (3)	No	No	No	No
197	300	Х	2	N (0)	No	Yes	No	No	No (2)	No	No	No	No
205	310	✓	4	N (4)	No	Yes	No	Yes	No (3)	No	No	No	No
212	950	✓	3	Y (31)	No	Yes	No	Yes	No (3)	Yes	No	No	No
371	930	$\checkmark$	3	N (16)	No	Yes	No	No	No (2)	Yes	No	No	No
372	620	✓	2	N (5)	No	Yes	No	No	No (3)	Yes	No	No	No
373	330	✓	3	Y (16)	No	Yes	No	No	No (3)	No	No	Yes	No
15	1080	✓	5	Y (21)	No	Yes	No	No	No (2)	Yes	No	Yes	Yes
14	1300	✓	5	N (5)	No	No	No	No	No (2)	Yes	No	Yes	Yes
16	2500	✓	5	N (6)	No	No	No	No	Yes (6)	Yes	No	Yes	Yes
22	680	✓	2	N (1)	No	No	No	Yes	Yes (5)	No	No	No	No
26	980	✓	3	N (12)	No	Yes	No	Yes	No (2)	No	No	No	No
28	880	✓	3	N (3)	No	Yes	No	No	No (2)	Yes	No	No	No
294	880	Х	1	N (0)	No	No	No	No	Yes (4)	Yes	No	No	No
32a	470	Х	6	N (4)	No	Yes	No	Yes	No (2)	No	No	No	Yes
32b	310	✓	6	Y (22)	No	Yes	No	No	No (2)	No	No	Yes	Yes

Hedge No.	Hedge Length (m)	>30 years old?	Mean number of qualifying woody species	*Significant number of trees (no. of trees in hedgerow)?	*3 woodland herbs within 1m of hedge margins?	*Gaps <10% of hedge?	*Bank or wall along at least half of the hedge?	*Ditch along at least half of the hedge?	*Connections scoring 4 points or more (points scored)?	*Parallel hedge within 15m?	Protected species (as defined by the Regs)?	Important Hedgerow?	Species-rich?
374	60	✓	2	N (2)	No	Yes	No	No	No (0)	No	No	No	No
319	610	✓	4	Y (20)	No	Yes	No	No	Yes (5)	No	No	No	No
385	500	$\checkmark$	5	N (7)	No	No	No	No	No (2)	No	No	No	Yes
338	580	$\checkmark$	3	N (1)	No	No	No	No	Yes (4)	Yes	No	No	No
339	380	$\checkmark$	1	N (0)	No	Yes	No	No	No (2)	No	No	No	No
336	400	$\checkmark$	2	N (0)	No	Yes	No	No	No (2)	No	No	No	No
337	425	$\checkmark$	3	N (0)	No	Yes	No	No	No (3)	Yes	No	No	No
345	425	$\checkmark$	3	N (3)	No	Yes	No	No	No (2)	Yes	No	No	No
335	1820	$\checkmark$	2	N (4)	No	Yes	No	No	Yes (6)	No	No	No	No
384	230	$\checkmark$	2	N (0)	No	Yes	No	No	No (2)	No	No	No	No
383	250	Х	2	Y (5)	No	Yes	No	No	No (1)	No	No	No	No
380	640	Х	2	N (0)	No	Yes	No	No	No (2)	No	No	No	No
363	170	$\checkmark$	2	Y (8)	No	Yes	No	No	Yes (4)	No	No	No	No
364	280	$\checkmark$	2	Y (16)	No	Yes	No	No	No (2)	No	No	No	No
366	120	$\checkmark$	2	N (2)	No	Yes	No	Yes	No (0)	No	No	No	No
326	550	Х	3	N (0)	No	Yes	No	Yes	No (2)	No	No	Yes	No
218	170	$\checkmark$	3	N (0)	No	Yes	No	No	No (1)	Yes	No	No	No

