



# Preliminary Ecological Appraisal

Ollerton Depot, Newark Road, New Ollerton,  
NG22 9PZ

Presented to: J. Murphy & Sons Limited

Issued: December 2022

Delta-Simons Project No: 87854.545445

## Report Details

<b>Client</b>	J. Murphy & Sons Limited
<b>Report Title</b>	Preliminary Ecological Appraisal
<b>Site Address</b>	Ollerton Depot, Newark Road, New Ollerton, NG22 9PZ
<b>Project No.</b>	87854.545445
<b>Delta-Simons Contact</b>	Jennifer Britt [REDACTED]

## Quality Assurance

Issue No.	Status	Issue Date	Comments	Author	Technical Review	Authorised
1	Final	14 <sup>th</sup> December 2022		[REDACTED]	[REDACTED]	[REDACTED]
				Becky Hodgins Graduate Ecologist	Charlotte Sanderson-Lewis Associate Director	Charlotte Sanderson-Lewis Associate Director

## About us

Delta-Simons is a trusted, multidisciplinary environmental consultancy, focused on delivering the best possible project outcomes for customers. Specialising in Environment, Health & Safety and Sustainability, Delta-Simons provide support and advice within the property development, asset management, corporate and industrial markets. Operating from across the UK we employ over 210 environmental professionals, bringing experience from across the private consultancy and public sector markets.

As part of Lucion Services, our combined team of 500 in the UK has a range of specialist skill sets in over 50 environmental consultancy specialisms including asbestos, hazardous materials, ecology, air and water services, geo-environmental and sustainability amongst others.

Delta-Simons is proud to be a founder member of the Inogen Environmental Alliance, enabling us to efficiently deliver customer projects worldwide by calling upon over 5000 resources in our global network of consultants, each committed to providing superior EH&S and sustainability consulting expertise to our customers. Through Inogen we can offer our Clients more consultants, with more expertise in more countries than traditional multinational consultancy.



Delta-Simons is a 'Beyond Net-Zero' company. We have set a Science-Based Target to reduce our Scope 1 and Scope 2 carbon emissions in line with the Paris Agreement and are committed to reducing Scope 3 emissions from our supply chain. Every year we offset our residual emissions by 150% through verified carbon removal projects linked to the UN Sustainable Development Goals. Our consultancy services to you are climate positive.

If you would like support in understanding your carbon footprint and playing your part in tackling the global climate crisis, please get in touch with your Delta-Simons contact above who will be happy to help.

## Executive Summary

<b>Scope of Works</b>	Delta-Simons Limited was instructed by J. Murphy & Sons Limited ('the Client') to undertake a Preliminary Ecological Appraisal (PEA) survey of the land at Ollerton Depot, Newark Road, New Ollerton ('the Site'). The PEA comprised a Phase 1 Habitat Survey and protected species assessment, which were completed on 16 <sup>th</sup> November 2022. The survey was undertaken to inform the client on any constraints for future development.
<b>Current Site Status</b>	The Site is a construction and engineering company in the west, comprising predominantly hardstanding and buildings with a large patch of both ephemerals/perennials and scattered scrub, whilst in the centre and east is improved grassland in the northern and arable in the southern area, separated from the hardstanding by a combination of woodland and dense scrub. A woodland belt runs along the southern extent of the Site with a length of hedgerow inside. A stream runs from the northern boundary in a westerly direction to the western boundary.
<b>Proposed Development</b>	It is understood that the proposals include extending the business into the eastern area of the Site. However, no detailed plans were available at the time of writing this report.
<b>Results:</b> <b>Habitats on-Site</b>	<p>The following habitats are found on the Site:</p> <ul style="list-style-type: none"> <li>• Broadleaved Woodland Semi-Natural;</li> <li>• Dense/Continuous Scrub;</li> <li>• Scattered Scrub;</li> <li>• Line of Trees;</li> <li>• Improved Grassland;</li> <li>• Poor Semi-Improved Grassland;</li> <li>• Running Water;</li> <li>• Arable;</li> <li>• Ephemeral/Short Perennial;</li> <li>• Intact Species Poor Hedgerow;</li> <li>• Defunct Species Poor Hedgerow;</li> <li>• Buildings; and</li> <li>• Hardstanding.</li> </ul>
<b>Habitats adjoining the Site</b>	<p>The Site is situated in New Ollerton and is in an area of predominantly rural area, surrounded by blocks of woodland on all aspects except the west where residential dwellings are located.</p>

	<p>Buildings (B) 1, 5, 8, and 10 supported features with Bat Roost Potential (BRP), with all assessed to have low BRP. The woodland and grassland offer high value foraging and commuting habitat for bats, with good connectivity to the surrounding area. The Site offers habitat for nesting birds in the woodland, hedgerows, trees and dense scrub, with features on buildings also. Old nests were noted in several trees within the woodlands, a rookery was also noted in the south-west corner of the woodland, and B1 had several nests noted around it.</p> <p>Whilst much of the Site was not suitable for reptiles, depending on the extent of future works there is the potential for individuals to be harmed if present within the woodland, scrub, field margins and hedgerow bases, or along the stream banks.</p> <p>Mares horsetail was recorded at the Site within the western aspect of B6 in small clusters with up to three stems per clusters. Whilst this species is not listed as an invasive species on Schedule 9 of the Wildlife and Countryside Act (1981, as amended), it is particularly difficult to eradicate due to its long rhizomes.</p> <p>The Site offers foraging and sheltering habitats to hedgehogs and brown hare.</p>
<p><b>Requirement for Further Surveys to Inform Planning</b></p>	<p><b>Bats</b></p> <p>It is recommended that the woodland is retained and protected during any future development works, however, if any works are required in or around the woodland then a detailed survey would be required to assess the BRP of the trees affected.</p> <p>If any works are being undertaken to any of the buildings, nocturnal bat surveys would be required to determine presence/likely absence of a roost and the requirement for mitigation. These would need to be completed during May-August (inclusive), with a single survey required for low BRP buildings.</p> <div style="background-color: black; height: 40px; width: 100%;"></div> <p><b>Reptiles</b></p> <p>Depending on the proposals for the Site, a detailed reptile survey comprising the laying out of refugia at appropriate locations followed by seven checks over an approximately 4-6-week period during April-October, inclusive, may be required.</p> <p><b>Mares Horsetail</b></p> <p>Horsetail Specialist advice should be sought with regards to eradicating the invasive horsetail from the Site prior to construction. This should include a survey to establish the full extent of its spread and the extent of contaminated soils. It is recommended that this is undertaken at the earliest opportunity to prevent further spread and potential cost implications.</p>
<p><b>Construction and Operational Phase Recommendations and Enhancement Measures</b></p>	<p>The detailed recommendations set out within the Report are summarised below:</p> <p><b>Nesting Birds</b></p> <ul style="list-style-type: none"> <li>• Any works to the woodland, scrub and hedgerow at the Site should be performed either before early March or after late August in order to avoid the main bird nesting season;</li> <li>• If, however, works are necessary during the nesting period an experienced ecologist will be required to check the suitable Site habitats immediately prior to works commencing to confirm that no nesting birds will be affected by the</li> </ul>



	<p>proposed works, and works would- then need to proceed within the following 24 hours;</p> <p>In addition, prior to any works to the buildings, potential constraints during the nesting bird season must first be considered.</p> <p><b>Bats</b></p> <p>Mitigation/enhancements for possible roosting bats will be determined following the further survey works; and</p> <p>The detailed lighting design on Site should be designed to be functional and directional and in line with current guidance.</p> <p><b>Hedgehogs and Brown Hare</b></p> <p>Clearance of vegetation should be undertaken with an awareness of potential presence of hedgehog. In the event that an individual is found it should be carefully moved, with gloved hands, to an area of suitable habitat away from the proposed works;</p> <p>It is recommended that no excavations or trenches are left open overnight during the development works to prevent hedgehogs and brown hare from becoming trapped. Alternatively, ramps can be provided to enable safe egress.</p> <p><b>Mares Horsetail</b></p> <p>Precautionary measures should be applied when working in and around areas supporting Horsetail to prevent its spread (particularly off-Site) and any removed materials should be disposed of in a suitable manner;</p> <p>It is also recommended that this species is removed from the soft landscaping at the Site to encourage a greater diversity of floral species.</p> <p><b>Site Protection</b></p> <p>All works on Site should follow an appropriate working methodology to avoid inadvertent damage to any habitats and associated fauna retained on surrounding, the Site.</p> <p><b>Site Enhancements</b></p> <p>A list of recommendations to enhance the biodiversity of the Site are found in Section 6.0 of this Report.</p>
--	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

