



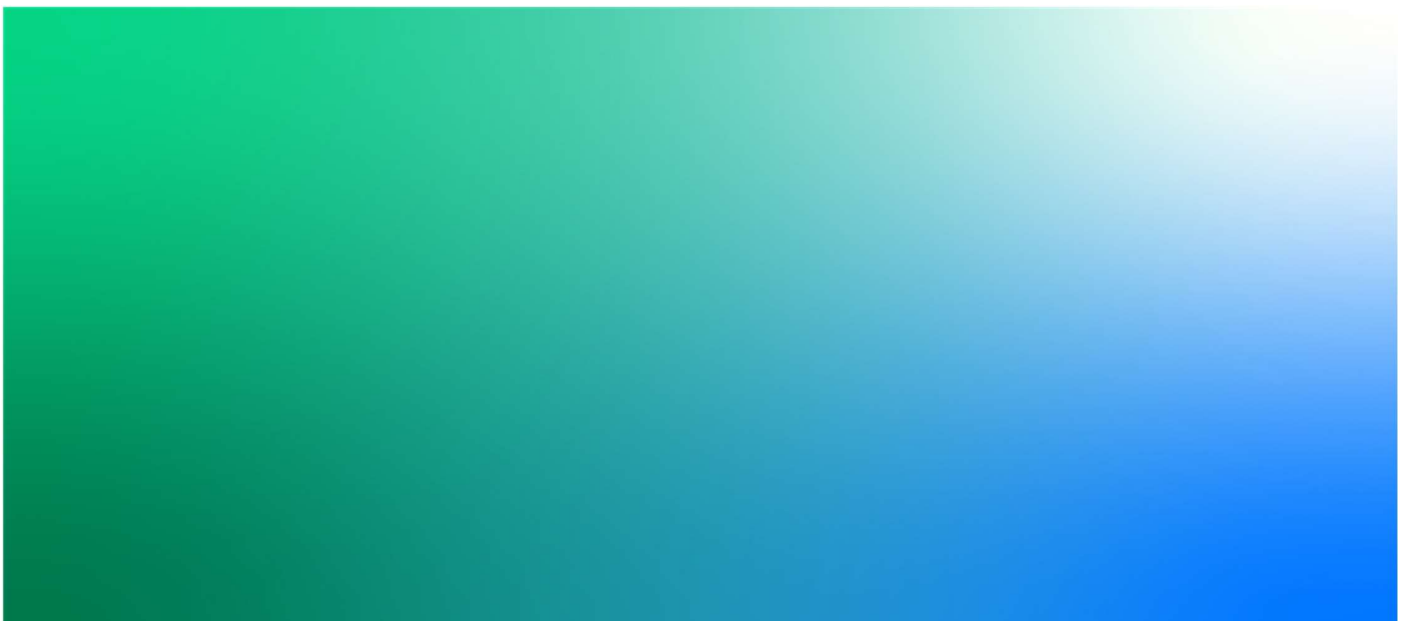
Cottam Parkway Railway Station

Hedgerow Survey and Assessment Report

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Executive Summary

Jacobs UK Ltd (Jacobs) was commissioned by Lancashire County Council (LCC) to undertake a range of ecological surveys to inform the Cottam Parkway Railway Station scheme (hereafter referred to as “the scheme”). The scheme will serve the North West Preston Strategic Housing Location. It will comprise a new road to the proposed railway station connecting from Cottam Link Road with a bridge over the Lancaster Canal and a car park to serve the railway station.

As part of the ecological support to inform the scheme, Jacobs have completed a survey and assessment of hedgerows. The primary purpose of the survey and assessment was to establish an ecological baseline for hedgerows and to inform an Environmental Impact Assessment (EIA) for the scheme. This includes providing sufficient information to inform scheme design options, an assessment of potential impacts on hedgerows and to develop appropriate mitigation requirements and opportunities for enhancement where possible. This information is to be included within the Environmental Statement (ES) which will be submitted for planning consideration in the summer of 2021.

A total of 29 hedgerows (34 hedgerow units) were targeted for survey because they were considered likely to be directly or indirectly affected by the scheme (i.e. within the zone of influence defined as within or up to 50m from the scheme boundary). Surveys were conducted in May 2020 and were carried out in accordance with good practice guidance.

Each hedgerow was assessed to determine their qualification as “important” under The Hedgerows Regulations 1997 (“the Regulations”) according to archaeology and history criteria and, wildlife and landscape criteria. The species-richness of all 34 hedgerow was also assessed. Two hedgerows (H28 and H29) did not meet the criteria of a hedgerow as set out under the Regulations.

Of the 27 hedgerows (32 hedgerow units) subject to assessment under the Regulations:

- All hedgerow units have been classified as “important” under the archaeology and history criteria as all were identified as forming integral parts of the field systems pre-dating the Inclosure Acts.
- Five hedgerow units (H2, H9, H10b, H17 and H19b) have also been classified as “important” under the wildlife and landscape criteria.

A total of 18 of the 34 hedgerow units were considered as species rich, with an average of at least four woody species per hedgerow unit. All hedgerows subject to assessment qualify as a habitat of principal importance for the conservation of biodiversity in England (Section 41: Natural Environment and Rural Communities (NERC) Act 2006).

Of particular note were eight hedgerows which supported seven or more woody species (H2, H3, H4, H10a, H10b, H16, H20 and H24) across the full length of the hedgerow units. A large tree of potential veteran status was noted within H16.

The collective hedgerow network within the survey area, including individual species-rich hedgerows, those which qualify as “important” under the Regulations, and hedgerows supporting mature trees or other notable features are considered to be of **District** importance for biodiversity. Species-poor hedgerows are still of value in the hedgerow network and are assessed as being of **Local** importance for biodiversity. The potential veteran tree within H16 is considered to be of **County** importance for biodiversity.

A robust assessment of the potential impacts on hedgerows associated with the scheme will be detailed within the ecology chapter (Volume 2. Chapter 6) of the ES, along with any prescribed avoidance, mitigation and compensation measures, opportunities for enhancement, requirements for pre and / or post construction monitoring and an assessment of residual impacts (where appropriate).

1. Introduction

1.1 Background

Jacobs UK Ltd (Jacobs) was commissioned by Lancashire County Council (LCC) to provide ecological services to inform the proposed Cottam Parkway Railway Station scheme (hereafter referred to as “the scheme”).

The scheme comprises (but not exhaustively): a road connecting to Cottam Link Road at the Sidgreaves junction roundabout; a bridge over the Lancaster Canal connecting to the railway station; station platforms; buildings and associated structures; a footbridge over the railway; a 250/500 space car park; and bridge approach embankments and earthworks. This development is related to the permitted road schemes of Preston Western Distributor (PWD) and the East West Link Road (EWLR) including Cottam Link Road.

A range of ecological surveys was required to establish an accurate baseline against which impacts of the scheme (both temporary and permanent) could be assessed in line with the Chartered Institute of Ecology and Environmental Management (CIEEM) guidelines for Ecological Impact Assessment (CIEEM, 2018). This report presents the results of a hedgerow survey and assessment undertaken by Jacobs’ ecologists in May 2020.