Hedge No.	Hedge Length (m)	>30 years old?	Mean number of qualifying woody species	*Significant number of trees (no. of trees in hedgerow)?	*3 woodland herbs within 1m of hedge margins?	*Gaps <10% of hedge?	*Bank or wall along at least half of the hedge?	*Ditch along at least half of the hedge?	*Connections scoring 4 points or more (points scored)?	*Parallel hedge within 15m?	Protected species (as defined by the Regs)?	Important Hedgerow?	Species-rich?
282	400	$\checkmark$	4	Y (16)	No	Yes	No	Yes	No (1)	Yes	No	Yes	No
323	190	$\checkmark$	3	Y (15)	No	No	No	Yes	No (2)	Yes	No	No	No
217	370	Х	4	N (0)	No	Yes	No	No	No (1)	Yes	No	No	No
353	270	$\checkmark$	1	N (1)	No	Yes	No	No	No (2)	No	No	Yes	No
360	250	✓	3	N (0)	No	Yes	No	No	No (2)	No	No	Yes	No
280	180	$\checkmark$	5	Y (5)	No	Yes	No	Yes	No (3)	No	No	Yes	Yes
281	440	✓	5	Y (13)	No	Yes	No	No	No (1)	No	No	Yes	Yes
347	120	✓	1	N (0)	No	No	No	No	No (1)	Yes	No	No	No
346	1180	✓	2	N (6)	No	Yes	No	No	No (1)	Yes	No	No	No
348	300	✓	1	N (3)	No	Yes	No	No	No (1)	Yes	No	No	No
352	460	Х	1	N (0)	No	Yes	No	No	No (1)	Yes	No	No	No
279	520	✓	3	N (7)	No	No	No	No	No (1)	No	No	No	No
277	1010	✓	3	N (0)	No	No	No	No	No (0)	Yes	No	No	No
276	1010	✓	3	N (0)	No	No	No	No	No (1)	Yes	No	No	No
274	360	Х	1	N (0)	No	No	No	No	No (2)	No	No	No	No
273	630	Х	1	Y (17)	No	No	No	Yes	No (0)	Yes	No	No	No
287	280	$\checkmark$	1	N (0)	No	No	No	Yes	No (0)	No	No	Yes	No

Hedge No.	Hedge Length (m)	>30 years old?	Mean number of qualifying woody species	*Significant number of trees (no. of trees in hedgerow)?	*3 woodland herbs within 1m of hedge margins?	*Gaps <10% of hedge?	*Bank or wall along at least half of the hedge?	*Ditch along at least half of the hedge?	*Connections scoring 4 points or more (points scored)?	*Parallel hedge within 15m?	Protected species (as defined by the Regs)?	Important Hedgerow?	Species-rich?
148	310	$\checkmark$	1	N (0)	No	No	No	Yes	No (0)	No	No	No	No
219	710	$\checkmark$	2	N (0)	No	Yes	No	Yes	No (0)	No	No	No	No
355	300	$\checkmark$	1	N (0)	No	Yes	No	Yes	No (0)	No	No	Yes	No
350	420	$\checkmark$	4	Y (14)	No	Yes	No	Yes	No (0)	No	No	Yes	No
259	530	✓	1	N (0)	No	No	No	Yes	No (1)	No	No	No	No
266	600	$\checkmark$	2	N (0)	No	No	No	Yes	No (2)	No	No	No	No
270	300	✓	4	Y (17)	No	No	No	Yes	No (2)	Yes	No	Yes	No
65	220	✓	2	N (1)	No	Yes	No	Yes	No (2)	No	No	Yes	No
112	360	✓	3	N (0)	No	Yes	No	No	No (1)	No	No	Yes	No

Table 5: Summary of Hedgerows Located Parallel to BOATs and Whether they are Important Under Paragraph 8 of the	
Hedgerow Regulations	

Hedgerow No.	Adjacent bridleway, footpath or byway open to all traffic (BOAT)	4+ woody species (see )	2+ of * criteria (see )	Important Hedgerow?
305	✓	X	✓	No
312	✓	X	✓	No
316	✓	Х	✓	No
318	✓	✓	✓	Yes
307	✓	Х	Х	No
245	✓	Х	Х	No
243	X	Х	Х	Yes
302	X	Х	Х	Yes
227	X	Х	Х	Yes
226	X	Х	Х	No
98	✓	√	✓	Yes
224	✓	√	✓	Yes
230	$\checkmark$	Х	Х	No
229	✓	√	✓	Yes
231	✓	√	✓	Yes
233	✓	Х	Х	No
90	✓	√	✓	Yes
91	✓	✓	✓	Yes
358a	X	Х	Х	Yes
358b	✓	Х	Х	No

Hedgerow No.	Adjacent bridleway, footpath or byway open to all traffic (BOAT)	4+ woody species (see )	2+ of * criteria (see )	Important Hedgerow?
260	✓ ✓	X	✓ ✓	No
369	✓	Х	✓	No
370	X	Х	✓	Yes
309	X	Х	✓	Yes
74	✓	✓	✓	Yes
72	✓	√	✓	Yes
68	X	✓	✓	Yes
64	✓	Х	✓	No
111	✓	√	Х	No
113	X	Х	Х	Yes
108	X	Х	✓	Yes
249	X	Х	Х	Yes
114	X	✓	✓	No
116	✓	Х	✓	No
115	X	Х	Х	No
117	✓	√	✓	Yes
246	X	Х	✓	No
118	X	√	✓	Yes
120	X	√	✓	Yes
121	✓	√	✓	Yes
122	✓	√	✓	Yes
123	X	Х	Х	No
124	X	NA	✓	Yes