**This Ecological Assessment Executive Summary is intended as a summary of the assessment of the Site based on information received by Delta-Simons at the time of production. This Executive Summary should be read in conjunction with the full Report.**

# Table of Contents

1.0 INTRODUCTION.....	1
1.1 Purpose and Scope of the Survey.....	1
1.2 Site Description.....	1
1.3 Proposed Development.....	1
2.0 LEGISLATION & POLICY SUMMARY.....	2
3.0 METHODOLOGY.....	3
3.1 Desk Study.....	3
3.2 Survey.....	3
3.2.1 Birds.....	3
3.2.2 Amphibians.....	4
3.2.3 Reptiles.....	4
3.2.4 Bats.....	4
3.2.5 [REDACTED].....	4
3.2.6 Water Vole.....	4
3.2.7 Other Protected or Notable Species.....	4
3.2.8 Invasive Species.....	4
3.2.9 Limitations to the Survey.....	4
4.0 RESULTS.....	5
4.1 Desk Study.....	5
4.2 Survey.....	7
4.2.1 Habitats on Site.....	7
4.2.2 Habitats Immediately Surrounding the Site.....	8
4.3 Notable and Protected Species Assessment Relevant to the Site.....	9
5.0 EVALUATION.....	12
6.0 RECOMMENDATIONS.....	13
6.1 Further Survey Requirement.....	13
6.2 Construction and Operational Phase Protection/Enhancement Measures.....	13
7.0 DISCLAIMER.....	16

## Tables

Table 1	Relevant International Statutory Designated sites within 6 km of the Site Boundary
Table 2	Relevant Statutory Designated sites within 2 km of the Site
Table 3	Non-Statutory Designated sites within 2 km of the Site

## Figures

Figure 1	Site Location Plan
Figure 2	Phase-1 Habitat Plan

## Appendices

Appendix A	References
Appendix B	Assessment of Structures, Trees and Habitats for Bats
Appendix C	Target Notes
Appendix D	Site Photographs
Appendix E	Native Floral Species to Plant for Wildlife Enhancement On-Site

## 1.0 Introduction

### 1.1 Purpose and Scope of the Survey

Delta-Simons Limited was instructed by J. Murphy & Sons Limited ('the Client') to undertake a Preliminary Ecological Appraisal (PEA) survey of land at Ollerton Depot, Newark Road, New Ollerton (hereafter referred to as the "Site"). In addition, public land immediately surrounding the Site was surveyed, where access allowed. The survey was undertaken to inform client of any ecological constraints for future development.

The aims of the PEA were to:

Identify areas of potential for protected species/species of conservation concern within and immediately adjacent to the Site;

Identify any invasive plant species included within Schedule 9 of the Wildlife and Countryside Act (WCA) 1981 (as amended);

Prepare a Phase-1 Habitat survey of the Site; and

Propose recommendations for further surveys, mitigation and enhancement measures, where appropriate.

The Site location and the Site red line are shown in Figure 1.

### 1.2 Site Description

The Site is centred at Ordnance Survey (OS) grid reference SK 67090 67074 south of New Ollerton in Nottinghamshire. The Site covers an area of 24 ha and is a construction and engineering company in the west, comprising predominantly hardstanding and buildings with a large patch of both ephemerals/perennials and scattered scrub, whilst in the centre and east is improved grassland in the northern and arable in the southern area, separated from the hardstanding by a combination of woodland and dense scrub. A woodland belt runs along the southern extent of the Site with a length of hedgerow inside. A stream runs from the northern boundary in a westerly direction to the western boundary.

The Site is situated in New Ollerton and is in an area of predominantly rural area, surrounded by blocks of woodland on all aspects except the west where residential dwellings are located.

The Site layout is shown in Figure 2.

### 1.3 Proposed Development

It is understood that the Client is considering extending the business into the eastern area of the Site.

## 2.0 Legislation & Policy Summary

Specific habitats and species of relevance to the Site receive legal protection in the United Kingdom under various pieces of legislation, including:

- National Planning Policy Framework (NPPF, 2021);
- The Conservation of Habitats and Species Regulations 2017;
- The Wildlife and Countryside Act (WCA) 1981 (as amended);
- The Countryside and Rights of Way (CRoW) Act 2000;
- The Natural Environment and Rural Communities Act (NERC) 2006;
- The Hedgerow Regulations 1997; and

Where relevant, this appraisal takes account of the legislative protection afforded to specific habitats and species. References to the full legislation are included in Appendix A.



## 3.0 Methodology

The PEA has been undertaken to the following current guidance: CIEEM (2017), Guidelines for Preliminary Ecological Appraisal; and BS 42020: 2013 Biodiversity. Code of Practice for Planning and Development.

### 3.1 Desk Study

#### Data Search

A data search was undertaken to identify statutory and non-statutory designated sites and records of protected and notable species.

In October 2022, available records of protected and notable species were collated from the local record centre, Nottinghamshire Biological and Geological Records Centre (NBGRC) along with the non-statutory designated sites within a 2 km radius of the Site boundary. A search for international statutory designated sites for nature conservation within 6 km of the Site was undertaken, together with a search for national statutory designated sites for nature conservation within 2 km of the Site boundary, using the Multi-Agency Geographic Information for the Countryside (MAGIC) website.

In addition, free and publicly accessible Ordnance survey maps and aerial photographs were searched for waterbodies on, or within, 500 m of the Site boundary. This information has been used to assess the Site for its potential for amphibians, the results of which are found in Section 4.3.

### 3.2 Survey

The habitats on the Site, were surveyed on 16<sup>th</sup> November 2022 by a Delta-Simons ecologist. Where access was not permitted to the surrounding land, it was visually assessed from the Site boundary.

The following was undertaken during the survey:

- Habitats were classified and mapped using the standard Phase 1 Habitat Survey Manual (JNCC, 2010). Dominant plant species were recorded in each different habitat. The plant species nomenclature followed that of Stace (2010). Terrestrial habitats on-Site were surveyed for the presence of, or potential for the following protected or notable species:
  - Birds: All species with special reference to key species (such as those on Schedule 1 of the WCA, 1981 (as amended), England Biodiversity Priority Species (EBP) (previously UK Biodiversity Action Plan (UKBAP) species) and Birds of Conservation Concern (BoCC) (Stanbury et al., 2021);
  - Amphibians: Great Crested Newt (GCN) *Triturus cristatus*;
  - Reptiles: common lizard *Zootoca vivipara*, adder *Vipera berus*, slow worm *Anguis fragilis* and barred grass snake *Natrix helvetica*; and
  - Mammals: bat (all species) [REDACTED] and
- Widespread terrestrial invasive species listed on Schedule 9 of the WCA 1981 (as amended) were recorded. These include Japanese knotweed, *Fallopia japonica* giant knotweed *Fallopia sachalinensis* hybrid knotweed, *Fallopia baldschuanica*, giant hogweed *Heracleum mantegazzianum*, and Himalayan balsam *Impatiens glandulifera*.

#### 3.2.1 Birds

Visual and/or audible identification was made of any birds on the Site or flying over the Site during the survey period. Suitable habitat was, where possible, inspected and any evidence of nesting activity was recorded.

### 3.2.2 Amphibians

The terrestrial habitats at the Site were assessed for their potential to support amphibian species and a desk search was undertaken (see Section 3.1).

### 3.2.3 Reptiles

A cold-searching method was employed which involved identifying suitable habitats for reptiles within areas on-Site and immediately off-Site. Natural and artificial refugia (logs, large debris and so on) were lifted and examined for the presence of reptiles and their field signs (such as shed skins).

### 3.2.4 Bats

The Site was assessed for its suitability to support roosting and foraging bats (see Appendix B).

