



Land Adjacent to Kirkland Road, Ennerdale

Ecological Appraisal



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Executive Summary

Contents	Summary
Site Location	North of Ennerdale Bridge, Cumbria (NY 070510 6160)
Proposals	It is proposed to develop the site for residential use, to incorporate 11 residential properties, including landscape planting, comprising tree and hedgerow planting, and an access route from Kirkland Road.
Existing Site Information	No existing survey reports or planning applications were available for the site at the time of writing.
Scope of this Survey(s)	To identify any potential ecological constraints to the proposed development, assess any likely impacts on ecological aspects of the site, to make recommendations for further ecological survey work (if required), to propose recommendations for the avoidance and mitigation of any impacts and to identify opportunities for enhancement of the site where appropriate.
Results	<p>The following potential constraints to the development were identified during the survey:</p> <ul style="list-style-type: none"> • Designated sites: River Ehen SAC and SSSI 0.26km SW of the site and potentially indirectly connected via a culvert at the southern end of the site. • Habitats of Principal Importance: Hedgerow (Hedgerow 1) present along eastern boundary of the site. • Bats: Grassland of negligible to low suitability for foraging bats. Although Hedgerow 1 may provide a suitable commuting/foraging route. Two trees of 'low' roost suitability located at the southern end of Hedgerow 1. No buildings present. • Red squirrel: Potential for red squirrel commuting and foraging along Hedgerow 1, no dreys present. • Badger, Otter and Pine Marten: Limited potential for all species, most likely badger to occasionally move through the site. • Nesting birds: Potential for nesting birds in the grassland and in Hedgerow 1. • Common toad, hedgehog, polecat and brown hare: Potential foraging habitat for these species present within the site.
Recommendations	<p>Further Surveys</p> <ul style="list-style-type: none"> • None required <p>Mitigation/compensation</p> <ul style="list-style-type: none"> • Designated sites: Design of the drainage scheme to incorporate silt traps and oil interceptors to reduce the sediment and pollutant load of the surface water discharge to a level which would be highly unlikely to cause a significant negative effect on the



	<p>qualifying features of the River Ehen SAC and interest features of the SSSI;</p> <ul style="list-style-type: none"> • On-site treatment plant for foul sewage must meet water quality specified in EA Permit to discharge which will be defined to protect any risk of significant water quality effects on the receiving SAC watercourse, both in terms of alone contribution and in-combination effects with existing discharges to the River Ehen; and • Limit discharges of treated and surface water drainage to normal greenfield rates. • Designated sites and habitats: Develop a CEMP, covering mitigation measures and suitable working practices to protect retained habitats within the site and off-site habitats, including a species-rich road verge and hedgerow on the eastern side of Kirkland Road. • Habitats: Translocation of section of Hedgerow 1 to be removed, with standard trees planted at each end of the translocated sections, to offset the creation of the site access and water treatment works maintenance access. • Species-rich hedges with native standard trees of local provenance along the north-western and western boundaries of the site and surrounding the water treatment plant to be provided through the landscape scheme. • Wildflower grassland edges to the water treatment plant to be provided through the landscape scheme. • Bats: Mitigation for habitat loss/disturbance to be provided through measures detailed under habitats above. • Tree 1 ('low' roost suitability) to be felled under reasonable avoidance measures. • Tree 2 ('low' roost suitability) to be retained and protected during construction. • Red squirrel: Mitigation to be provided through measures detailed under habitats above. • Birds: Vegetation clearance and tree works to be avoided during the bird nesting season (March to September inclusive) or, if necessary, preceded by a search for nesting birds by a suitably qualified ecologist. • Mitigation to be provided through measures detailed under habitats above. <p>Enhancements</p> <ul style="list-style-type: none"> • Planting: Management of the retained and created hedgerows should aim to enhance their suitability for breeding birds and bats by reducing the cutting frequency and the planting up of any gaps with native species. • Planting: Planting of new areas of soft landscaping with insect-attracting, native species of local provenance, wherever possible, to enhance the site's ecology.
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	<ul style="list-style-type: none">• Design: Any perimeter fences or garden fences to leave a 12cm gap at the base of the fence line to allow hedgehog access to the site. <p><u>Good Practice</u></p> <ul style="list-style-type: none">• Site Induction: It is recommended that contractors are briefed on the site's ecological constraints during the standard site induction. The induction should include advice on good practice regarding the above ecological issues in advance of any works commencing.
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Glossary