Hedgerow No.	Adjacent bridleway, footpath or byway open to all traffic (BOAT)	4+ woody species (see )	2+ of * criteria (see )	Important Hedgerow?
125	X	NA	✓ ✓	Yes
200	X	$\checkmark$	Х	No
196	X	Х	Х	No
197	X	Х	Х	No
205	X	$\checkmark$	✓	No
212	✓	Х	✓	No
371	✓	Х	✓	No
372	✓	Х	✓	No
373	X	Х	✓	Yes
15	✓	√	✓	Yes
14	✓	√	✓	Yes
16	✓	√	✓	Yes
22	X	Х	✓	No
26	$\checkmark$	Х	✓	No
28	$\checkmark$	Х	✓	No
294	✓	Х	✓	No
32a	✓	✓	✓	No
32b	X	✓	✓	Yes
374	X	Х	Х	No
319	X	✓	✓	No
385	X	✓	Х	No
338	✓	Х	✓	No
339	X	Х	Х	No

Hedgerow No.	Adjacent bridleway, footpath or byway open to all traffic (BOAT)	4+ woody species (see )	2+ of * criteria (see )	Important Hedgerow?
336	X	X	Х	No
337		Х		No
345		Х		No
335	X	Х		No
384	X	Х	Х	No
383	X	Х		No
380	X	Х	Х	No
363	X	Х		No
364	X	Х		No
366	X	Х		No
326	X	Х		Yes
218		Х		No
282				Yes
323		Х		No
217				No
353	X	Х	Х	Yes
360	X	Х	Х	Yes
280				Yes
281				Yes
347		Х	Х	No
346		Х		No
348		Х		No
352		Х		No

Hedgerow No.	Adjacent bridleway, footpath or byway open to all traffic (BOAT)	4+ woody species (see )	2+ of * criteria (see )	Important Hedgerow?
279	X	X	X	No
277		Х	Х	No
276		Х	Х	No
274	X	Х	Х	No
273		Х		No
287	X	Х	Х	Yes
148		Х	Х	No
219	X	Х		No
355	X	Х		Yes
350	X			Yes
259	X	Х	Х	No
266	X	Х	Х	No
270				Yes
65	X	Х		Yes
112	X	Х	Х	Yes

	Ash	Blac	Beech	Cherry	Com	Crat	Dog	Dog	Elder	Elms	Field	Goa	Grey	Grey	Hazel	Holly	Horr	Ped	Poplar	Plum	Rowan	Silve	Syca	Will	Total
Woody specie s		Blackthorn	ch	rry	Common	Crab apple	Dog-rose	Dogwood	ŗ	G	Field maple	Goat willow	Grey willow	Grey poplar	Ð	V	Hornbeam	Pedunculate oak	lar	ъ	an	Silver birch	Sycamore	Willow Sp.	
305	✓	✓			✓																✓				4
312	✓	✓			✓										✓	✓					✓				6
316					✓																				1
318	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	4
307					✓																				1
245		$\checkmark$			$\checkmark$			$\checkmark$																	3
243					$\checkmark$																				1
302			$\checkmark$		$\checkmark$		✓																		3
227					$\checkmark$																				1
226					✓		✓																		2
98	Т	✓			✓	✓	✓		✓											✓					7
224	Т	✓			✓	✓	✓		✓											✓					7
230		✓			✓																				2
229	Т	✓			✓				✓																4
231	Т	✓			✓				✓																4
233	Т	✓																							2
90	Т	✓			✓		✓																		4
91	Т	$\checkmark$			✓		✓				$\checkmark$														5
358a					$\checkmark$				✓																2

### Table 6: Woody Species (trees and shrubs) Recorded from Each of the Twenty Hedgerows Surveyed

Woody specie s	Ash	Blackthorn	Beech	Cherry	Common	Crab apple	Dog-rose	Dogwood	Elder	Elms	Field maple	Goat willow	Grey willow	Grey poplar	Hazel	Holly	Hornbeam	Pedunculate oak	Poplar	Plum	Rowan	Silver birch	Sycamore	Willow Sp.	Total
358b					✓				✓																2
260					✓	Т																			2
369					$\checkmark$	Т																			2
370					$\checkmark$	Т																			2
309	Т				✓																				2
74	Т	✓			✓													Т					Т		5
72		✓			✓										✓								Т		4
68	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/A	N/ A	N/ A
64		✓			✓																		Т		3
111		✓			$\checkmark$		$\checkmark$		Т		Т								Т						6
113					✓								$\checkmark$												2
108		✓			✓						✓														3
249		✓									✓														2
114	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/A	N/ A	N/ A
116	Т				✓																				2
115					✓																				1
117	Т			✓	✓		✓			✓								Т					Т		7
246					✓			✓							✓										3
118	Т	✓			✓				✓																4
120	Т	✓			✓	✓	✓				✓														6