All the trees on, or within immediate proximity to, the Site were assessed for their potential to support a bat roost, where access allowed. Binoculars were used to check the trees for suitable features to support bats such as cracks, crevices and hollows in the trunks or branches as a result of decay, weathering or pruning. These are all features more commonly associated with mature or semi-mature trees. Furthermore, these features can be concealed by ivy *Hedera helix*, or dense woody ivy can itself provide the necessary features to support an occasional bat roost.

The exterior of the buildings on the Site were visually assessed for potential bat access points and evidence of bat activity. Features such as small gaps/crevices beneath eaves or within the corrugated metal panelling which had potential as bat access points into the building, were sought. Evidence that these potential access points were actively used by bats included staining within gaps and bat droppings or urine staining under gaps. Indicators that potential access points were likely to be unused by bats included the presence of cobwebs and general detritus within the apertures.

### 3.2.6 Water Vole

The Site was inspected for signs of water vole activity, including burrows, latrines, feeding stations, footprints, dropping, runs through vegetation, and its suitability to support this species assessed.

### 3.2.7 Other Protected or Notable Species

Where applicable, during the survey, evidence was recorded of any other protected or notable species, including England Biodiversity Priority (EBP) species. Habitats with the potential to support additional protected or notable species were also recorded, if present, during the survey.

### 3.2.8 Invasive Species

The occurrence of any invasive plant species on the Site was identified in terms of species and stand size.

### 3.2.9 Limitations to the Survey

There were no limitations to the survey in terms of timing and weather conditions.

The baseline conditions described in this report were accurate at the time at which the survey was undertaken. Should at least two years pass by, and/or conditions on-Site/Site usage change prior to the commencement of works, an update survey should be undertaken.

## 4.0 Results

### 4.1 Desk Study

The pertinent information from the data search is set out below for designated sites, whilst species are discussed in the relevant species sections. Full results of the NBGRC data search are available to the Client on request.

#### Designated Sites

The results of the MAGIC data search and the NBGRC desk search indicate:

One internationally designated statutory site, a Special Area of Conservation (SAC) is present within 6 km of the Site;

Three nationally designated statutory sites are present within 2 km of the Site, two are designated a Special Site of Scientific Interest (SSSI) and one is a Local Nature Reserve (LNR); and

Ten non-statutory designated sites are present within 2 km of the Site. All of these are Local Wildlife Sites (LWS).

Tables 1-3 below, set out the statutory and non-statutory designated sites identified and considered relevant to the Site. The full list of non-statutory designated sites is not presented below, as due to the Site's size, nature and location, only those shown in Table 3 were scoped in for further consideration of impacts.

**Table 1: Relevant International Statutory Designated sites within 6 km of the Site Boundary**

Site Name	Designation	Distance and Direction from Site Boundary	Designation Criteria Summary
Birklands & Bilhaugh	SAC	2.81 km north-west of the Site	Birklands and Bilhaugh is the most northerly site selected for old acidophilous oak woods and is notable for its rich invertebrate fauna, particularly spiders, and for a diverse fungal assemblage.

**Table 2: Relevant Statutory Designated sites within 2 km of the Site**

Site Name	Designation	Distance and Direction from Site Boundary	Designation Criteria Summary
Wellow Park	SSSI	0.02 km east of the Site	Lowland mixed deciduous woodland <i>Rubus fruticosus</i> woodland and <i>Mercurialis perennis</i> woodland.
Birklands West and Ollerton Corner	SSSI	1.68 km north-west of the Site	See SAC
Sherwood Heath	LNR	1.69 km west of the Site	Sherwood Heath supports over 22 butterfly species such as the Small Skipper, the Speckled Wood, and the Small Heath. It is also really important for moths and there is a rare species of fly found here and only on 4 other British sites.

**Table 3: Non-Statutory Designated sites within 2 km of the Site**

Site Name	Designation	Distance and Direction from Site Boundary	Designation Criteria Summary
Broughton Railway Banks	LWS	North of Site	This extensive system of dismantled mineral railway embankments. The embankments, which are raised well above field level support mature deciduous scrub and woodland interspersed with areas of grassland
Willow Dam and Grassland	LWS	225 m south of Site	This site comprises a mosaic of scrub and damp, species-rich grassland around a fishing pond.
Ollerton Colliery	LWS	154 m north of the Site	This botanically diverse colliery regeneration site, known as Ollerton Wood, comprises two areas of scrub and a planted coniferous woodland with some heathland, grassland and two ponds. The site has a rich assemblage of breeding birds and butterflies including the rare Common Skipper <i>Erynnis tages</i> .
Wellow Wood	LWS	320 m east of the Site	The wood provides habitat for breeding birds and there are many piles of dead wood which encourage invertebrates.
Broughton Scrub	LWS	1.1 km north-east of the Site	This site comprises an extensive mosaic of woodland, scattered scrub and grassland surrounding an industrial estate built on an old disused airfield. This site is botanically very diverse and is known to support good populations of butterflies.
Rufford Pond, W of Wellow	LWS	1.2 km south-west of the Site	A marshy pond in cornfield, 23 water beetles have been recorded from the pond including the Nationally Scarce water beetle <i>Helochares punctatus</i> . The pond also supports Local water beetles <i>Cercyon convexiusculus</i> and <i>Helochares lividus</i> .
Whinney Lane Grassland	LWS	1.64 km north of the Site	The site contains remnant areas of grassland with notable species.
New Park Wood and Scotland Bank	LWS	1.68 km south-west of the Site	This old woodland site has wide radiating out from a central point and is bordered by mainly arable land with Rufford Golf course and Rufford Abbey Country Park to the west.



Birklands and Bilhaugh	LWS	1.68 km north-west of the Site	See SAC
Kirton Brickworks	LWS	1.93 km north-east of the Site	Habitats range from bare ground through to grassland and developing scrub with a small pond at the northern end of the site. The site is also of importance for butterflies with the rare Dingy Skipper <i>Erynnis tages</i> .

### SSSI Impact Risk Zones

The Site falls within three Site of Special Scientific Interest (SSSI) Impact Risk Zones (IRZ) that requires the Local Planning Authority (LPA) to consult with Natural England for likely impacts on SSSIs/SACs from certain development types. Since the proposals for the Site are not yet known, these cannot be given further consideration at this stage.

## 4.2 Survey

### 4.2.1 Habitats on Site

Figure 2 shows the extent of habitat types and boundary features. Descriptions of the habitat types and dominant plant species found at the Site are provided below. Habitat descriptions are by broad habitat type, as listed in the Phase 1 Habitat Survey Manual (JNCC, 2010). Details of Target Notes are presented in Appendix C, whilst photographs of the Site survey are located in Appendix D.

Habitats recorded on Site:

#### Broad-leaved Woodland- Semi-Natural

A woodland belt was present inside the southern boundary, extending to the centre of the Site. The woodland consisted of a mixture of semi-mature oak *Quercus* sp., ash *Fraxinus excelsior*, hawthorn *Crataegus*, sycamore *Acer pseudoplatanus*, and birch *Betula* sp. Ground flora consisted of bramble *Rubus fruticosus* agg and ivy *Hedera helix*.

#### Dense/Continuous Scrub

An area of dense scrub on an embankment separated the hardstanding and improved grassland (Photograph 1), that consisted of bramble, creeping thistle *Cirsium arvense*, willowherb *Epilobium* sp., bracken *Pteridium aquilinum* and rose *Rosa* sp.

#### Scattered Scrub

Two areas of scattered scrub were noted, one in the centre of the hardstanding area of the Site to the north of the stream, and another small area in the north-west corner which comprised the same species as the dense scrub above.

#### Line of Trees

A line of trees was present between the hardstanding and woodland/scrub. Semi- immature trees were present consisting of oak, hawthorn, apple *Malus* spp, sycamore, goat willow *Salix caprea* and elder *Sambucus nigra*.