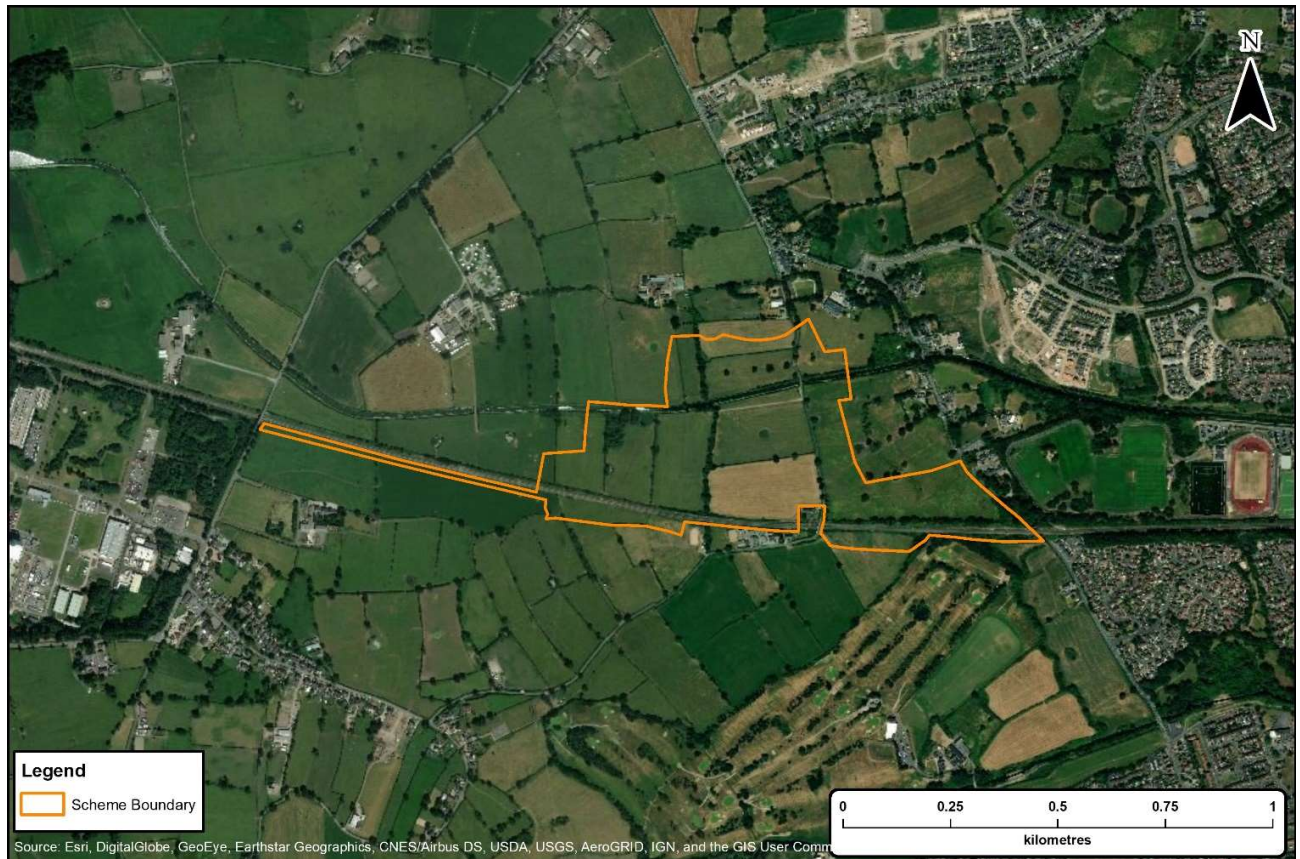
The surveys and assessment were undertaken in consideration of the proposed construction site area provided by LCC (LCC Drawing CLM07-DEV-010-01; Dated 10-01-2020) and the walkover notice area / survey exclusion area drawing provided by LCC (LCC Drawing CLM07-DEV-010-03; Dated 16-12-2019). Further information on the scheme design was not available at the time of survey / assessment. The defined survey area comprised all land within the scheme and a 50m buffer area from the scheme boundary. This survey area is shown in Figure 1 in Appendix A.

1.2 Site Context

An aerial image of the location of the scheme is provided in Plate 1.2 below. The scheme is located within a semi-rural area approximately 4km north-west of central Preston and to the immediate south-west of the largely residential area of Cottam. The central grid reference for the scheme is SD 48714 31645^[1]. Land use within the scheme comprises pasture land used for grazing and / or fodder production. This land is bound by a network of hedgerows and tree lines with occasional woodlands, small watercourses, farmsteads and dwellings. Both the Lancaster Canal and the Preston to Blackpool rail line run east to west through the survey area. Sidgreaves Lane leading to Darkinson Lane runs north to south through the centre of the survey area.

Pasture land dominates much of the wider area, particularly to the west of the scheme. The east boundary of the scheme is bordered by Lea Road with Westleigh Conference Centre and sports pitches further eastwards; to the south is pasture land with Ashton and Lea Golf Club further beyond. To the north is pasture land with both existing and new housing developments further northwards. In addition, the construction of the PWD scheme was also underway along the west and north boundaries of the main scheme area at the time of survey (May 2020).

^[1] Ordnance Survey National Grid reference system used throughout the report.

Plate 1.2. Overview of scheme location

1.3 Aims and Objectives

The primary aim of the hedgerow survey and assessment was to provide baseline information of the extent and ecological importance of hedgerows within the survey area in accordance with the relevant good practice survey guidance, planning policies and legislative framework.

The key objectives of the hedgerow survey and assessment are listed below.

- Identify hedgerows classified as “important” under The Hedgerows Regulations 1997;
- Identify hedgerows classified as species-rich as defined by the Hedgerow Survey Handbook (Defra, 2007) for northern counties in England;
- Identify hedgerows that qualify as habitats of **Principle** importance for the conservation of biodiversity in England as included in Section 41 (S41) of the Natural Environment and Rural Communities (NERC) Act 2006;
- Provide an evaluation for the hedgerow habitat within the survey area based on guidance from CIEEM (CIEEM, 2018) and Highways England’s Design Manual for Roads and Bridges LA 108 Biodiversity (Highways England, 2020); and

- Provide sufficient information to inform both the project design and an assessment of potential impacts on hedgerows associated with the scheme so that the appropriate mitigation hierarchy can be followed and opportunities for enhancement can be developed.

1.4 Legislation, Planning Policy and Biodiversity Framework Background

A summary of the legislation and policy framework for hedgerows is summarised below. Full details, along with the nature conservation status of hedgerows and the threats that face them, are provided in Appendix B.

1.4.1 Legislation

The Hedgerows Regulations 1997 (hereafter referred to as “the Regulations”) were made under section 97 of the Environment Act 1995 and came into force on 1st June 1997. They introduced new arrangements for local planning authorities in England and Wales to protect important hedgerows in the countryside, by controlling their removal through a system of notification. The Regulations prohibits the removal of some hedgerows without prior submission of a hedgerow removal notice to the Local Planning Authority (LPA). The LPA must then decide whether a hedgerow meets the criteria for an “important” hedgerow, which the LPA can then order to be retained. The removal of hedgerows for which the Regulations apply is also permitted in specific circumstances including “*for carrying out development for which planning permission has been granted...*” (as per Section 6 (1) (e) of the Regulations).

1.4.2 Biodiversity Framework

a) The Natural Environment and Rural Communities Act 2006

Section 41 of the NERC Act 2006 requires the Secretary of State to publish a list of habitats and species which are of Principal importance for the conservation of biodiversity in England. There are 56 habitats and 943 species of Principal importance which were initially identified as requiring conservation action under the UK Biodiversity Action Plan (BAP) (1994) and which continue to be regarded as priorities under the UK Post-2010 Biodiversity Framework (JNCC and Defra, 2012). The Section 41 list 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 2006 “to have regard” to the conservation of biodiversity in England, when carrying out their normal functions. Hedgerows are listed as a habitat of Principal importance for England (under Section 41). Any hedgerow consisting predominantly (at least 80%) of at least one native woody species of tree / shrub qualifies as a habitat of Principal importance.

b) Lancashire Biodiversity Action Plan

The Lancashire BAP (Lancashire Biodiversity Partnership, undated) contains 11 habitat and 39 species action plans. Hedgerows are not included as a priority habitat within the Lancashire BAP.

2. Methodology

2.1 Hedgerow Definition

A hedgerow is defined as “any boundary line of trees or shrubs (predominantly over 80% of at least one native woody species of tree / shrub) 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” (Defra, 2007). Additionally, this includes features such as an earth bank or wall where such a feature occurs in association with a line of trees or shrubs.

The Regulations 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.

To ensure definable lengths of hedgerow were surveyed, ‘end point’ and ‘survey unit’ were defined as stated in the Hedgerow Survey Handbook.

End points were identified as where there was a connection to another ‘node’ or feature (e.g. hedge, road, wall or fence), a gap of 20m or more, or a link into woodland or other semi-natural habitat.

Survey units were defined as sections of hedgerow between end points and noticeably different sections of the same hedgerow (i.e. where height or character changes from one hedgerow type to another for 20m or more, or areas of recent planting, coppicing or laying).

2.2 Desk Study

An initial desk study exercise was undertaken to review the characteristics of the hedgerows identified for assessment. This exercise included:

- A review of Ordnance Survey (OS) maps to determine whether any of the hedgerows were located 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 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(17));
- The Multi-Agency Geographic Information for the Countryside (MAGIC) website¹ was used to search for scheduled monuments listed within the Ancient Monuments and Archaeological Areas Act 1979;
- The UK Grid Reference Finder website² was used to work out the extent of each hedgerow survey unit and to measure the length of each hedgerow unit prior to the field visit; and
- Historical maps were reviewed on the Lancashire MARIO website (<http://mario.lancashire.gov.uk/agsmario/>) to help establish the historical significance of each hedgerow and to determine their qualification as an “important” hedgerow under relevant criteria listed within the Regulations (see Part II Criteria in Section 2.4). Specific maps used on this website included:
 - 1960s aerial photographs – used to establish whether the hedgerows are more than 30 years old;

¹ <https://magic.defra.gov.uk>

² <http://gridreferencefinder.com>

- Parish Boundaries overlay – used to establish whether the hedgerows provide historic parish or township boundaries; and,
- OS First Edition 1:10,000 overlay – used to help determine whether the hedgerows existed as integral parts of the field systems prior to the Inclosure Acts. The OS 1:10,000 mapping for Lancashire was one of the first surveys undertaken by the Ordnance Survey. The 'original' maps were surveyed in the mid-1840s and published in the late-1840s.