Badger Act	Protection of Badgers Act 1994
BCT	Bat Conservation Trust
BoCC	Bird(s) of Conservation Concern
BTO	British Trust for Ornithology
CBDC	Cumbria Biodiversity Data Centre
CEMP	Construction Environmental Management Plan
CEnv	Chartered Environmentalist
CIEEM	Chartered Institute of Ecology & Environmental Management
CROw Act	Countryside and Rights of Way Act 2000
EA	Environment Agency
EcIA	Ecological Impact Assessment
ECoW	Ecological Clerk of Works
EIA	Environmental Impact Assessment
EPS	European Protected Species
EPSL	European Protected Species Licence
GCN	Great crested newt
Habitats Regulations	Conservation of Habitats and Species Regulations 2017 (as amended)
HAP	Habitat Action Plan
Hedgerows Regulations	Hedgerows Regulations 1997
HPI	Habitat(s) of Principal Importance
JNCC	Join Nature Conservancy Council
LERC	Local Ecological Record Centre
LBAP	Local Biodiversity Action Plan
LNR	Local Nature Reserve
LPA	Local Planning Authority
LWS	Local Wildlife Site
MCIEEM	Member of Chartered Institute of Ecology & Environmental Management
Natura 2000 site	A European site designated for its nature conservation value
NE	Natural England
NERC Act	Natural Environment and Rural Communities Act 2006
NNR	National Nature Reserve
NPPF	National Planning Policy Framework
PEA	Preliminary Ecological Appraisal
RSPB	Royal Society for the Protection of Birds
SAC	Special Area of Conservation
SAP	Species Action Plan
SNCO	Statutory Nature Conservation Organisations
SPA	Special Protection Area
SPI	Species of Principal Importance
SSSI	Site(s) of Special Scientific Interest
W&CA	Wildlife & Countryside Act 1981



1.0 Introduction

1.1 Background

WYG was commissioned by WYG Planning in August 2017 to undertake an Ecological Appraisal of the site known as Land Adjacent to Kirkland Road, Ennerdale.

This report has been prepared by WYG Senior Ecologist, Alistair Blackshaw MCIEEM.

1.2 Site Location

The site is located to the north of Ennerdale Bridge in Cumbria and is centred at Ordnance Survey National Grid Reference NY 070510 6160. The survey area, hereafter referred to as the 'site', is shown on Figure 1 and comprises 1.37 ha of a larger field located between Kirkland Road and the access track to Stockhow Hall.

The field comprises damp acid grassland with wet seepages down the centre of the site and at the eastern edge. The site is bounded to the east by a hedgerow, to the south by the gardens of a residential property and to the west by a fence adjacent to the track to Stockhow Hall. There is no physical boundary to the northern edge of the site.

1.3 Development Proposals

It is proposed to develop the site for residential use, to incorporate 11 residential properties, including landscape planting, comprising tree and hedgerow planting, and an access route from Kirkland Road.

1.4 Purpose of the Report

The objectives of this assessment are to carry-out:

- A desk study to obtain existing information on statutory and non-statutory sites of nature conservation interest and relevant records of protected/notable species within the site and its zone of influence;
- A preliminary ecological appraisal involving a walkover of the site to record habitat types and dominant vegetation, including any invasive species, and a reconnaissance survey for evidence of protected fauna or habitats capable of supporting such species; and
- An assessment of the potential ecological receptors present on site, any constraints they pose to future development and any recommendations for any further surveys, avoidance, mitigation or enhancement measures that are needed (as appropriate).



2.0 Methodology

2.1 Desk Study

2.1.1 Previous Reports

The following ecological reports have been prepared for the site:

- Land at Kirkland Road, Ennerdale Bridge - Tree and Hedge Report (Elliot Environmental Surveyors 2018).

2.1.2 Local Ecological Records Centre

Information was requested from the Cumbria Biodiversity Data Centre (CBDC) for information on any nature conservation designations and protected or notable species records within 2 km of the site.

The data search covers:

- Non-statutory designated sites for nature conservation, namely County Wildlife Sites (CWS), Local Geological Sites (LGS) and Special Roadside Verges (SRV);
- Legally protected species, such as great crested newts, bats and badger; and
- Priority habitats or species within the Cumbria LBAP.

The data search did not cover:

- Tree Preservation Orders (TPOs); or
- Conservation Areas designated for their special architectural and historic interest.

2.1.3 Online Resources

A search for relevant information was also made on the following websites:

- Statutory designated sites for nature conservation, namely SACs, SPAs, Ramsar sites, SSSIs, NNRs and LNRs;
- Notable habitats and species, such as those listed as Habitats of Principal Importance (HPI) or Species of Principal Importance (SPI); and
- MAGIC www.magic.gov.uk - DEFRA's interactive, web-based database for statutory designations and information on any EPSML applications that have been granted in the local area since 2015.

2.2 Field Surveys

The following methodologies have been used to identify the ecological receptors present on or near the site, which are relevant to the proposed development.

2.2.1 Habitats

An extended Phase 1 habitat survey was undertaken on the site on 11th August 2017 by WYG Senior Ecologist, Alistair Blackshaw MCIEEM. The weather conditions were sunny, with a light breeze and a temperature of around 17°C.



The vegetation and broad habitat types within the site were noted during the survey in accordance with the categories specified for a Phase 1 Vegetation and Habitat Survey (Joint Nature Conservation Committee, 2010). Dominant plant species were recorded for each habitat present using nomenclature according to Stace (2010). The site was also appraised for its suitability to support notable flora, with regard to the CIEEM Guidelines for Preliminary Ecological Appraisal (2013).

2.2.2 Protected & Notable Species

The site was inspected for evidence of, and its potential to support, protected or notable species, especially those listed under the Schedule 2 of the Habitat Regulations, Schedule 5 of the W&CA, the CRoW Act, those given extra protection under the NERC Act, and species included in the Cumbria LBAP.