#### Improved Grassland

Improved grassland was present to the northern central area of the Site. The grassland comprised dominant perennial ryegrass *Lolium perenne*, dandelion *Taraxacum officinale*, ribwort plantain *Plantago lanceolata*, creeping butter cup *Ranunculus repens*, clover *Trifolium* sp, occasional Yorkshire fog *Holcus lanatus*, yarrow

*Achillea millefolium*, rare occurring chicory *Cichorium intybus*, creeping thistle and spear thistle *Cirsium vulgare*. The grassland had been heavily grazed by sheep during the summer.

### Poor Semi-Improved Grassland

Poor semi-improved grassland field margins were noted around all aspects of the arable field, which were approximately 1 m wide and dominated by perennial ryegrass, white clover, broadleaved dock *Rumex obtusifolius*, occasional ribwort plantain and rarely occurring spear thistle.

### Running water

A stream with fast flowing water ran from the northern boundary south-westerly through the centre of the Site (Photograph 2). The water was approximately 1m deep. The stream was approximately 1 m wide, and the banks were covered in perennial rye grass and areas of dense vegetation of nettle *Urtica dioica* and bramble.

### Arable

Arable was located in the southern and eastern part of the Site, which had recently been cultivated. A cereal crop had been sown, and abundant perennial ryegrass was noted (Photograph 3).

### Ephemeral/Short Perennial

A large mound was present in the south-west corner which had started to be colonised by vegetation including bristly ox-tongue *Helminthotheca echioides*, herb Robert *Geranium robertianum*, mayweed *Matricaria spp.*, nettle, ribwort plantain, dandelion and creeping thistle.

### Intact Species Poor Hedgerow

An intact species-poor hedgerow was noted along the stream between the grassland and arable field, the hedgerow was approximately 250 m long and had recently been cut. The hedgerow was dominated by hawthorn with frequent elder, ivy and bramble (Photograph 4).

### Defunct Species Poor Hedgerow

A defunct species-poor hedgerow was noted along the south of the arable field, which was hawthorn and was approximately 530 m long and had also been cut back.

### Buildings

Various large single storey industrial buildings constructed of corrugated metal with pitched roofs and roller doors (B4, 6, 7,8, 9 and 10) were present in the west of the Site.

One outbuilding was present (B5), which was a single storey building constructed of breeze block with a flat roof, wooden capping and felt roofing.

### Hardstanding

The western area of the Site was dominated by hardstanding. It surrounded the buildings and provided vehicular and pedestrian access around the Site and was used as storage for various construction materials.

#### 4.2.2 Habitats Immediately Surrounding the Site

The Site is situated in the rural area of New Ollerton. A railway embankment is located to the north of the Site, further blocks of woodland are located to the north, east and south, and residential properties are located to the west.

### 4.3 Notable and Protected Species Assessment Relevant to the Site

#### Birds

No bird records were provided in the data search. The blocks of woodland, dense scrub, and hedgerows provide suitable habitat to support nesting birds. Birds noted at the time of the survey included snipe *Gallinago gallinago*, redwing *Turdus iliacus*, song thrush *Turdus philomelos*, wood pigeon *Columba palumbus*, mistle thrush *Turdus viscivorus*, black-headed gull *Chroicocephalus ridibundus*, dunnoek *Prunella modularis*, linnet *Linaria cannabina*, robin *Erithacus rubecula*, blue tit *Cyanistes caeruleus*, carrion crow *Corvus corone*, and black bird *Turdus merula*. Of which redwing, linnet and mistle thrush are listed on the Schedule 1 of the WCA (1981) as amended or those listed and on the Red List of BoCC.

Several mud-built nests were located around B1 beneath the roof line (TN1, Photograph 5), indicating bird nesting behaviour by either house martins or swifts. A rookery was also located within the woodland in the south-west corner of the Site (TN2, Photograph 6).

#### Great Crested Newts

The data search identified 15 records of GCN within 2 km of the Site in the last 10 years. The closest and most recent record was 1.2 km south-west from the Site boundary in 2013. All records are isolated from the Site by a busy road network. Running water was identified on Site but deemed unsuitable to support GCN due to the fast-flowing water.

A review of aerial photographs and OS maps revealed three waterbodies within 500 m of the Site. The closest pond (at distances of 87 m north of the, respectively) are fragmented from the Site due to the railway track and busy roads, whilst the other pond (280 m from the Site) is heavily stocked with fish.

The hardstanding is considered sub-optimal to support GCNs, as is the majority of the arable field and the grazed grassland. The hedgerow bases, scrub and woodland could offer suitable habitat if the wider Site supported good connectivity, therefore, GCN are not considered to be a constraint at this Site and are not considered further within this Report.

#### Reptiles

The data search identified one record of adder 2 km north-west of the Site in 2016, two records of grass snake 838 m west of the Site in 2019, and one record of slow worm 1 km north of the Site in 2018. All records are fragmented from the Site by a busy road network.

Whilst reptiles would have been in hibernation at the time of the survey, the majority of the habitats on Site are not considered ideal for these species, however, the woodland and scrub habitat, in combination with the hardstanding and field margins offer a mosaic of habitats for them.

#### Bats

The data search provided the following records of bats:

One Brown Long-Eared (BLE) *Plecotus auratus* bat roost 670 m south of the Site in 2012;

Five field records of BLE, with the closest record approximately 630 m south of the Site in 2012. The most recent record is 1.8 km north-east in 2018;

Twenty-one records of common pipistrelle with the closest being approximately 660 m north of the Site in 2012. The most recent record is 1.67 km north-east of the Site in 2018;

Three records of Myotis *Myotis* sp, with the closest and most recent record approximately 1.2 km north-east of the Site in 2018;

Eight records of noctule *Nyctalus noctula* with the closest approximately 640 m south of the Site in 2012; and

- Four records of soprano pipistrelle *Pipistrellus pygmaeus* with the closest approximately 1.8 km north-west of the Site in 2014. The most recent record is 2.0 km north-west of the Site in 2017.

Consultation of the MAGIC webpage identified that the closest granted European Protected Species Licence (EPSL) for bats is located over 3 km from the Site.

#### Preliminary Habitat Assessment

The eastern aspect of the Site was considered to offer suitable foraging and commuting habitats for bats. The woodland, hedgerows and running water is of high value to bats.

A total of 10 buildings were identified on Site of which four offer low BRP:

- B1- A single storey brick-built building with wooden soffits. The soffits in places were loose and had exposed gaps (TN3, Photograph 7);
- B5- A single storey breeze block building with felt roofing and wood capping. The roof had several gaps along the felted area and gaps within the wood capping (TN4 Photograph 8);
- B8- A single storey metal corrugated structure had several lifted areas around the external part of the buildings that could lead to a void (TN5 Photograph 9); and
- B10- Another single storey corrugated structure that had external lifted areas of metal located around the building (TN6 Photograph 10).

Two bridges were also noted that may offer BRP:

- Bridge 1- The bridge was located behind dense scrub vegetation which couldn't be accessed to have a full inspection (TN7, Photograph 11), however, it may be that there are no clear flight lines for bats to access it which would deter them from roosting were features present; and
- Bridge 2- The bridge was constructed of a mixture of brick and concrete and there were several areas of missing mortar that could provide roosting features for bats (TN8, Photograph 12), such that it was assessed to have low BRP.

The trees at the Site, and immediately adjacent to the Site boundary could offer suitable features to support roosting bats.

#### **Water Voles**

The data search provided two records of water vole within 2 km of the Site in the past ten years. The most recent and closest record provided was in 2013, 1.4 km north-west of the Site. No signs of water voles were noted during the survey, the stream on Site had no burrows within the banks, no feeding platforms or droppings were identified. The stream was fast flowing, which is not ideal for water vole as they are poor swimmers, furthermore in various places dense bramble vegetation covered the banks, and a suitable combination of foraging opportunities was lacking. Due to unsuitability of the waterbody, the distance of the records from the Site, and lack of connectivity, water voles are not considered to be a constraint at this Site and are not considered further within this Report.



## Other Protected Species

The data search identified 33 records of European hedgehog *Erinaceus europaeus* within 2 km of the Site in the past 10 years. The closest record was from 512 m south of the Site in 2015. The most recent record was in 2020 1.3 km north of the Site.

Three records of brown hare *Lepus europaeus* were identified in the data search all of which were just over 2 km of the Site.