The Extended Phase 1 Habitat Survey report for the scheme (Jacobs, 2020) was reviewed to identify hedgerow locations for field survey. In addition, a further review was undertaken of all available ecological survey data and reports for the scheme completed by Jacobs in 2019 and 2020. This exercise was completed to identify any up to date documented records of species protected in Schedules 1, 5 or 8 of the Wildlife and Countryside Act 1981 (as amended) or red data book species as part of the assessment of "important" hedgerows under the Regulations.

2.3 Field Survey

The hedgerows subject to assessment comprised all hedgerows considered likely to be directly or indirectly affected by the scheme i.e., the Zone of Influence of potential impacts from the construction and operation of the scheme. Therefore, the defined survey area included all hedgerows located within the scheme boundary and all land within a 50m radius from the scheme as illustrated in Figure 1 (Appendix A). The survey was conducted on 5th and 7th May 2020, an optimum time for surveying hedgerows as all woody species and basal flora (including woodland ground flora) of the hedgerows are readily identifiable / visible at this time. The assessment was carried out in accordance with the 'Hedgerow Survey Handbook: A standard procedure for local surveys in the UK' (Defra, 2007).

Each hedgerow was mapped and assigned an identification number (e.g. H1, H2 etc.). Where a hedgerow appeared continuous in character but was divided into survey units due to the presence of a connecting node, the hedgerow number was assigned a letter suffix (e.g. H1a, H1b etc.). Any additional field boundaries that were defined in the field as a hedgerow by the Hedgerow Survey Handbook (Defra, 2007) were also included in the survey. The following features were recorded during the hedgerow survey:

- Type of hedgerow (shrubby hedgerow, line of trees, shrubby hedgerow with trees or hedgerow with gaps where each shrubby section may be less than 20m long but the gaps are less than 20m);
- Adjacent land use;
- Length of the hedgerow;
- Hedgerow shape and dimensions;
- The percentage of gaps in the hedgerow;
- Number of standard trees (i.e. single-stemmed standard trees = diameter >20cm at 1.3m from the ground; or multi-stemmed standard trees = at least 2 stems with diameter >15cm at 1.3m from the ground) present along the full length of the hedgerow;
- All woody species listed on Schedule 3 of Regulations occurring with 30m survey sections;
- Any rare tree species present (i.e. black poplar (*Populus nigra* subsp. *betulifolia*), large-leaved lime (*Tilia platyphyllos*), small-leaved lime (*Tilia cordata*) and wild service-tree (*Sorbus torminalis*);

- Presence of any rare species listed on Schedule 1 (birds), Schedule 5 (animals) or Schedule 8 (plants) of the Wildlife and Countryside Act 1981 (as amended); and
- Any of the following features:
 - 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 two 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 three woodland species (listed on Schedule 2 of the Regulations) 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 four points or more in accordance with sub-paragraph (5); and
 - i) A parallel hedge within 15 metres of the hedgerow.

Each woody species (listed within Schedule 3 of the Regulations) identified within the full length of the hedgerow was recorded and the DAFOR scale used to assign an abundance value (Dominant, Abundant, Frequent, Occasional or Rare, with the prefix of locally (L) used where appropriate). Tree species within 1m of the hedgerow extent were included in the species count.

All woody species were recorded in hedgerows that were up to 30m in length. Where a hedgerow was over 30m in length, it was divided into 100m sections and the number of species was counted within the central 30m of each section (up to a maximum of three samples per hedge). The number of woody species recorded over multiple survey sections was averaged and rounded to the nearest whole number.

Any hedgerow bordering a domestic dwelling was not subject to survey and assessment under the Regulations.

2.4 Assessment under The Hedgerows Regulations 1997

The results of the desk study and field survey were compiled and assessed against qualifying criteria within the Regulations. For the purposes of the evaluation and clarity of analysis, hedgerows requiring two or three survey units (labelled with lettered suffixes) were considered separately.

2.4.1 Criteria for Determining “Important” Hedgerows

For the purposes of the 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 Schedule 1, Part II of the Regulations (see below).

2.4.2 Schedule 1, Part II Criteria - Archaeology and History

A hedgerow qualifies as “important” under archaeology and history criteria listed within Schedule 1, Part II of the Regulations if it is at least 30 years old and it satisfies one of the following requirements:

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; 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, for the purposes of development control within the authority’s area, as a key landscape characteristic.

2.4.3 Schedule 1, Part II Criteria - Wildlife and Landscape

A hedgerow qualifies as “important” under wildlife and landscape criteria of the Regulations if it is at least 30 years old and it satisfies one of the following requirements³ (refer to Part II criteria of the Regulations for exact wording):

- The hedgerow contains documented records of species protected in Part 1 of Schedule 1, Schedule 5 or Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) or red data book species (6.1 – 6.4);
- The hedgerow includes at least six woody species (7a);

³The number of woody species quoted in the bullet points have been reduced by one (with the exception of the last bullet point) due to the survey being conducted in Lancashire, as per Schedule 1, Part II of The Hedgerows Regulations, paragraph 7 (2).

- The hedgerow includes at least five woody species and three features listed in section 2.3 (points a-i) (7b);
- The hedgerow includes at least five woody species, including rare species listed in section 2.3 (i.e. black poplar, large-leaved lime, small-leaved lime and wild service-tree (7c);
- The hedgerow includes at least four³ woody species and four features listed in section 2.3 (points a-i) (7d); and
- The hedgerow is located adjacent to a bridleway or footpath, a road used as a public path, or a byway open to all traffic, and includes at least four woody species and at least two features listed in section 2.3 (points a-i) (8a and b).

2.5 Species Rich Hedgerows

A hedgerow is defined as species-rich if the structural species making up a surveyed 30m section of hedgerow included at least four⁴ native woody species (on average for more than one survey section, rounded to the nearest whole figure, Defra, 2007). Woody species were defined as any tree or shrub species native to the UK, or which are 'archaeophytes' (have been recorded as naturalised in the wild before 1500 AD).

Although not recorded as a native species in Schedule 3 of the Regulations, in accordance with good practice guidance (Defra, 2007), sycamore (*Acer pseudoplatanus*) has been included as its status as native / archaeophyte or recent introduction (neophyte) is unclear. For this assessment, certain species have not been included in the total woody species count:

- Neophytes such as horse-chestnut (*Aesculus hippocastanum*);
- Variety of garden shrubs such as garden privet (*Ligustrum ovalifolium*) or coniferous species; and
- Climbers and bramble (*Rubus fruticosus* agg.) as they depend on the presence of other woody species in order to form a distinct boundary feature.

As stated in the Hedgerow Survey Handbook (Defra, 2007), hedgerows that contain fewer woody species but have a rich basal herbaceous flora may also be defined as species-rich. There is no set criteria for defining species richness within a hedgerow base layer so professional judgement was used to determine this information based on the diversity of herbaceous plants. Woodland flora listed on Schedule 2 of the Regulations are considered under wildlife and landscape criteria.

2.6 Evaluation

Ecological Impact Assessment (EclA) uses a hierarchical geographic framework to assign importance to ecological features. This is based on an understanding of how the ecological feature may contribute to the conservation status or distribution of the species or habitat at a particular geographic scale. It involves an assessment of the biodiversity importance of ecological features and also involves consideration of other factors that can be attached to ecological features including ecosystem services and natural capital (CIEEM, 2018). The evaluation is based on professional judgement⁵ using up-to-date survey information, local knowledge and available data sources. The

⁵ Professional judgement requires a trained and appropriately experienced individual to apply their skills and knowledge to reach an informed decision, as per British Standard 42020:2013. Biodiversity - Code of practice for planning and development (The British Standards Institution, 2013).

Lancashire Biological Heritage Site (BHS) selection criteria (Lancashire County Planning Department, 1998) provides criteria to indicate habitats (and some species populations) of **County** importance for biodiversity and this document has been used to inform the evaluation process. Opinions may differ slightly between professionals as to the value of ecological features / biodiversity resources; therefore, a clear explanation is provided to justify how the evaluation category has been assigned.