Great Crested Newt

The site was appraised for its suitability to support GCN. The assessment was based on Guidance outlined in the Joint Nature Conservation Committees’ published *Herpetofauna Workers’ Manual* (Gent & Gibson, 2003) and the *Great Crested Newt Conservation Handbook* (Langton, Becket & Foster, 2001).

Bats

Roosting bats – Buildings/structures/trees

Any suitable buildings, structures or trees on site were assessed from the ground for their suitability to support breeding, resting and hibernating bats using survey methods based on the BCT *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (3rd ed, 2016) – hereafter referred to as the ‘BCT Guidelines’. The following system has therefore been used to categorise the bat roost suitability of any features found:

Table 1 Categories of Bat Roost Suitability (BCT Guidelines)

Suitability	Typical Roosting Features
Negligible	Negligible habitat feature on site likely to be used by roosting bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain potential roost features but with none seen from the ground or features seen with only very limited roosting potential.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis & potentially for longer periods of time due to their size, shelter, protection, conditions & surrounding habitat.



Foraging/commuting bats

The BCT Guidelines use the following criteria to categorise the potential value of habitats and features for use by foraging and commuting bats and these have been used to characterise the value of this site:

Table 2 Categories of Habitat Suitability (BCT Guidelines)

Suitability	Typical Foraging & Commuting Features
Negligible	Negligible habitat features on site likely to be used by commuting or foraging bats.
Low	Habitat that could be used by small numbers of commuting bats such as a gappy hedgerow or unvegetated stream, but isolated, i.e. not very well connected to the surrounding landscape by other habitat. Suitable, but isolated habitat that could be used by small numbers of foraging bats such as a lone tree (not in a parkland situation) or a patch of scrub.
Moderate	Continuous habitat connected to the wider landscape that could be used by bats for commuting such as lines of trees and scrub or linked back gardens. Habitat that is connected to the wider landscape that could be used by bats for foraging such as trees, scrub, grassland or water.
High	Continuous high-quality habitat that is well connected to the wider landscape that is likely to be used regularly by commuting bats such as river valleys, streams, hedgerows, lines of trees and woodland edge. High-quality habitat that is well connected to the wider landscape that is likely to be used regularly by foraging bats such as broadleaved woodland, tree-lined watercourses and grazed parkland. Site is close to and connected to known roosts.

Reptiles

The site was appraised for its suitability to support reptiles. The assessment was based on guidance outlined in the Joint Nature Conservation Committees’ published *Herpetofauna Workers’ Manual* (Gent & Gibson, 2003).

Badgers

The site was surveyed for evidence of badger setts or other badger activity such as paths, latrines or signs of foraging. Methodologies used and any setts recorded were classified according to published criteria (Harris, Cresswell & Jefferies, 1989).

Other Species

The site was also appraised for its suitability to support other protected or notable fauna including mammals, amphibians, birds and invertebrates with regard to CIEEM’s *Guidelines for Preliminary Ecological Appraisal* (2013) and *BS42020:2013 Biodiversity – Code of Practice for Planning and Development*. Evidence of any current or historical presence of such species was recorded.



2.2.3 Invasive Species

The site was searched for evidence of invasive plant species, such as Japanese knotweed, Himalayan balsam, giant hogweed, wall cotoneaster and rhododendron – however see Appendix A for a full list.

2.3 Limitations

The optimal period to undertake an extended Phase 1 habitat survey is April-September. The survey was completed in August, which is inside the optimal survey window, and the site was fully accessible. As such this is not considered to be a limitation to the accurate assessment of the habitats and the dominant species of the respective vegetation types were visible and identifiable.

It was not possible to access a full 50m buffer around the site, to search for badger setts. However, habitats within the buffer could be observed from the boundaries and were considered to be unsuitable for sett building. These include residential gardens, adjacent to the southern and western boundaries of the site, and improved grassland, to the east of Kirkland Road. Restricted access to a 50m buffer around the site is therefore not considered to be a significant limitation to the survey.

To determine presence or likely absence of protected species usually requires multiple visits at suitable times of the year. As a result, this survey focuses on assessing the potential of the site to support species of note, which are considered to be of principal importance for the conservation of biodiversity with reference to those given protection under UK or European wildlife legislation. This report cannot therefore be considered a comprehensive assessment of the ecological interest of the site. However, it does provide an assessment of the ecological interest present on the day the site was visited and highlights areas where further survey work may be recommended.

The details of this report will remain valid for a period of **two years** from the date of the survey, after which the validity of this assessment should be reviewed to determine whether further updates are necessary. Note that the recommendations within this report should be reviewed (and reassessed if necessary) should there be any changes to the red line boundary or development proposals which this report was based on.



3.0 Baseline Conditions

3.1 Designated Sites

The following designated site of nature conservation importance have been identified within 2km of the site (Appendix B, Figure 1).