The Site offered suitable habitat to support brown hare and hedgehog, individuals may forage within the grassland, shelter within the areas of scrub and woodland and commute through the Site.

## Invasive Species

Data records provided showed three records of New Zealand pigmyweed *Crassula helmsii*, the closest and most recent record was located on Site along the northern boundary in 2015.

Nine records of Himalayan balsam were identified in the data search, the closest and most recent record was 1.1 km north-west of the Site in 2017.

No invasive species were found during the time of the survey, however mares horsetail was noted around one of the buildings (TN11, Photograph 15) and whilst not listed as a Schedule 9 invasive species under the WCA (1981, as amended), this species spreads rapidly through rhizomes which can reach a depth of 2 m, making it particularly difficult to eradicate from soils.

## 5.0 Evaluation

### Designated Sites

Since the development proposals are not known for the Site, it is not possible to assess possible impacts on the statutory and non-statutory designated sites within the search area.

### Habitats

The habitats on-Site are all widespread and commonly occurring and the hardstanding is considered of negligible value. The woodland and areas of dense scrub are considered of higher ecological value and should be retained where possible. The hedgerows on Site are classified as "habitats of principle importance" and should also be retained where possible. No plans on any future development were available at the time of writing this report, but it is recommended that the proposals incorporate soft landscaping which has the potential to increase the biodiversity value of the Site, given it is anticipated it will be necessary to achieve a 10% gain in biodiversity.

### Species

The woodland, line of trees, hedgerows and dense scrub on Site all provide nesting opportunities for birds, and B1 also offers further nesting opportunities. Various trees within the woodland had old nests and a rookery was also located in the woodland. Mitigation is required to ensure that no nesting birds are disturbed as a result of any necessary vegetation clearance or building refurbishment works to facilitate future proposals. Furthermore, compensatory nesting habitat should be included within the soft landscaping scheme, with new tree and hedgerow planting to offer shelter and foraging opportunities.

Several of the buildings, B1, B5, B8 and B10, supported numerous gaps which offer low BRP opportunities for bats. If any building is to undergo works, then further surveys will be required to inform the requirement for mitigation.

Whilst much of the Site was not suitable for reptiles, depending on the extent of future works there is the potential for individuals to be harmed if present within the woodland, scrub, field margins and hedgerow bases, or along the stream banks, such that appropriate mitigation will need to be put in place.

Hedgehogs may utilise areas within the Site for foraging, shelter and dispersal. As such mitigation measures should be put in place during works to ensure that if present, they do not become trapped during construction works and care is taken to ensure that hedgehogs are not harmed during vegetation clearance works.

Mare's horsetail was recorded around B6. Horsetail Specialist advice should be sought with regards to eradicating the invasive horsetail from the Site prior to construction within this area.

## 6.0 Recommendations

### 6.1 Further Survey Requirement

#### Bats

If any works are required in or around the woodland then further updated surveys would be required to assess the trees for BRP, which can be done any time in the year.

It is recommended that further surveys could be required to the buildings and bridges to assess the value to roosting bats if any proposed works are happening to the buildings and bridges. A bat roost potential survey will be required to fully inspect the internal and external areas of the building to identify possible roosting features to bats.

If the surveys identify any features further absence/presence surveys would be required during the active bat season (May-August, inclusive).

#### Reptiles

Depending on the proposals for the Site, a detailed reptile survey comprising the laying out of refugia at appropriate locations followed by seven checks over an approximately 4-6-week period during April-October, inclusive, may be required.

### 6.2 Construction and Operational Phase Protection/Enhancement Measures

#### Species Protection

##### Nesting Birds

- Any works to the woodland, trees, scrub and hedgerows should be performed either before early March or after late August in order to avoid the main bird nesting season;
- If, however, works are necessary during the nesting period an experienced ecologist will be required to check the Site habitats immediately prior to works commencing to confirm that no nesting birds will be affected by the proposed works, and works would- then need to proceed within the following 24 hours;
- In addition, works to the building should also consider potential constraints during the nesting bird season.

##### Bats

The requirement for mitigation/enhancements for roosting bats will be determined following the further survey works.

The detailed lighting plan on-Site should be functional and directional and in line with current guidance (BCT and ILP, 2018). Habitat retained, enhanced or planted for roosting, foraging and/or commuting bats will need to be considered within a suitable lighting plan in order to be used by bats. Where designing with bats in mind:

Light emitting diodes (LED) should be used, as these typically feature no UV component and as a result are less attractive to invertebrates and less disturbing to bats;

Only luminaires with 0 % upward light ratio should be used and fitted on the horizontal to avoid excessive up-lighting, back lighting and light spill onto boundary hedgerows and trees;

A warm white spectrum (ideally under 2700 Kelvin) should be used in order to reduce blue light component, therefore reducing the number of invertebrates attracted to the lights;

Internal luminaires can be recessed where installed in proximity to windows to reduce glare and light spill;

The use of specialist bollard or low-level downward directional luminaires to retain darkness above can be considered, although this has certain drawbacks and should only be used as directed by a lighting professional;

Column heights should be carefully considered to minimise light spill;

Any external security lighting should be set on motion-sensors and short (e.g. 1 minute) timers;

Luminaires should feature peak wavelengths higher than 550nm to avoid the component of light most disturbing to bats;

As a last resort, accessories such as baffles, hoods or louvres can be used to reduce light spill and direct it only to where it is needed; and

Where habitat needs to be unlit (e.g. important foraging and commuting corridors/roost sites), illuminance should be below 0.2 lux on the horizontal plane and below 0.4 lux on the vertical plane.

#### Hedgehogs and Brown Hare

Clearance of vegetation should be undertaken with an awareness for the potential presence of hedgehog. In the event that an individual is found it should be carefully moved, with gloved hands, to an area of suitable habitat away from the proposed works;

It is recommended that no excavations or trenches are left uncovered overnight during the development works to prevent hedgehogs and hares from becoming trapped. Alternatively, ramps can be provided to enable safe egress.

#### Mares Horsetail

Precautionary measures should be applied when working in and around areas supporting Horsetail to prevent its spread (particularly off-Site) and any removed materials should be disposed of in a suitable manner;

It is also recommended that this species is removed from the soft landscaping at the Site to encourage a greater diversity of floral species.

#### **Site Protection**

All works on Site should follow an appropriate working methodology to avoid inadvertent damage to any habitats and associated fauna retained on, or surrounding, the Site. This includes the following:

All works should be undertaken in accordance with the UK governments 'Pollution Prevention for Business's' guidance ([www.gov.uk](http://www.gov.uk));

All works should be undertaken in accordance with current best practice in relation to noise and dust suppression; and

Any retained trees at the Site should be appropriately protected during construction in accordance with BS5837 (2012).



## General Site Enhancement

Following the issue of the NPPF (2021), by the Ministry of Housing, Communities and Local Government, *“Planning policies and decisions should contribute to and enhance the local environment by (d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures..”*; and, therefore, we recommend the following principles of design should be followed:

Planting should aim to enhance retained or adjacent vegetation and be of native species, or those of known value to wildlife, sourced from local nurseries to enhance foraging opportunities for local birds and bats, by increasing the invertebrate diversity on-Site. It is recommended that where trees are planted, they have a functional understorey. A species list of recommended trees and shrubs is provided in Appendix E; and

A variety of bird nest boxes and bat boxes could be included within the retained on-Site woodland and other suitable retained trees at the Site. Delta-Simons can provide further advice on the number, type and location once the proposals are known.