The new Design Manual for Roads and Bridges (DMRB) LA 108 Biodiversity (formerly Volume 11, Section 3, Part 4 Ecology and Nature Conservation and IAN 130/10) guidance (Highways England, 2020) and the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Impact Assessment in the UK and Ireland; Terrestrial, Freshwater, Coastal and Marine (CIEEM, 2018) recommends that the value / importance of a biodiversity resource / ecological feature be considered within a defined geographical context. The geographic categories stated in the two sets of guidance differ slightly but are largely comparable (see below). Therefore, the value / importance of biodiversity resources within the survey area was assessed according to the following defined geographical framework as per current CIEEM (2018) and Highways England (2020) guidance⁶.

- International and European (International or European).
- National (UK or National).
- Regional (Regional) e.g. North-West England.
- Metropolitan, County, Vice County or other local authority-wide area (County or equivalent authority) e.g. Lancashire.
- River Basin District (CIEEM only). District is used herein as a geographic frame of reference e.g. Preston.
- Estuary System / Coastal cell (CIEEM only).
- Local (Local) (e.g. within 2km of the scheme).

2.7 Limitations

At the time of survey, the PWD / EWLR construction was underway and certain access exclusion zones were pre-determined prior to survey. These exclusion zones are shown as hatched areas on Figure 1. In addition to this, the narrow linear section of the scheme boundary (shown in Plate 1.2 and Figure 1) formed a haul road and construction area for the PWD / EWLR scheme; therefore, no land along this linear section was accessed. Any hedgerows located within this area were subject to survey, assessment and mitigation within the PWD / EWLR planning process. Aside from these construction related areas, all other parts of the survey area were accessed.

The first edition of the OS 1:10,000 maps for Lancashire (surveyed in the mid-1840s and published in the late-1840s) was the only available data source used to determine if the hedgerows within the scheme were integral parts of the field systems pre-dating the Inclosure Act (as per Schedule 1, Part II Criteria for archaeology and history listed in Section 2.4.2). The OS maps provided the strongest indication that the hedgerows were present prior to the enclosures but do not provide conclusive evidence. As access to the County Records Office was not available

⁶ The CIEEM (2018) value is given first with the corresponding Highways England (2020) value given in brackets where applicable.

at the time of writing, it has been assumed that any hedgerows present on the first edition OS maps were present prior to the Inclosure Act.

In addition, 1960s aerial photographs have been used to establish whether the hedgerows are at least 30 years old: in the absence of any more accurate images (i.e. dated around 1990) those hedgerows not shown on these photographs have been assumed present thirty years ago and assessed appropriately.

The findings of this report represent the professional opinion of qualified ecologists and do not constitute professional legal advice. The client may wish to seek professional legal interpretation of the relevant wildlife legislation cited in this document.

3. Results

3.1 Desk Study

A total of 29 hedgerows (H1 to H29) were identified within the scheme and five of these (H1, H10, H11, H19 and H22) required two or more survey units (labelled with lettered suffixes) due to the presence of connecting nodes, making a total number of 34 survey units (refer to Figure 1 in Appendix A). Two of the hedgerows, H28 and H29 were not subject assessment under the Regulations as these were lines of mature self-seeded and outgrown hedgerow trees which did not meet the criteria of a hedgerow as set out under the Regulations (also see Section 3.2.2).

3.2 Assessment under The Hedgerows Regulations 1997

3.2.1 Archaeology and History

All 32 hedgerow units subject to assessment under the Regulations were identified on the OS First Edition 1:10,000 map. Therefore, it has been assumed that all hedgerows formed integral parts of the field systems pre-dating the Inclosure Acts. As a consequence, all hedgerows qualify as “important” under Schedule 1, Part II criteria for archaeology and history (sub-paragraph 5 (a)). It was not possible to fully determine if hedgerows were present along Sidgreaves Lane, Darkinson Lane, Lea Road or the Lancaster Canal as these linear features cannot be attributed to hedgerows due to the OS First Edition mapping layout. However, based on a precautionary principle, it has been assumed that all the hedgerows currently present along these features were present on the OS First Edition map.

It can also be confirmed via the OS First Edition map that no hedgerows located along historic parish or township boundaries were present and that no scheduled monuments were identified via the MAGIC website mapping facility. Appendix C provides an overview of the assessment of the hedgerows in respect of the archaeological and landscape criteria of the Regulations.

3.2.2 Wildlife and Landscape / Species Richness

A review of OS maps revealed that none of the hedgerows within the survey area were located adjacent to a bridleway or footpath (as defined in the Highways Act 1980), a road used as a public path (as defined in Section 54 of the WCA, 1981 as amended), or a byway open to all traffic (as defined in Part III of the WCA 1981 as amended). Hedgerows H11a, H11b, H12 and H17 were located along the Lancaster Canal towpath, however this has been confirmed as a permissive path and not a public footpath.

Full details of the hedgerows subject to survey, including woody species totals, species-richness and occurrence of hedgerow features are presented in Appendix D and Appendix E.

The majority of surveyed hedgerows were shrubby and intact by nature. The surrounding land was primarily well-managed improved grasslands used for agricultural purposes, primarily cattle and horse pasture. There are several ponds in the area and Lancaster Canal runs through the survey area. The hedgerows all had either dominant or abundant hawthorn (*Crataegus monogyna*) and varied in size, between 1.5-4m tall and 1-3m wide. Three hedgerow units (H1b, H5 and H26) were classified as hedgerows with gaps, with the gaps between woody components remaining less than 20m.

The majority of hedgerows supported three or more woody species with hawthorn being the main structural species. Blackthorn (*Prunus spinosa*) was also a common species and was found within most hedgerows. Other species included elder (*Sambucus nigra*), hazel (*Corylus avellana*) and holly (*Ilex aquifolium*); all of which were occasionally found within hedges throughout the site. Ash (*Fraxinus excelsior*), pedunculate oak (*Quercus robur*),

sycamore and rose species (*Rosa* sp.) featured in several hedgerows, most often in low quantity and frequency. Gorse (*Ulex europaeus*), rowan (*Sorbus acuparia*), common lime (*Tilia x europaea*), horse-chestnut, willow species (*Salix* sp.), elm species (*Ulmus* sp.), featured in a single hedgerow in low quantity. No rare species such as black poplar, large-leaved lime, small-leaved lime or wild service-tree were recorded.

Trees identified within hedgerows ranged in age from immature to very mature. A large oak tree of potential veteran status was noted within H16. The most common tree species that were recorded were pedunculate oak, ash and sycamore; horse-chestnut and common lime were rare. One of the hedgerow units contained at least one standard tree per 50m of hedge (H2a).

Most hedgerows within the survey area were well managed with either all aspects cut or at least both sides cut. There was a cluster of hedgerows at the south west of the survey area that are unmanaged (H23-26) and several in the centre (H15-17) that are also unmanaged. These unmanaged hedgerows were generally wider.

Several hedgerows had a bank or wall present for at least 50% of the length (H1a, H2, H3, H10b- H12 and H19b). H3 also had a ditch as well as a bank or wall present. Four more hedgerows just had a ditch present (H13-15 and H23).

H28 and H29 were located along the banks of a small watercourse which runs north to south through the scheme. This watercourse is culverted under the Lancaster Canal and the rail line. There were several small stands of hawthorn hedgerow along the watercourse which appeared to be managed (i.e., flailed occasionally). However, the vast majority trees (particularly within H29) comprised self-seeded mature sycamore which had grown from the banksides of the watercourse. Whilst these hedgerows did not meet the criteria of the Regulations, they did qualify as species-rich hedgerows as per the hedgerow survey handbook (Defra, 2007).

Overall, a total of 18 out of the 34 hedgerow units were assessed as species-rich.

The understorey of the hedgerow was generally dominated by common grass and herb species such as perennial rye-grass (*Lolium perenne*), false oat-grass (*Arrhenatherum elatius*), cock's-foot (*Dactylis glomerata*), Yorkshire fog (*Holcus lanatus*), rough meadow-grass (*Poa trivialis*), smooth meadow grass (*Poa pratensis*), herb-Robert (*Geranium robertianum*), red campion (*Silene dioica*), common foxglove (*Digitalis purpurea*), cow parsley (*Anthriscus sylvestris*), hedge woundwort (*Stachys sylvatica*) and ground ivy (*Glechoma hederacea*). Bluebell (*Hyacinthoides non-scripta*) was recorded as part of the ground flora in four hedgerows (H9, H10b, H17 and H19b). This species is listed on Schedule 8 of the Wildlife and Countryside Act 1981 (as amended).

A summary of the hedgerow assessment is provided in Table 3.1 below and illustrated in Figure 1. Full details can be found in Appendices C, D and E.