Table 3 Designated Sites within 2km of the Site

Designation	Site Name	Distance & Direction	Summary of Features
SAC	River Ehen	0.26km SW	Freshwater pearl mussel <i>Margaritifera margaritifera</i> population
SAC	Lake District High Fells	1.96km SE	Annex I upland habitats
SSSI	River Ehen (Ennerdale Water to Keekle Confluence)	0.26km SW	Freshwater pearl mussel population
SSSI (& NNR)	High Leys	1.75km NW	Mire and hay meadow communities
SSSI	Pillar and Ennerdale Fells	1.97km SE	Upland vegetation communities
SSSI	Ennerdale	1.97km SE	Arctic char <i>Salvelinus alpinus</i> and swamp, mire and woodland vegetation
CWS	Longmoor Head Meadow	0.62km W	No information available
CWS	Long Moor	0.70km SW	No information available
CWS	Far Moorend Pasture	0.94km SE	No information available
CWS	Salter Wood	0.97km W	No information available
CWS	Croasdale Wood	1.21km NE	No information available
CWS	Dryhurst Meadows	1.32km SW	No information available
CWS	River Ehen Meadows	1.45km W	No information available
CWS	Stockhow Hall Quarry	1.48km N	No information available
CWS	Hunterhow Mire	1.66km NE	No information available
CWS	Rowrah Hall Quarry	1.94km NW	No information available
SRV	B3 A2 (1A)	0.74km SW	No information available
SRV	B3 C4 (1B)	0.78km SW	No information available
SRV	B3 C4 (1A)	0.99km SW	No information available
SRV	B3 A2 (2)	1.01km SE	No information available
SRV	B3 A2 (1B)	1.24km SW	No information available
LGS	Stockhow Hall Quarry	1.27km N	No information available
LGS	Kelton Head Quarry	1.92km N	No information available



Designation	Site Name	Distance & Direction	Summary of Features
LGS	Kelton Felltop	1.97km SW	No information available
Key: CWS: County Wildlife Site SRV: Special Roadside Verge LGS: Local Geological Site			

3.2 Habitats within the Site

The following habitats have been identified through our assessment and are shown in Figure 2. Target notes to Figure 2 are presented in Appendix C.

3.2.1 Hedgerows

Species-rich Hedgerow

Elliot Environmental Surveyors (2018) assessed the eastern boundary hedge (Figure 2, Hedgerow 1) of the site in five sections, finding that H1 (northern section), H3 (middle section) and H5 (southern section) were 'Important' under the Hedgerows Regulations 1997.

Hedgerow 1 is approximately 160m in length, is present along the eastern boundary of the site. The dominant woody species is hazel *Corylus avellana*, with frequent ash *Fraxinus excelsior*, alder *Alnus glutinosa*, hawthorn *Crataegus monogyna* and blackthorn *Prunus spinosa* and occasional holly *Ilex aquifolium*, grey willow *Salix cinerea*, European gorse *Ulex europaeus* and dog rose *Rosa canina* agg. Two semi-mature ash trees are present at the southern end of the hedgerow (Figure 2, Trees 1 and 2). The ground-flora of the hedgerow is limited by grazing on its western site, but on its eastern side includes frequent dog's mercury *Mercurialis perennis*, ivy *hedera helix*, nettle *Urtica dioica*, meadowsweet *Filipendula ulmaria*, male fern *Dryopteris filix-mas*, broad buckler-fern *Dryopteris dilatata*, lady fern *Athyrium filix-femina* and herb Robert *Geranium robertianum* and occasional tormentil *Potentilla erecta* and yellow pimpernel *Lysimachia nemorum*.

Species-poor hedgerows

Elliot Environmental Surveyors (2018) assessed the hedgerows which occur along the southern boundary of the site (Figure 2, Hedgerows 2 and 3) as not being 'Important' under the Hedgerows Regulations 1997.

Hedgerow 2 is a garden hedgerow and comprises garden privet *Ligustrum ovalifolium* with no ground flora. Hedgerow 3 also marks the boundary of a residential garden and is dominated by hawthorn with occasional to rare blackthorn, garden privet, ash and snowberry *Symphoricarpos alba*. A single young pedunculate oak is located adjacent to the hedgerow on its southern side. The ground-flora of the hedgerow includes nettle, male fern, herb Robert and cleavers *Galium aparine*.

3.2.2 Semi-improved Acid Grassland / Marshy Grassland

The site predominantly comprises damp acidic grassland with locally wet areas.



The damp acidic grassland is dominated by Yorkshire fog *Holcus lanatus*, with common bent *Agrostis capillaris*, sweet vernal-grass, *Anthoxanthum odoratum* and rare to occasional crested dog's-tail *Cynosurus cristatus* and red fescue *Festuca rubra*. Rushes, including soft rush *Juncus effusus*, sharp-flowered rush *Juncus acutiflorus* and compact rush, in varying proportions, form more or less continuous cover across the site. Forbs¹ are rare to occasional in the vegetation and include white clover *Trifolium repens*, red clover *Trifolium pratense*, creeping buttercup *Ranunculus repens*, greater bird's-foot trefoil *Lotus pedunculatus*, marsh thistle *Cirsium palustre* and self-heal *Prunella vulgaris*. Areas where the ground has been locally enriched by sheep include creeping thistle *Cirsium arvense*, nettle and hogweed *Heracleum sphondylium*.

Wetter, marshy areas are present along seepage lines in the centre and at the eastern edge of the field. Soft rush, sharp-flowered rush and Yorkshire fog are dominant in these areas, but the proportion of forbs in the vegetation is higher than in the damp grassland. These include, meadowsweet, creeping buttercup, greater bird's-foot trefoil, marsh thistle, common valerian *Valeriana officinalis*, water mint *Mentha aquatica* and lesser spearwort. Betony *Stachys officinalis* and sneezewort *Achillea ptarmica* are rare in the marshy areas.