## 7.0 Disclaimer

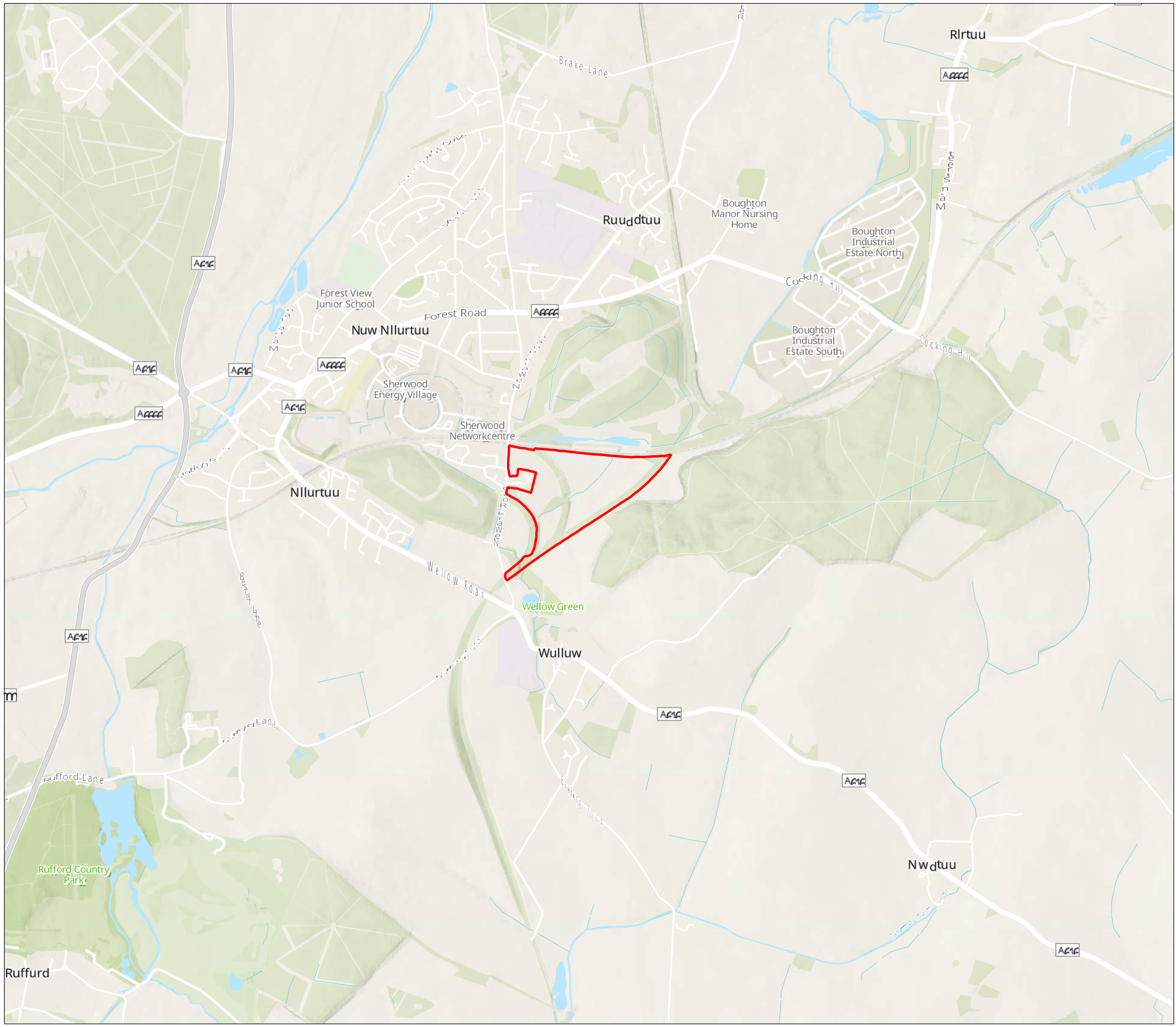
The recommendations contained in this Report represent Delta-Simons' professional opinions, based upon the information referred to in Section 1.0 of this Report, exercising the duty of care required of an experienced Ecology Consultant. Delta-Simons does not warrant or guarantee that the Site is free of Bats or other protected species.

The behaviour of animals can be unpredictable and may not conform to characteristics recorded in current scientific literature. This Report, therefore, cannot predict with absolute certainty that animal species will or will not occur in apparently suitable locations or habitats or that they will not occur in locations or habitats that appear unsuitable.

No part of the survey included an assessment of the materials and conditions of any buildings. No part of the survey included an asbestos assessment, nor did it represent an appraisal of other deleterious materials or hazardous substances.

This Report was prepared by Delta-Simons for the sole and exclusive use of the Client and for the specific purpose for which Delta-Simons was instructed as defined in Section 1.0 of this Report. Nothing contained in this Report shall be construed to give any rights or benefits to anyone other than the Client and Delta-Simons, and all duties and responsibilities undertaken are for the sole and exclusive benefit of the Client and not for the benefit of any other party. In particular, Delta-Simons does not intend, without its written consent, for this Report to be disseminated to anyone other than the Client or to be used or relied upon by anyone other than the Client. Use of the Report by any other person is unauthorised and such use is at the sole risk of the user. Anyone using or relying upon this Report, other than the Client, agrees by virtue of its use to indemnify and hold harmless Delta-Simons from and against all claims, losses and damages (of whatsoever nature and howsoever or whensoever arising), arising out of or resulting from the performance of the work by the Consultant.

# Figure 1 –Site Location Plan



**Legend**

 Site boundary

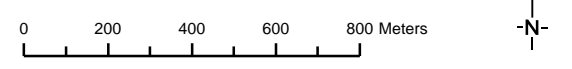


Figure	Site Location Plan		
Job	Ollerton Depot, Newark Road, New Ollerton		
Client	J. Murphy & Sons Limited		
Figure No.	1	Revision	A
		Date	13/12/2022
Drawn	KH	Checked	IT
		Scale	1:18,000 @ A3
Job No.	87854.545445		Central GR
			467143E 366926N



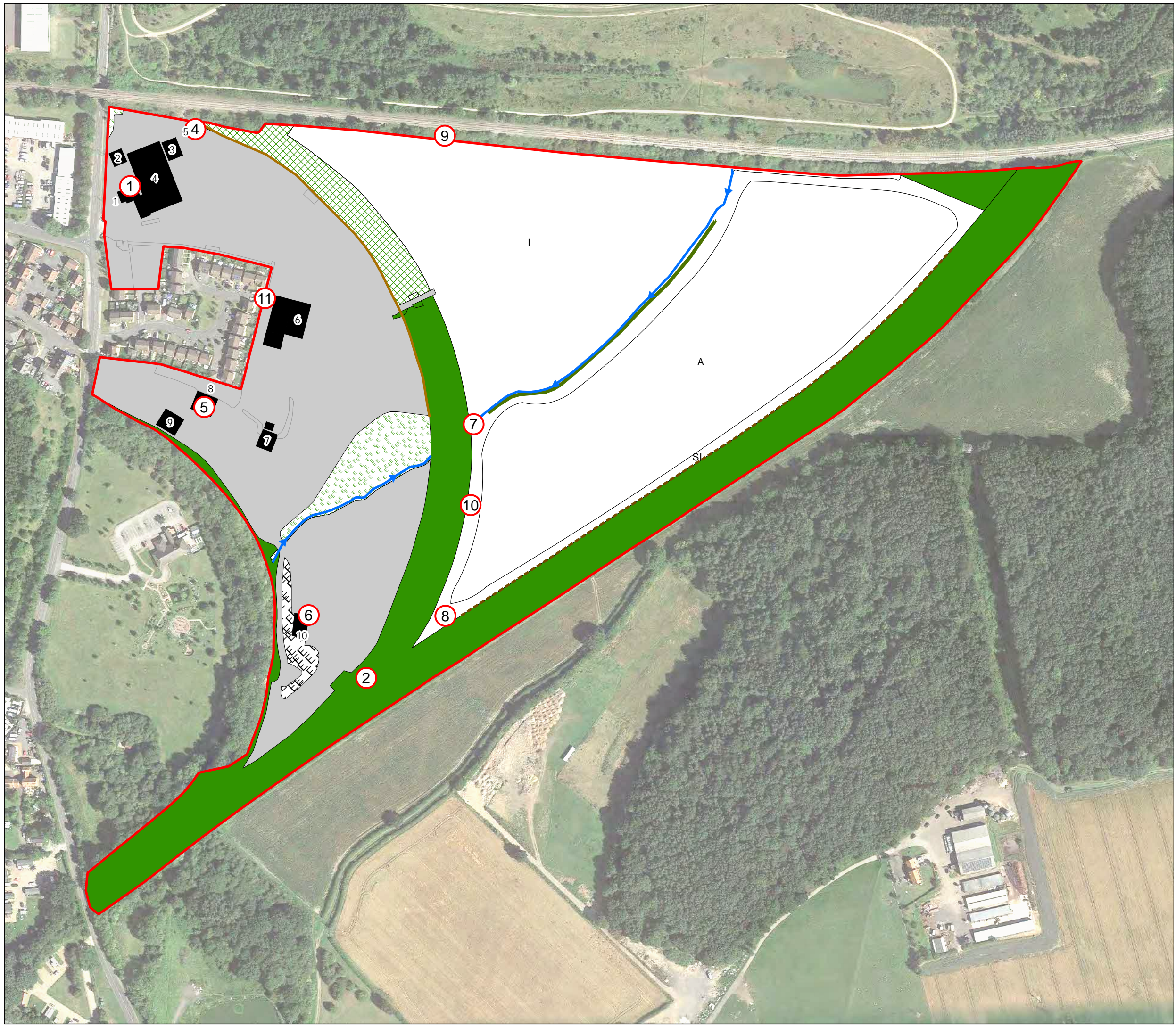
DO NOT SCALE.  
NOT FOR CONSTRUCTION.