	Ash	Bla	Ш е	Ch	Co	Cra		Do	Elder	Elms	Fie	Go	Gr	Gr	Hazel	Holly	Но	Pe	Po	Plum	Ro	Sil	Sy	¥i	Total
Woody specie s	Ъ	Blackthorn	Beech	Cherry	Common	Crab apple	Dog-rose	Dogwood	ler	ns	Field maple	Goat willow	Grey willow	Grey poplar	zel	lly	Hornbeam	Pedunculate oak	Poplar	3	Rowan	Silver birch	Sycamore	Willow Sp.	tal
121	Т	✓			✓				✓																4
122	Т	✓			✓		✓	✓	✓		✓				✓					✓					9
123					✓		✓																		2
124	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/A	N/ A	N/ A
125	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/A	N/ A	N/ A
200		✓			✓		✓																✓		4
196					$\checkmark$				✓																2
197					$\checkmark$				✓																2
205	Т				✓													Т					Т		4
212	Т	✓			$\checkmark$																				3
371	Т				$\checkmark$													Т							3
372	Т				$\checkmark$																				2
373	Т				$\checkmark$													Т							3
15	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/A	N/ A	N/ A
14	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/A	N/ A	N/ A
16	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/A	N/ A	N/ A
22		✓			✓																				2
26	Т	✓			✓																				3

Woody specie s	Ash	Blackthorn	Beech	Cherry	Common	Crab apple	Dog-rose	Dogwood	Elder	Elms	Field maple	Goat willow	Grey willow	Grey poplar	Hazel	Holly	Hornbeam	Pedunculate oak	Poplar	Plum	Rowan	Silver birch	Sycamore	Willow Sp.	Total
28		✓			✓				Т																3
294					✓																				1
32a	✓	✓			✓		✓		✓									$\checkmark$							6
32b	✓	✓			✓		✓		✓									$\checkmark$							6
374	Т				$\checkmark$																				2
319	Т	✓			$\checkmark$		✓																		4
385	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/ A	N/A	N/ A	N/ A
338	Т	✓					✓																		3
339		✓																							1
336	✓	✓																							2
337	✓	✓			$\checkmark$																				3
345	Т	✓			$\checkmark$																				3
335					$\checkmark$													Т							2
384		✓			$\checkmark$																				2
383		Т			Т																				2
380		✓			✓																				2
363	Т				✓																				2
364	Т				✓																				2
366	Т				✓																				2
326					✓		✓		✓																3
218					$\checkmark$		✓		✓																3

Woody specie s	Ash	Blackthorn	Beech	Cherry	Common	Crab apple	Dog-rose	Dogwood	Elder	Elms	Field maple	Goat willow	Grey willow	Grey poplar	Hazel	Holly	Hornbeam	Pedunculate oak	Poplar	Plum	Rowan	Silver birch	Sycamore	Willow Sp.	Total
282	Т	✓			✓													✓							4
323	Т	$\checkmark$			$\checkmark$																				3
217		✓			$\checkmark$		$\checkmark$		✓																4
353					✓																				1
360					$\checkmark$		$\checkmark$		$\checkmark$																3
280	Т	✓			$\checkmark$													Т					Т		5
281	Т	✓			$\checkmark$													Т					Т		5
347					$\checkmark$																				1
346	Т				$\checkmark$																				2
348					$\checkmark$																				1
352					$\checkmark$																				1
279		✓			$\checkmark$		✓																		3
277		✓			$\checkmark$		$\checkmark$																		3
276		$\checkmark$			$\checkmark$		$\checkmark$																		3
274					$\checkmark$																				1
273					✓																				1
287					✓																				1
148					$\checkmark$																				1
219					$\checkmark$		$\checkmark$																		2
355					$\checkmark$																				1
350		$\checkmark$			$\checkmark$																		Т	Т	4

Woody specie s	Ash	Blackthorn	Beech	Cherry	Common	<u> </u>	Dog-rose	Dogwood	Elder	Elms	Field maple	Goat willow	Grey willow	Grey poplar	Hazel	Holly	Hornbeam	Pedunculate oak	Poplar	Plum	Rowan	Silver birch	Sycamore	Willow Sp.	Total
259					✓																				1
266	✓				✓																				2
270					✓													Т	Т			Т			4
65					✓													Т							2
112					✓		✓				✓														3

✓ = present, T = present as standard trees, O = outside survey section in wider hedgerow, D = dead or dying