3.2.3 Running water

Narrow seepage lines occur in the centre and at the eastern edge of the field (see 3.2.2 for a description of their vegetation). The field slopes southwards and drains, presumably into Croasdale Beck through a culvert located at its southern edge.

3.3 Off-site Habitats of Importance

3.3.1 Unimproved Neutral Grassland (Roadside Verge)

A species-rich verge is present to the east of Kirkland Road, opposite the north-eastern edge of the site. The verge had not been mown at the time of the survey and supported wild angelica *Angelica sylvestris*, common knapweed *Centaurea nigra*, meadowsweet, square-stalked St. John's wort *Hypericum tetrapterum*, marsh ragwort *Senecio palustris*, tormentil *Potentilla erecta*, silverweed *Potentilla anserina* and self-heal. Marsh orchids, likely common spotted orchid *Dactylophiza fuchsia* and hybrids are abundant on the verge.

3.3.2 Buildings

No buildings are present on the site, but an occupied house and attached outbuilding forms part of the southern boundary of the site. These buildings are described under 3.4.3 in respect of their suitability for roosting bats.

3.4 Protected & Notable Species

3.4.1 Great Crested Newts

CBDC provided one record of GCN, located at Eskett Quarry (NY 056 168), 1.45km to the north-west of the site.

¹ Non-graminoid (grass-like) plants.



A single pond is present within 500m of the site and is located 408m to the south-east. Online aerial photography shows that it has a small island, which suggests that it is a flight pond, provided as roost for wildfowl. There was no access to this pond to undertake a HSI assessment.

No waterbodies are present on the site. The grassland present within the site is suitable for GCN foraging and commuting. The hedgerow along the western boundary of the site is also suitable for GCN foraging, commuting and provides hibernation opportunities within leaf litter and around the roots of the shrubs and trees.

If GCN were present in the off-site pond, it is considered likely they would use the frequent terrestrial habitat within 250m of it rather than commute to the site. Furthermore, Croasdale Beck lies 260m west of the pond and is likely to form a significant barrier to GCN moving further west.

GCN are unlikely to be present on the site and are not considered to be a constraint to the proposed development.

3.4.2 Reptiles

CBDC provided two records of reptiles, both from the same location (NY 063 157), at Long Moor, 0.84km south-west of the site.

The site is considered to have some potential for common lizard and slow-worm in drier areas, but the vegetation is uniformly dense, and generally without suitable areas for basking. The site is unlikely to be suitable for grass snake, due to a lack of suitable ditches or ponds or connections to these habitats.

Reptiles are unlikely to be present on the site and are not considered to be a constraint to the proposed development.

3.4.3 Bats

CBDC provided 41 records of bats including 16 records of bat roosts. The nearest roost record to the site for each species/group is presented in Table 4.

Table 4: Records of Bat Roosts within 2km of the Site

Species	No. Records	No. Roost Records	OS Grid Ref	Distance & Direction	Further Information
Bats <i>Chiroptera</i>	17	2	NY 072 163	0.12km NE	Possible roost
Pipistrelle <i>Pipistrellus sp.</i>	7	6	NY 056 162	1.39km W	1 male, 7 female in bat box
Common pipistrelle <i>Pipistrellus pipistrellus</i>	6	3	NY 068 158	0.38km SW	No information
Soprano pipistrelle <i>Pipistrellus pygmaeus</i>	5	4	NY 065 156	0.73km SW	240 bats recorded
Brown long-eared bat <i>Plecotus auritus</i>	2	1	NY 056 162	1.39km W	1 female in bat box



Field records of additional bat species in flight included, Daubenton's bat *Myotis daubentonii* (nearest record – 1.67km SE), Noctule *Nyctalus noctula* (nearest record – NY 08526 15295 SE).

The site is located 0.28km north-east of the wooded River Ehen corridor, which is likely to be a significant commuting/foraging route for local bat populations. Woodlands, lines of trees and hedgerows provide connectivity from the river to the wider landscape. The density of these potential commuting/foraging routes is greatest along the river floodplain, to the west, south-west and east of Ennerdale Bridge. The Croasdale Beck corridor, located to the north-east of Ennerdale Bridge also provides suitable foraging and commuting habitat for bats.

The site is located to the north of Ennerdale Bridge and is associated with the fields to the north-east of the village, which are generally quite large, with sparse hedgerows. The rush-pasture within the site is considered to be of 'negligible' to 'low' value for foraging and commuting bats, as there are no linear features for bats to follow. The hedgerow at the eastern boundary of the site is considered to be of 'low' value for foraging and commuting bats and forms part of a potential commuting/foraging corridor along Kirkland Road. However, the hedgerow on the opposite side of road, which contains a greater number of mature trees, is considered to provide a greater habitat contribution to this corridor.

There are no buildings within the site. An occupied house and attached outbuilding (Figure 2, Building 1) forms part of the southern boundary of the site. The house is a rendered, likely stone-built, former farmhouse, with one attached outbuilding. Collectively, these were considered to have 'Moderate' roost suitability for bats, through the presence of lifted lead flashing and lifted slates around the northern chimney of the farmhouse and gaps in stonework, gaps under the ridge tiles and lifted slates on the stone outbuilding.