## Figure 2 –Phase 1 Habitat Plan





- Legend**
- Site boundary
  - Broadleaved woodland - semi-natural
  - Scrub - dense/continuous
  - Scrub - scattered
  - Improved grassland
  - Poor semi-improved grassland
  - Arable
  - Ephemeral / short perennial
  - Buildings
  - Hardstanding
  - Intact hedge - species-poor
  - Defunct hedge - species-poor
  - Line of trees
  - Running water
  - Target note

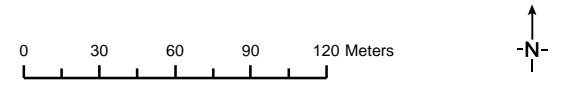


Figure Phase 1 Habitat Plan			
Job Ollerton Depot, Newark Road, New Ollerton			
Client J. Murphy & Sons Limited			
Figure No.	2	Revision	A
		Date	24/11/2022
Drawn	KH	Checked	BH
		Scale	1:3,000 @ A3
Job No.	87854.545445		Central GR 467143E 366926N





# Appendix A –References

## References

BS 42020:2013 Biodiversity. Code of Practice for Planning and Development

BCT (2014) Artificial lighting and wildlife Interim Guidance: Recommendations to help minimise the impact artificial lighting

BCT and Institution of Lighting Professionals (2018). Bats and artificial lighting in the UK

Chartered Institute of Ecology and Environmental Management (2017). Guidelines for Preliminary Ecological Appraisal. CIEEM, Winchester

GOV.UK. Pollution prevention for businesses [online]. Available from <https://www.gov.uk/guidance/pollution-prevention-for-businesses>

English Nature (now Natural England) (2004) Bat Mitigation Guidelines. English Nature, UK

Joint Nature Conservation Committee (2010). Phase 1 habitat classification and mapping methodology. JNCC, UK

Ministry of Housing, Communities & Local Government (2021). National Planning Policy Framework

Multi-Agency Geographic Information for the Countryside (MAGIC) [online]. Available at: [www.magic.gov.uk](http://www.magic.gov.uk)

Stace, C. (2010). New Flora of the British Isles 3rd edition. University Press, Cambridge

Stanbury A, Eaton M, Aebischer N, Balmer D, Brown A, Douse A, Lindley P, McCulloch N, Noble D and Win I (2021) The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain. British Birds 114, P 723 - 747

Stone, E.L. (2013) Bats and lighting: Overview of current evidence and mitigation guidance

The Conservation of Habitats and Species Regulations 2017. HMSO

The Countryside and Rights of Way Act 2000. HMSO

The Natural Environment and Rural Communities Act 2006. HMSO

Wildlife and Countryside Act 1981 (as amended). HMSO



# Appendix B –Assessment of Structures, Trees and Habitats for Bats

# Assessment of Structures, Trees and Habitats for Bats

Guidance on Assessing the Potential Suitability of Development Sites to Support Bats (adapted from Collins, J. (ed)).

Suitability	Description	
	Roosting	Commuting and Foraging
<b>Negligible</b>	<p>An inspected structure or tree which is considered to have no feature importance for roosting bats.</p> <p>No further constraints apply to method or timing of proposed works.</p>	<p>Negligible habitat features on-Site to support commuting or foraging bats.</p>
<b>Low</b>	<p>A structure with at least one or more features suitable to support opportunistic individual bats. However, inadequate space, shelter, protection and conditions, and the low suitability of surrounding habitats means that it is unlikely to be used as a maternity hibernation roost site.</p> <p>A tree of adequate age and stature to support potential roosting features, however, either no features, or features of limited potential record from the ground.</p>	<p>Habitat with potential to support low numbers of commuting bats due to its quality and connectivity. For example, a gappy hedgerow or unvegetated stream that is isolated from surrounding landscape.</p> <p>Alternatively, suitable but isolated habitats suitable to support low numbers of foraging bats such as a lone tree or a patch of scrub.</p>
<b>Moderate</b>	<p>A structure or tree with one or more potential roost sites that are of adequate size, shelter and protection, with suitable conditions and surrounding habitat to support a roost not of high conservation status (with respect to roost type not individual species conservation status).</p>	<p>Linear habitat continuity connecting to the wider landscape offering potential to support commuting bats, such as rows of trees and scrub or linked back gardens.</p> <p>Habitat such as trees, scrub, grassland or waterbody with connectivity to the wider landscape offering foraging opportunities for bats.</p>
<b>High</b>	<p>A structure or tree with one or more potential roost sites that are suitable for use by large numbers of bats on a regular basis and for long periods of time due to their size, shelter, protection, conditions and the surrounding habitat.</p>	<p>Continuous high-quality habitat with strong connectivity to the wider landscape that is likely to be used by commuting bats on a regular basis, such as flowing waterbodies, hedgerows, rows of trees and woodland edges.</p> <p>High quality habitat with strong connectivity to the wider landscape that is likely to be regularly used by foraging bats, such as broadleaved woodland, tree-lined watercourses and graze parkland.</p> <p>Site is close to, and connected to, known roost sites.</p>