Table 3.1 Summary of Hedgerow Assessment

Hedgerow Unit Reference	Species-rich?	Important?	
		Archaeology / history criteria	Wildlife / landscape criteria
1a	Yes	Yes	No
1b	No	Yes	No
2	Yes	Yes	Yes
3	Yes	Yes	No
4	Yes	Yes	No
5	Yes	Yes	No
6	No	Yes	No
7	No	Yes	No
8	No	Yes	No

Hedgerow Unit Reference	Species-rich?	Important?	
		Archaeology / history criteria	Wildlife / landscape criteria
9	Yes	Yes	Yes
10a	Yes	Yes	No
10b	Yes	Yes	Yes
11a	No	Yes	No
11b	Yes	Yes	No
12	No	Yes	No
13	Yes	Yes	No
14	No	Yes	No
15	No	Yes	No
16	Yes	Yes	No
17	No	Yes	Yes
18	Yes	Yes	No
19a	No	Yes	No
19b	No	Yes	Yes
20	Yes	Yes	No
21	No	Yes	No
22a	No	Yes	No
22b	No	Yes	No
23	Yes	Yes	No
24	Yes	Yes	No
25	Yes	Yes	No
26	No	Yes	No
27	No	Yes	No
28	Yes	N/A	N/A
29	Yes	N/A	N/A

4. Evaluation

All hedgerows within the survey area meet the criteria for Habitats of Principal Importance for the conservation of biodiversity in England (Section 41: NERC Act 2006). There is no specific hedgerow assessment criteria provided within the Lancashire BHS selection criteria and the hedgerow network within the survey area is unlikely to be considered to be part of the County's "critical environmental capital" (Lancashire County Planning Department, 1998). However, the survey area comprises an extensive and established native hedgerow network.

The collective hedgerow network within the survey area, including individual species-rich hedgerows, those which qualify as "important" under the Regulations, and hedgerows supporting mature trees or other notable features are considered to be of **District** importance for biodiversity. Species-poor hedgerows are still of value in the hedgerow network and are assessed as being of **Local** importance for biodiversity.

The potential veteran oak tree located at the end of a species rich hedgerow (H16) is considered to be of **County** importance for biodiversity. Veteran trees are regarded as "irreplaceable" habitat under the National planning Policy Framework (NPPF) (2019) and may meet the Lancashire BHS selection criteria.

5. Conclusions and Recommendations

The main conclusions drawn from the hedgerow assessment are as follows:

- A total of 34 hedgerow units were subject to assessment. Of these, 27 hedgerows (32 hedgerow units) were assessed against the criteria set out within the Regulations. Two hedgerows (H28 and H29) did not meet the criteria of a hedgerow as set out under the Regulations.
- All 32 hedgerow units assessed under the Regulations have been classified as "important" under the archaeology and history criteria as all were identified as forming integral parts of the field systems pre-dating the Inclosure Acts.
- Five hedgerows (H2, H9, H10b, H17 and H19b) have been classified as "important" under the wildlife and landscape criteria.
- Eighteen of the 34 hedgerow units assessed were assessed as species rich, comprising an average of at least four woody species. The basal flora of the hedgerows were generally species poor, containing common competitive grasses and a range of common forbs.
- All hedgerows assessed qualify as a Habitat of Principal Importance for the conservation of biodiversity in England (Section 41: NERC Act 2006).
- The collective hedgerow network within the survey area, including individual species-rich hedgerows, those which qualify as "important" under the Regulations, and hedgerows supporting mature trees or other notable features are considered to be of **District** importance for biodiversity. Species-poor hedgerows are assessed as being of **Local** importance for biodiversity.
- The potential veteran oak tree located at the end of a species rich hedgerow (H16) is considered to be of **County** importance for biodiversity. Veteran trees are regarded as "irreplaceable" habitat under the NPPF (2019) and may meet the Lancashire BHS selection criteria.

A robust assessment of the potential effects on hedgerows associated with the scheme is to be detailed within the Ecology Chapter (Volume 2, Chapter 6) of the Environmental Statement (ES), along with any prescribed avoidance, mitigation and compensation measures, opportunities for enhancement, requirements for pre and / or post construction surveys and an assessment of residual impacts (where appropriate).

6. References

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Websites

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MARIO website, <http://mario.lancashire.gov.uk/agsmario> [Accessed various dates in August 2020].

Appendix A. Figure

Figure 1. Hedgerow Survey Results

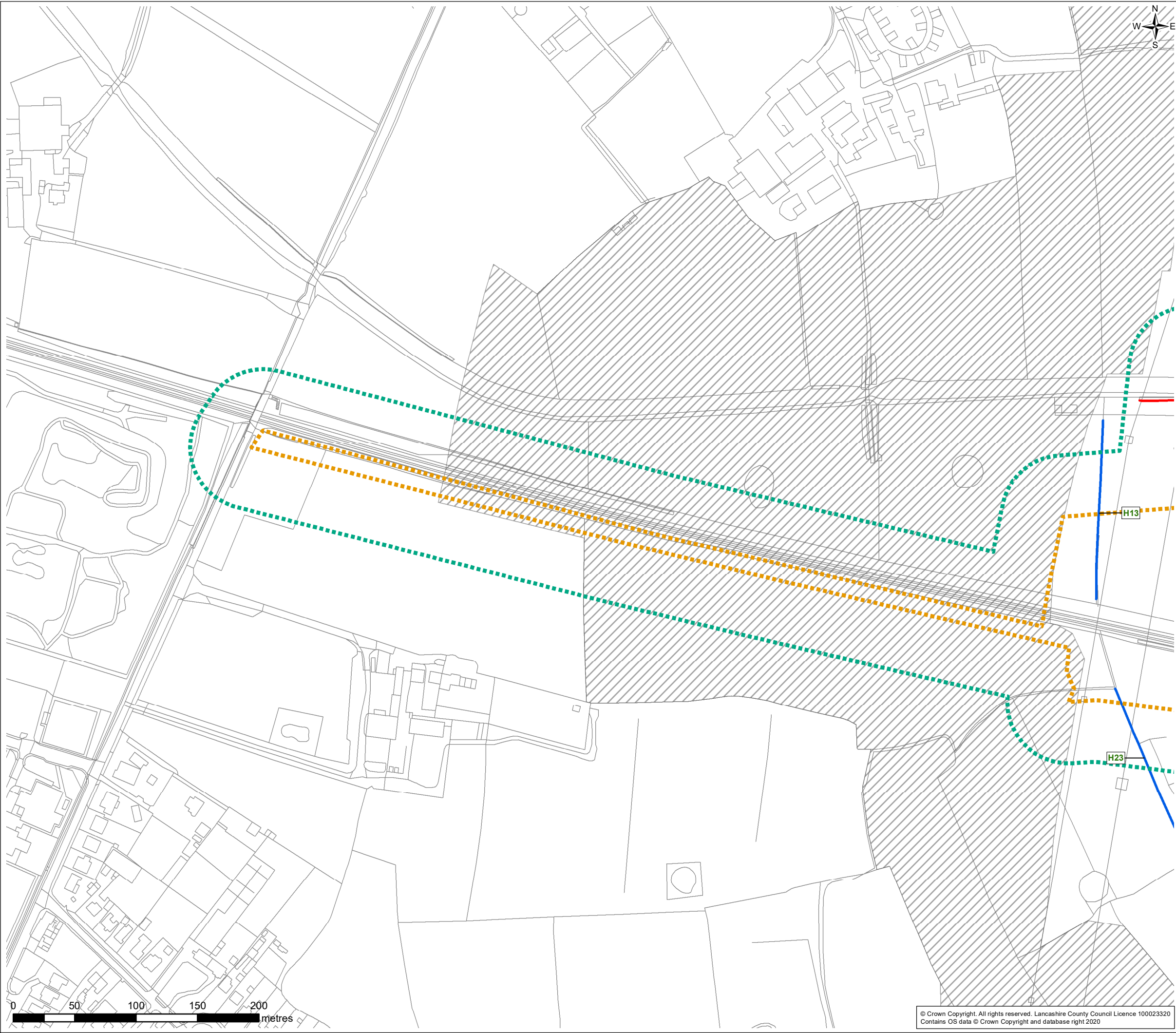


Figure 1

Legend

- Site Area
- Survey Area 50m Buffer
- Excluded Areas

Hedgerow Survey

- Important Hedgerow
- Important and Species Rich Hedgerow
- Species Rich Hedgerow (not covered under the Regulations)

0	04/09/2020	Initial Issue	SSz	RK	KL	DT
Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
<div><div>Jacobs 5 First Street, Manchester, M15 4GU, UK Tel: +44(0)161 235 6000 Fax: +44(0)161 235 6001 www.jacobs.com</div><div>Lancashire County Council</div></div>						
Client						
Project						
Drawing Title						
HEDGEROW SURVEY RESULTS						
FINAL						
Scale @ A3		1:3,000			DO NOT SCALE	
Jacobs No.		B2327FEF				
B2327FEF-JAC-EBD-00-DR-ENV-0020						
This drawing is not to be used in whole in or part other than for the intended purpose and project as defined on this drawing. Refer to the contract for full terms and conditions.						