Two semi-mature ash trees are present in Hedgerow 1. Neither of these had visible potential roost features for bats, however, both were clad in ivy, which may have hidden potential features, and were therefore given a precautionary classification of 'low' roost suitability.

Bats are considered to be a potential constraint to the development due to the presence of potential bat roosts adjacent to the southern boundary of the site and a potential commuting/foraging corridor adjacent to the eastern boundary. Mitigation and avoidance measures are therefore specified in Section 5.3.

3.4.4 Badger

The desk study found records of badger within 2km of the site. These records are confidential and sensitive, so are not detailed in this report. None of the records were within the site.

No signs of badgers were recorded within the site or along the site boundaries. The site is considered to provide potentially suitable foraging habitat for badgers, but is considered to provide sub-optimal sett building habitat due to the wet nature of the site and lack of tree or shrub cover.

Habitats within 50m of the site include residential gardens to the south and west, which were not accessible, but were considered to be unsuitable for badger setts. The field to the north is open and provides sub-optimal sett building habitat. Some limited opportunities for badgers are present along the western edge of Hedgerow 1. No access was available to the field to the east of Kirkland Road,



however this is considered likely to be similar to the eastern boundary of the site, with only limited opportunities for badger.

Badgers are unlikely to create setts within the site or within 50m of it and are therefore not considered to be a significant constraint to the proposed development. However, badgers are active in the local area and therefore could occasionally enter the site to forage. Therefore, avoidance measures are specified in Section 5.3 to prevent harm to badgers during the construction phase of the development.

3.4.5 Otter & Water Vole

CBDC provided eight records of otter, located mainly along the River Ehen, from Ennerdale Lake to just west of Ennerdale Bridge. The closest record to the site (60m to the south) was of a spraint and prints in 2014, from Butt's Bridge over Croasdale Beck.

CBDC provided no records of water vole within 2km of the site. Water vole are considered unlikely to be present on the River Ehen and tributaries and are not considered to be a potential constraint to the proposed development

There is potentially some hydrological connectivity between the site and the Croasdale Beck, via a culvert (c.30cm diameter and 60m in length), located at the southern edge of the site. Due to the size and length of the culvert, it is considered highly unlikely it would be used by otter to access the site. Although otters can range quite widely away from watercourses, it is considered unlikely that they would commute through the site or forage within it on anything other than an occasional basis.

Otters are considered to be a potential constraint to the proposed development, but only in terms of them potentially accessing the site during the construction phase. Appropriate avoidance measures are therefore proposed in Section 5.3.

3.4.6 Pine Marten

CBDC provided one record of pine marten *Martes martes*, recorded at Stockhow Hall, 0.69 north-west of the site in 2006.

Pine martens are mainly found in woodlands, including conifer plantations. They may also use more open areas to hunt, including rocky hillsides. Their dens are usually hollow trees, among rocks or in disused bird nests or squirrel dreys. Pine martens may also use enclosed spaces in buildings as dens. It is considered unlikely that pine marten would be present in the buildings adjoining the site, due to the likely disturbance they receive from normal occupation.

The site has no suitable woodland or buildings for pine marten dens, it is considered that pine marten are not likely to breed within or adjacent to the site. **Pine marten may, however, commute across or forage within the site on an occasional basis and are therefore considered to be a potential constraint to the proposed development. Appropriate avoidance measures are therefore proposed in Section 5.3.**

3.4.7 Red Squirrel

CBDC provided 187 records of red squirrel, with 2 records within the site, although these records had six-figure grid references and were therefore only accurate to 100m. Sixty-five records were from Ennerdale Bridge village. A further large cluster of records was associated with Broadmoor Plantation,



east of Ennerdale Bridge, with smaller clusters around Long Moor, to the south-west and Croasdale Beck valley.

No red squirrels or signs of red squirrels were recorded within the site. The pasture provides negligible opportunities for red squirrels. Hedgerow 1, located at the eastern boundary of the site is predominantly hazel and therefore provides a good foraging resource for red squirrels, which they may occasionally access. The hedgerow also contributes to connectivity between Ennerdale Bridge and a small coniferous plantation north of Kelton Mill, where red squirrels have been recorded.

Red squirrels are considered to present a potential constraint to the proposed development and recommendations for appropriate mitigation are outlined in Section 5.3.

3.4.8 Birds

CBDC provided 1894 records of 101 bird species within 2km of the site. The majority of records were from tetrad surveys (2km x 2km grid square) between 2008 and 2013; as the data are from tetrad surveys, the records potentially cover a radius of 4km around the site. Only data for Tetrad NY01T, in which the site lies, are presented in Appendix B; this area is considered to be most representative of the landscape character of the site. Only data for notable bird species (i.e. those listed on Annex 1 of the Birds Directive, Schedule 1 of the W&CA or those listed as SPI under the NERC Act or included on the LBAP or BoCC² Red and Amber Lists). The data contained 175 records of 32 notable species, including 4 sensitive species, which are not reported on.

A total of eight bird species were recorded during the site survey (Table 5).