# Appendix C –Target Notes

## Target Notes

**Target Note 1** - B1 bird nests

**Target Note 2** - Rookery location

**Target Note 3** - BRP feature on B1

**Target Note 4** - BRP features on B5

**Target Note 5** - BRP features on B8

**Target Note 6** - BRP features on B10

**Target Note 7** - Bridge 1 location

**Target Note 8** - Bridge 2 location

**Target Note 11** - Mares horsetail location

# Appendix D – Site Photographs



## Site Photographs



Photograph 1 –Dense Scrub



Photograph 2 –Stream





**Photograph 3 - Arable field**



**Photograph 4 - Intact hedgerow and stream**

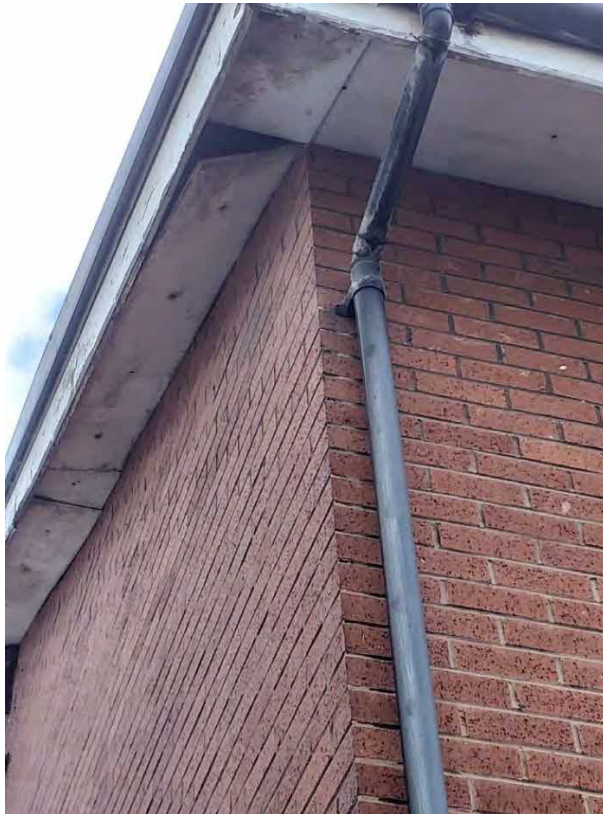




Photograph 5 –Nest on B1



Photograph 6 –Rookery



Photograph 7 –Soffit gaps in B1



Photograph 8 –Soffit gaps in B5 and cracked breeze block





Photograph 9 –Gaps under metal sheeting of B8



Photograph 10 –Gaps under metal sheeting of B10

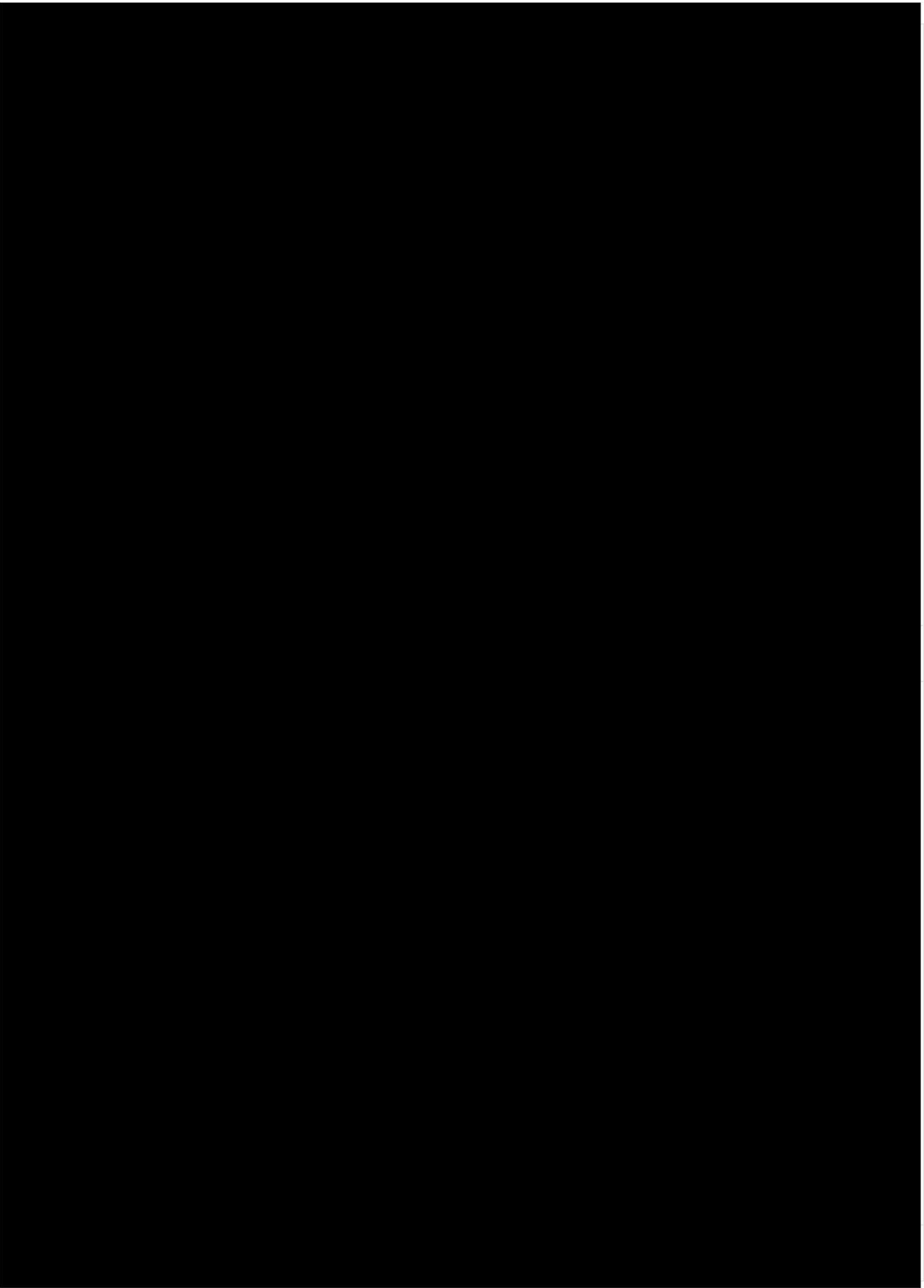




Photograph 11 –Bridge 1



Photograph 12 –Bridge 2





Photograph 15 –Mare's horsetail

# Appendix E –Native Floral Species to Plant for Wildlife Enhancement On-Site



## Native Floral Species to Plant for Wildlife Enhancement On-Site

The following list gives good examples of plants for different conditions which have value for native fauna either as a food source or shelter. To maximise value for wildlife plants should ideally be native, not cultivars, and sourced locally where possible. Planting should look to provide food at all levels, with underplanting of trees with shrubs or species rich grassland to provide maximum value out of an area and add interest to planting schemes.

Note: it is currently generally not advised to plant ash because of ash die back. However, ash is a very valuable plant for wildlife especially as a semi-mature and mature tree. Therefore, if locally sourced trees or self-sets known to be free of the fungus are available then these should be incorporated. Additionally, trees not showing signs of being affected should be retained where possible.

### Trees and Shrubs

#### Large trees

Beech *Fagus sylvatica*;

Bird cherry *Prunus padus*;

Elm *Ulmus procera*;

Oaks *Quercus robur* and *Q. petraea*;

White willow *Salix alba*;

Field maple *Acer campestre*;

Silver birch *Betula pendula*;

Rowan *Sorbus aucuparia*;

Small-leaved lime *Tilia cordata*; and

Walnut *Juglans regia*.

#### Medium/Small Trees

Alder *Alnus glutinosa*;

Apples *Malus* spp. (local varieties can be found);

Field maple *Acer campestre*;

Holly *Ilex aquifolium*;

Pears *Pyrus* spp.;

Rowan *Sorbus aucuparia*;

Silver birch *Betula pendula*;

Yew *Taxus baccata*;

Elder *Sambucus nigra*;

Hazel *Corylus avellana*;

Hawthorn *Crataegus monogyna*;

Honeysuckle *Lonicera periclymenum*;

Wild privet *Ligustrum vulgare*;

Blackthorn *Prunus spinosa*, and

Guelder-rose *Viburnum opulus*.

### Plants for hedgerows and woodland understoreys

A combination of shrubs and climbers can make attractive hedges of great benefit for wildlife, as well as providing a functional boundary. Standard trees should be incorporated in hedgerows, with ash, oak and wayfarer tree three traditional choices, depending on the region. These should be marked so as not to be cut during management works. In addition, under sowing with a suitable shade tolerant wildflower mix is important to maximise value.

### Trees and shrubs suitable for hedges and understorey planting

Blackthorn *Prunus spinosa*,

Buckthorn *Rhamnus catharticus*,

Field maple *Acer campestre*,

Holly *Ilex aquifolium*;

Elder *Sambucus nigra*;

Guelder rose *Viburnum opulus*,

Hawthorn *Crataegus monogyna*,

Hazel *Corylus avellana*,

Privets, including wild privet *Ligustrum vulgare*; and

Spindle *Euonymus europaeus*.

### Climber and scramblers suitable for hedgerows and understorey planting

Dog rose *Rosa canina*;

Field rose *Rosa arvensis*;

Ivy *Hedera helix*;

Honeysuckle *Lonicera periclymenum*;

Wild clematis/old man's beard *Clematis vitalba*; and

Hop *Humulus lupulus*.

### Understorey flowering plants providing ground cover for shady areas

These species flower early before trees are in full leaf, and will do well in areas that become shady later in the year.

Bluebell *Hyacinthoides non-scripta*,

Bugle *Ajuga reptans*;

Wild daffodil *Narcissus pseudonarcissus*,

Foxglove *Digitalis purpurea*,

Lords-and-ladies/cuckoopint *Arum maculatum*;

Primrose *Primula vulgaris*,

Sweet violet *Viola odorata*, and  
Wood avens *Geum urbanum*.