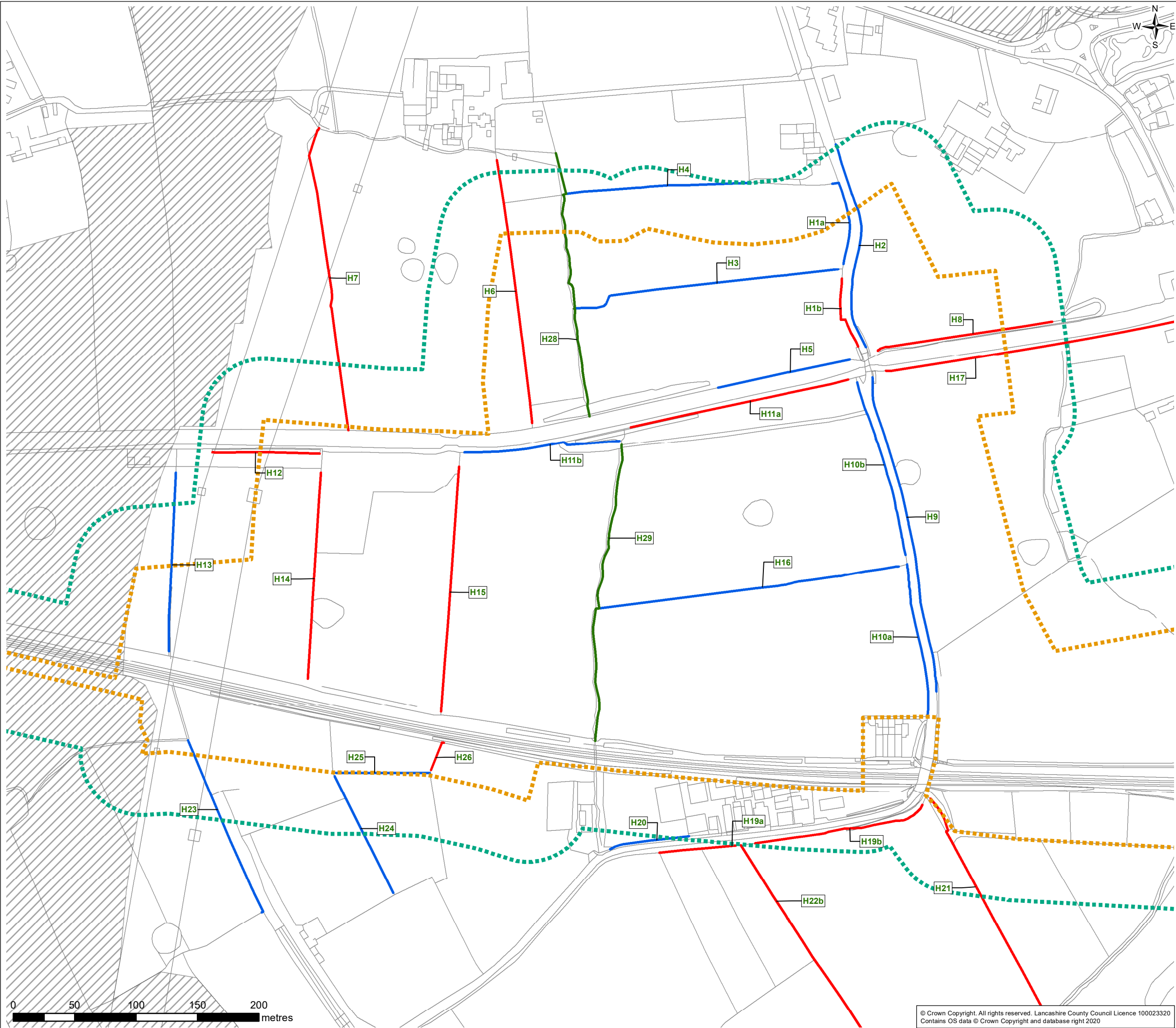


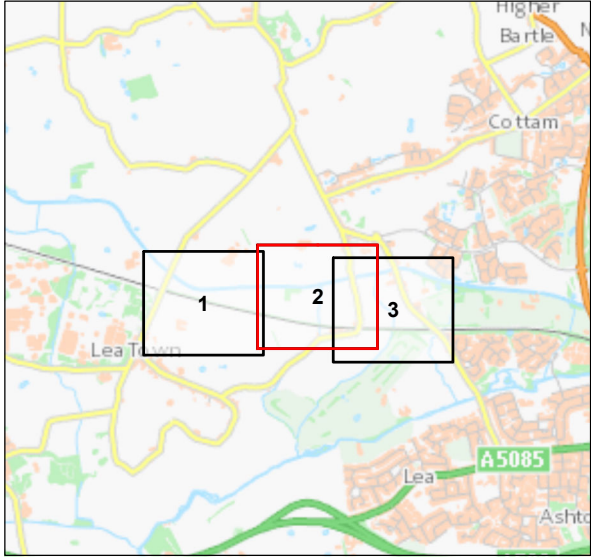
Figure 1


Legend

- Site Area
- Survey Area 50m Buffer
- Excluded Areas

Hedgerow Survey

- Important Hedgerow
- Important and Species Rich Hedgerow
- Species Rich Hedgerow (not covered under the Regulations)



0	04/09/2020	Initial Issue	SSz	RK	KL	DT
Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	Appr'd
<div>Jacobs</div> <div>5 First Street, Manchester, M15 4GU, UK Tel: +44(0)161 235 6000 Fax: +44(0)161 235 6001 www.jacobs.com</div>						
Client		<div>Lancashire</div> <div>County Council</div> <div></div>				
Project		Cottam Parkway Railway Station				
Drawing Title		HEDGEROW SURVEY RESULTS				
FINAL						
Scale @ A3	1:3,000			DO NOT SCALE		
Jacobs No.	B2327FEF					
B2327FEF-JAC-EBD-00-DR-ENV-0020						
This drawing is not to be used in whole in or part other than for the intended purpose and project as defined on this drawing. Refer to the contract for full terms and conditions.						