Table 5: Bird Species Recorded Within the Site

Common Name	Latin Name	Status	Description
Carrion crow	<i>Corvus corone</i>	-	Flying over
Chaffinch	<i>Fringilla coelebs</i>	-	Calling from Hedgerow 1
Collared dove	<i>Streptopelia decaocto</i>	-	Flying down Hedgerow 1
Jackdaw	<i>Corvus monedula</i>	-	Flying over
Linnet	<i>Linaria cannabina</i>	BoCC Red List, S41, LBAP	Party of three flying over
Meadow pipit	<i>Anthus pratensis</i>	BoCC Amber List	One flushed from vegetation
Sparrowhawk	<i>Accipiter nisus</i>	-	Flying over
Swallow	<i>Hirundo rustica</i>	-	Foraging over grassland
Wood pigeon	<i>Columba palumbus</i>	-	Singing in hedgerow
Key:			
BoCC Red and Amber Lists: Birds of Conservation Concern 4 (Eaton <i>et al.</i> , 2015).			
S41: Species listed under section 41 of the Natural Environment and Rural Communities Act 2006.			

² See Appendix A for further information.



Common Name	Latin Name	Status	Description
LBAP: Species listed within the Cumbria Local Biodiversity Action Plan			

The site provides potential habitat for a range of bird species. Hedgerow 1 is dense and contains two trees and thus could potentially support breeding notable species such as yellowhammer *Emberiza citrinella*, tree sparrow *Passer montanus*, linnet and willow warbler *Phylloscopus trochilus*, which have been recorded in tetrad NY01T.

The grassland has dense rush cover and was thus not considered to be suitable for skylark *Alauda arvensis*, although meadow pipit were recorded during the survey. The grassland is potentially suitable for curlew *Numenius arquata*, although much of the site slopes to the south inhibiting sight-lines to the north and therefore reducing the value of the site for this species. The wetter areas in the centre of the field provide some potential habitat for snipe, although the small size of the wet area and moderate density of rushes suggests that it is sub-optimal for this species.

Birds are considered to present a potential constraint to the proposed development and appropriate avoidance and mitigation measures are outlined in Section 5.3

3.4.9 Invertebrates

CBDC provided 121 records of 28 protected and notable invertebrate species; none of the records was from within or adjacent to the site. Records comprised:

- 7 butterfly species (Table 6);
- 17 moth species (Table 7)
- 2 mollusc species;
- 1 dragonfly species; and
- 1 beetle species.

Table 6: Protected and Notable Butterfly Species within 2km of the Site

Species	No. Records	OS Grid Ref	Distance & Direction	Status
Dingy skipper <i>Erynnis tages</i>	5	NY 057 161	1.28km W	S41; LBAP
Wall <i>Lasiommata megera</i>	7	NY 065 156	0.74km SW	S41; LBAP
Small heath <i>Coenonympha pamphilus</i>	9	NY 06426 15562	0.80km SW	S41; LBAP
Grayling <i>Hipparchia semele</i>	2	NY 06 17	0.80km SW	S41; LBAP
Small pearl-bordered fritillary <i>Boloria selene</i>	20	NY 070 158	0.32km S	S41; LBAP
Marsh fritillary <i>Euphydryas aurinia</i>	40	NY 065 156	0.73km SW	W&CA;

Dingy skipper, wall and grayling were all recorded from dry habitats west of the site including Salter Woods CWS, Longmoor CWS, Frizington Disused Railway and Rowrah Quarry. Small heath were



recorded from scattered dry habitats including heathland/young coniferous plantation in Blakely and Grike Fells, to the south of Ennerdale Bridge.

Small pearl-bordered fritillary and marsh fritillary were recorded extensively on Longmoor CWS and also from Broadmoor Plantation and from Hunterhow Mire CWS. There was an outlying record of small pearl-bordered fritillary from Ennerdale Bridge village.

The site is considered to have negligible potential for dingy skipper, grayling, wall and small heath due to the wet nature of the site and uniformly dense vegetation. The site provides negligible potential for marsh fritillary as the larval food plant in marshy situations (devil's bit scabious *Succisa pratensis*) is absent from the site. The site provides some potential foraging habitat for small pearl-bordered fritillary through the presence of nectar producing plants, but is unconnected to any recorded colonies and its larval food plants (violets *Viola spp.*) are absent from the vegetation.

Table 7: Protected and Notable Moth Species within 2km of the Site

Species	No. Records	Habitats	Status
Northern Grey <i>Scoparia ancipitella</i>	1	Trees and wooded areas	Notable
Shaded Broad-bar <i>Scotopteryx chenopodiata</i>	1	A range of open habitats.	SPI, LBAP
Dark-barred Twin-spot Carpet <i>Xanthorhoe ferrugata</i>	1	Woodland	SPI, LBAP
Small Phoenix <i>Ecliptopera silaceata</i>	2	Vegetation with willowherb <i>Epilobium</i> species	SPI, LBAP
Latticed Heath <i>Chiasmia clathrata</i>	4	Grassland and waste ground	SPI, LBAP
White Ermine <i>Spilosoma lubricipeda</i>	1	Range of habitats	SPI, LBAP
Cinnabar <i>Tyria jacobaeae</i>	2	Vegetation with ragwort <i>Senecio jacobaea</i> and related species	SPI, LBAP
Anomalous <i>Stilbia anomala</i>	1	Vegetation with wavy hair-grass <i>Deschampsia flexuosa</i> .	SPI, LBAP
Rosy Rustic <i>Hydraecia micacea</i>	1	Vegetation with a range of plants, but especially docks <i>Rumex</i> spp.	SPI, LBAP
Dusky Brocade <i>Apamea remissa</i>	1	Woodland, dry pastures, marshes, and a range of other habitats,	SPI, LBAP
Sallow <i>Cirrhia icteritia</i>	1	Damp woodland, heathland and marshy places.	SPI, LBAP
Broom Moth <i>Ceramica pisi</i>	1	Open woodland and heathland	SPI, LBAP
Small Square-spot <i>Diarsia rubi</i>	2	Perhaps preferring damp and marshy places.	SPI, LBAP