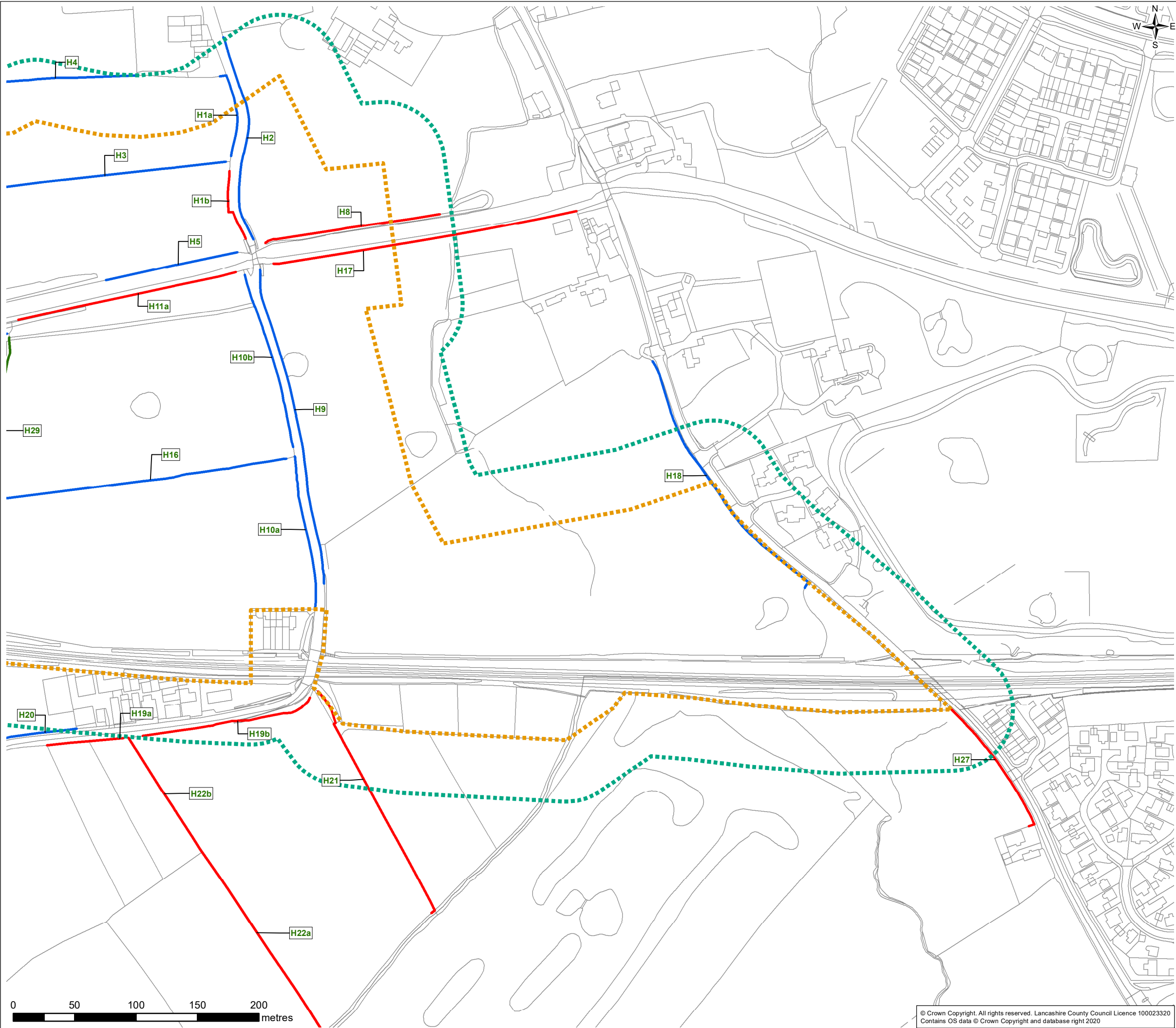


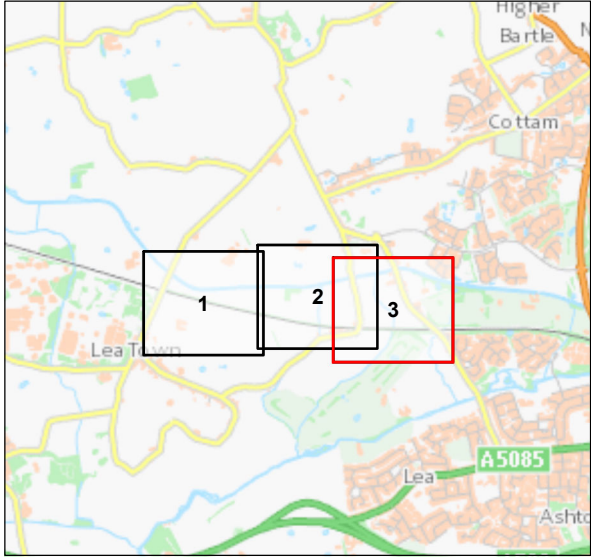
Figure 1


Legend

- Site Area
- Survey Area 50m Buffer
- Excluded Areas

Hedgerow Survey

- Important Hedgerow
- Important and Species Rich Hedgerow
- Species Rich Hedgerow (not covered under the Regulations)



0	04/09/2020	Initial Issue	SSz	RK	KL	DT
Rev.	Date	Purpose of revision	Drawn	Check'd	Rev'd	App'd
<div>Jacobs</div> <div>5 First Street, Manchester, M15 4GU, UK Tel: +44(0)161 235 6000 Fax: +44(0)161 235 6001 www.jacobs.com</div>						
Client			<div>Lancashire</div> <div>County Council</div> <div></div>			
Project			Cottam Parkway Railway Station			
Drawing Title			HEDGEROW SURVEY RESULTS			
FINAL						
Scale @ A3	1:3,000				DO NOT SCALE	
Jacobs No.	B2327FEF					
B2327FEF-JAC-EBD-00-DR-ENV-0020						
This drawing is not to be used in whole in or part other than for the intended purpose and project as defined on this drawing. Refer to the contract for full terms and conditions.						

Appendix B. Hedgerow Information and Legislative Background

Nature Conservation Status

Hedgerows are important for farming, landscape, cultural and archaeological reasons. They are also an important habitat in their own right and vital for countryside biodiversity. There have been approximately 130 Species of Principal Importance to Conservation recorded associated with hedgerows. Woody, species-rich hedgerows often contain great small mammal abundance and greater bird species richness and abundance. They act as a refuge for many woodland and farmland plants and animal species. According to the Hedgelink, over 600 plant species (including some endemic species), 1500 insects, 65 birds and 20 mammals have been recorded at some time living or feeding in hedgerows.

Hedgerows are also important in the wider landscape because they act as wildlife corridors for many species allowing dispersal and movement between habitats and populations, creating meta-populations.

Since 1945 there has been a dramatic loss of hedgerows in the UK through removal and neglect. In 1998 survey data showed that there was 814,159km of hedgerows in the UK; however, the current figure is likely to be greatly reduced due to the pressures placed on hedgerow habitats as outlined below.

Threats to Hedgerows

Hedgerows have been lost in many parts of the UK countryside through removal and an increasing amount of neglect. This loss is a product of several factors including:

- Due to high labour costs and loss of traditional skills management of hedgerows have decreased leading to them changing into lines of tree with gaps;
- Too frequent and badly timed cutting has led to poor habitat conditions, development of gaps and species changes;
- Lack of vegetation and tree replacement after felling hedgerow trees;
- Use of herbicides, pesticides and fertilisers has decreased species diversity, especially where these agricultural practices occur within the immediate proximity of hedgerow;
- Increased stocking rates have led to hedgerow damage and an increase in fences being installed as field boundaries; and
- Removal for agricultural and development purposes.

Legislation and Policy Framework

The Hedgerows Regulations 1997 (made under Section 97 of the Environment Act 1995) prohibit the removal of most countryside hedgerows without first submitting a hedgerow removal notice to the local planning authority. The regulations outline the criteria used to determine "important" hedgerows that the LPA can order to be retained.

Trees within a hedgerow may be subject to a Tree Preservation Order (Town and Country Planning Act 1990), permission for the removal or lopping of which is needed from the LPA. Hedgerows must not be trimmed or cut between 1st March and 31st July.

Some hedgerows may be protected if they form part of a Site of Special Scientific Interest (SSSI) (WCA 1981) or Special Area of Conservation (SAC) (Habitats Directive 1992). A hedgerow may also be indirectly protected if it forms part of a habitat for a legally protected species under the WCA 1981 or Conservation (Natural Habitats etc.) Regulations 2017.

Hedgerows are listed under Natural Environment and Rural Communities (NERC) Act (2006) as Habitats of Principal Importance.

National Planning Policy Framework (NPPF) 2019 and Section 40 of the NERC Act 2006 place a duty on all public bodies including local planning authorities to consider habitats and species of Principal Importance listed in Section 41 of the NERC Act and Priority Species / Habitats within Biodiversity Action Plans when considering a planning application.

Appendix C. Survey Results - Archaeology and History Criteria *

Hedgerow Unit Ref. No.	1a	1b	2	3	4	5	6	7	8	9	10a	10b	11a	11b	12	13
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.	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
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.	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
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.	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

Hedgerow Unit Ref. No.	1a	1b	2	3	4	5	6	7	8	9	10a	10b	11a	11b	12	13
<p>4. The hedgerow—</p> <p>(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</p> <p>(b) is visibly related to any building or other feature of such an estate or manor.</p>	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
<p>5. The hedgerow—</p> <p>(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; or</p> <p>(b) is part of, or visibly related to, any building or other feature associated with such a system, and that system—</p> <p>(i) is substantially complete; or</p> <p>(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, for the purposes of development control within the authority's area, as a key landscape characteristic.</p>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

Hedgerow Unit Ref. No.	14	15	16	17	18	19a	19b	20	21	22a	22b	23	24	25	26	27
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.	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
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.	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
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.	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No

Hedgerow Unit Ref. No.	14	15	16	17	18	19a	19b	20	21	22a	22b	23	24	25	26	27
<p>4. The hedgerow—</p> <p>(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</p> <p>(b) is visibly related to any building or other feature of such an estate or manor.</p>	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No	No
<p>5. The hedgerow—</p> <p>(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; or</p> <p>(b) is part of, or visibly related to, any building or other feature associated with such a system, and that system—</p> <p>(i) is substantially complete; or</p> <p>(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, for the purposes of development control within the authority's area, as a key landscape characteristic.</p>	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes

*. H28 and H29 did not qualify for assessment under the Regulations

Appendix D. Survey Results - Wildlife and Landscape Criteria

Hedgerow Unit Ref. No.		1a	1b	2	3	4	5	6	7	8	9	10a	10b	11a	11b	12	13
WILDLIFE / LANDSCAPE CRITERIA	Total no. of woody species in hedgerow	5	3	7	7	7	4	3	5	5	6	8	7	3	3	5	5
	Average no. of woody species per 30m	5	3	5	5	4	4	1	3	3	4	6	5	2	3	4	4
	<i>Species-rich (4+ average)?</i>	Y	N	Y	Y	Y	Y	N	N	N	Y	Y	Y	N	N	Y	Y
	Adjacent to public path/byway/road open to public																
	Rare species present (WCA Sch 1, 5, or 8)										•		•				
	Features	Bank or wall	•		•	•							•	•		•	•
		Less than 10% gaps	•		•		•	•	•	•	•	•	•	•	•	•	•
		1+ standard tree per 50m															
		Over 100m and 1+ tree per 50m			•												
		3+ woodland species (Schedule 2)											•				
		Ditch				•									•		
		Connectivity score 4 or over				•											•
		Parallel hedge	•	•	•						•	•	•				
	Number of features	3	1	4	3	1	0	1	1	1	2	2	4	2	2	2	3
	<i>Important under wildlife/landscape criteria?</i>	N	N	Y	N	N	N	N	N	N	Y	N	Y	N	N	N	N

Hedgerow Unit Ref. No.		14	15	16	17	18	19a	19b	20	21	22a	22b	23	24	25	26	27
WILDLIFE / LANDSCAPE CRITERIA	Total no. of woody species in hedgerow	4	3	7	4	5	2	6	7	5	4	2	7	4	1	3	5
	Average no. of woody species per 30m	3	3	4	2	4	2	3	6	2	3	3	4	4	1	2	4
	<i>Species-rich (4+ average)?</i>	N	N	Y	N	Y	N	N	Y	N	N	N	Y	Y	N	N	Y
	Adjacent to public path/byway/road open to public																
	Rare species present (WCA Sch 1, 5, or 8)				•			•									
	Features	Bank or wall						•									
		Less than 10% gaps	•	•	•	•	•	•	•	•	•	•	•		•	•	•
		1+ standard tree per 50m															
		Over 100m and 1+ tree per 50m															
		3+ woodland species (Schedule 2)	•														
		Ditch	•	•													•
		Connectivity score 4 or over					•									•	•
		Parallel hedge				•	•	•	•								
	Number of features	3	2	1	2	2	3	3	2	1	1	1	1	0	1	2	3
	<i>Important under wildlife/landscape criteria?</i>	N	N	N	Y	N	N	Y	N	N	N	N	N	N	N	N	N

Appendix E. Survey Results - Species Recorded

Hedgerow reference	Hedgerow type	Total length of hedgerow	No. sections assessed	Schedule 3 species												Species included as status as native / archaeophyte or neophyte is unclear	Neophytes		Woodland species (Schedule 2 of the Regulations) and/or species listed in Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) (in bold)
				Hawthorn	Ash	Elder	Hazel	Rose sp.	Blackthorn	Holly	Pedunculate Oak	Elm sp.	Willow species	Rowan	Gorse		Cherry	Sycamore	
1a	Shr. H/row	70	1	D		R		R	R							F			
1b	Gap Shr. H/row	70	1	A		R			F										
2	Shr. H/row	180	2	A	R	O		R	O		O					O			
3	Shr. H/row	190	2	L A		R	R	R	L A	R						R			
4	Shr. H/row	140	2	A		L O		R	R	L O		R				R			
5	Gap Shr. H/row	90	1	A	R	F				R									

Hedgerow reference	Hedgerow type	Total length of hedgerow	No. sections assessed	Schedule 3 species												Species included as status as native / archaeophyte or neophyte is unclear	Neophytes		Woodland species (Schedule 2 of the Regulations) and/or species listed in Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) (in bold)
				Hawthorn	Ash	Elder	Hazel	Rose sp.	Blackthorn	Holly	Pedunculate Oak	Elm sp.	Willow species	Rowan	Gorse		Cherry	Sycamore	
6	Shr. H/row	210	3	D		R				R									
7	Shr. H/row	240	3	L D		R		R	L D	R									
8	Shr. H/row	75	1	D				O		O						R			
9	Shr. H/row	250	3	D		R		R	O			R				R			Bluebell (<i>Hyacinthoides non-scripta</i>) (R)
10a	Shr. H/row	120	2	L D		R	L F	R	L A		R	R				R			Herb-Robert (<i>Geranium robertianum</i>) (O), Wood avens (<i>Geum urbanum</i>) (R)

Hedgerow reference	Hedgerow type	Total length of hedgerow	No. sections assessed	Schedule 3 species												Species included as status as native / archaeophyte or neophyte is unclear	Neophytes		Woodland species (Schedule 2 of the Regulations) and/or species listed in Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) (in bold)	
				Hawthorn	Ash	Elder	Hazel	Rose sp.	Blackthorn	Holly	Pedunculate Oak	Elm sp.	Willow species	Rowan	Gorse		Cherry	Sycamore		Horse-chestnut
10 b	Shr. H/row	150	2	O		R	O		L A		R	R					R			Bluebell (R), Herb-Robert (O), Wood avens (R)
11a	Shr. H/row	180	2	D				R									R			
11 b	Shr. H/row	130	2	L D		R		R	L A								R			Herb-Robert (O), Wood avens (R)
12	Shr. H/row	80	1	D	R	R														
13	Shr. H/row	115	2	A		R	L O		L A								R			

Hedgerow reference	Hedgerow type	Total length of hedgerow	No. sections assessed	Schedule 3 species												Species included as status as native / archaeophyte or neophyte is unclear	Neophytes		Woodland species (Schedule 2 of the Regulations) and/or species listed in Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) (in bold)	
				Hawthorn	Ash	Elder	Hazel	Rose sp.	Blackthorn	Holly	Pedunculate Oak	Elm sp.	Willow species	Rowan	Gorse		Cherry	Sycamore		Horse-chestnut
14	Shr. H/row	180	2	D	R				F		R								Herb-Robert (O), Wood avens (R) and Hart's tongue fern (<i>Phyllitis scolopendrium</i>) (R)	
15	Shr. H/row	180	2	D							R					R				
16	Shr. H/row	250	3	L D	R	L O	R		L A		R					R				
17	Shr. H/row	280	3	D	R				O					R					Bluebell (R) , Wood avens (O)	
18	Shr. H/row	240	3	A	R	R						L F					LF	R	R	Herb-Robert (O)

Hedgerow reference	Hedgerow type	Total length of hedgerow	No. sections assessed	Schedule 3 species												Species included as status as native / archaeophyte or neophyte is unclear	Neophytes		Woodland species (Schedule 2 of the Regulations) and/or species listed in Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) (in bold)	
				Hawthorn	Ash	Elder	Hazel	Rose sp.	Blackthorn	Holly	Pedunculate Oak	Elm sp.	Willow species	Rowan	Gorse		Cherry	Sycamore		Horse-chestnut
19a	Shr. H/row	60	1	A					A											
19b	Shr. H/row	140	2	L D		O		R	O	R							R			Bluebell (R)
20	Shr. H/row	90	1	A	R	R			A	O		R					R			
21	Shr. H/row	210	3	D		O			R		R		R							
22a	Shr. H/row	180	2	D	R				R		R									
22b	Shr. H/row	90	1	D					F											
23	Shr. H/row	155	2	L D			R		L A	O	R									

Hedgerow reference	Hedgerow type	Total length of hedgerow	No. sections assessed	Schedule 3 species												Species included as status as native / archaeophyte or neophyte is unclear	Neophytes		Woodland species (Schedule 2 of the Regulations) and/or species listed in Schedule 8 of the Wildlife and Countryside Act 1981 (as amended) (in bold)
				Hawthorn	Ash	Elder	Hazel	Rose sp.	Blackthorn	Holly	Pedunculate Oak	Elm sp.	Willow species	Rowan	Gorse		Cherry	Sycamore	
24	Shr. H/row	112	2	D		R	R	O		O	R				L F				
25	Shr. H/row	79	1	D			R	R		O									
26	Gap Shr. H/row	25	1	D															
27	Shr. H/row	116	2	D						R	R								
28	Treeline	207	3	F		O				R	O		O				O		
29	Treeline	239	3	A	R	R			O				R			R	D		

Species recorded are those identified within the full length of the hedgerow / hedgerow unit in total and not averaged per 30m section.

Key. Shr, H/row = Shrubby hedgerow; Shr. H/row + Tr = Shrubby hedgerow with trees; Gap Shr. H/row = Gappy shrubby hedgerow; Gap Shr. H/row + Tr = Gappy shrubby hedgerow with trees. D = Dominant; A = Abundant; F = Frequent; O = Occasional; R = Rare. L = Locally.