Species	No. Records	Habitats	Status
Autumnal Rustic <i>Eugnorisma glareosa</i>	1	Woodland fringes, moorland and sandy or chalky soils	SPI, LBAP
Northern Grey <i>Scoparia ancipitella</i>	1	Trees - wooded areas	SPI, LBAP

Moth species were recorded primarily at three sites around Ennerdale Water and Broadmoor Plantation in 2016, with a small number of additional records from Rowrah Quarry. It is considered that, some of the moths recorded have the potential to occur on the site, but are unlikely to be restricted to it as other similar damp, rushy fields occur within the local area.

One of the mollusc species recorded within 2km of the site is classed as a sensitive species, and therefore no details are given, but this species is considered unlikely to occur on the site. The second mollusc species is a slug *Arion ater*, which is likely to be relatively common in the local area. Golden ringed dragonfly *Cordulegaster boltonii* breeds within oligotrophic streams and rivers, neither of which occurs on the site. Violet oil-beetle *Meloe violaceus* is a woodland species and is therefore considered unlikely to occur on the site.

The site is considered to provide suitable habitat for a range of invertebrates, but is unlikely to support significant populations of rare or notable species. **Invertebrates are therefore not considered to be a constraint to the proposed development.**

3.4.10 Invasive Plant Species

CBDC provided 23 records of 2 invasive plant species, Japanese knotweed *Fallopia japonica* and Himalayan balsam *Impatiens glandulifera*. Himalayan balsam is strongly associated with the River Ehen, with two records along Croasdale Beck (closest record 0.13km S of the site). Japanese knotweed is associated with the river and also with human habitation; several records are present around Ennerdale Bridge (closest record 0.21km S of the site).

No invasive plant species were recorded on or adjacent to the site during the field survey and are therefore not considered to be a potential constraint to the proposed development.

3.4.11 Other Notable Species

CBDC also provided records of five additional notable species within 2km of the site (Table 8). None of the records were within the site.

Table 8: Other Notable Species Recorded within 2km of the Site

Species	No. Records	OS Grid Ref	Distance & Direction	Status
European eel <i>Anguilla anguilla</i>	2	NY 0884 1526	1.95km SE	SPI; LBAP
Atlantic salmon <i>Salmo salar</i>	9	NY 07180 16081	0.09km SE	SPI; LBAP



Species	No. Records	OS Grid Ref	Distance & Direction	Status
Common toad <i>Bufo bufo</i>	10	NY 074 157	0.52km SE	SPI; LBAP
West European hedgehog <i>Erinaceus europaeus</i>	7	NY 07110 16163	Adjacent to site (dead on road)	SPI; LBAP
Polecat <i>Mustela putorius</i>	3	NY 06416 15488	0.88 SW	SPI; LBAP
Brown hare <i>Lepus europaeus</i>	10	NY 06927 15811	0.32km S	SPI; LBAP

The records of Atlantic salmon were mainly from the River Ehen, with two records from Croasdale Beck. The records of European eel were all from the River Ehen. The site holds no potential for either of these species, but is connected to Croasdale Beck, by a culvert. Atlantic salmon are a qualifying feature of the River Ehen SAC and appropriate mitigation is proposed in Section 5.1.

The desk study found 10 records of common toad, from scattered locations within 2km of the site, but mainly to the SE. The grassland was considered to provide potential terrestrial foraging habitat for common toad, with the hedgerow suitable for hibernating animals.

Seven records of hedgehog were provided by CBDC, three of which were road casualties and were therefore located along roads, including Kirkland road, with one record adjacent to the site. Other records were located around Ennerdale Bridge and Broadmoor Plantation, to the south-east. Grassland within the site is considered to provide potential foraging habitat for hedgehogs and the hedgerow along the eastern boundary provides potential hibernation habitat.

Three records of polecat were provided by CBDC; these were located at Longmoor, approximately 0.9km to the south-west of the site. A single rabbit burrow was located to the north of the site, suggesting rabbits, the favoured prey of the polecat, are present locally. No other rabbit burrows or alternative den sites such as piles of logs or stone walls are present and therefore breeding within the site is considered unlikely. Polecats may potentially forage within the site and along Hedgerow 1 for items such as rabbits, birds and small mammals.

Ten records of brown hare were provided by CBDC, the closest record located to the south of Ennerdale Bridge. No evidence of brown hare was recorded within the site and it was concluded that the site was unsuitable for breeding, due to its wet nature and relatively dense vegetation, restricted sight-lines. Adjacent silage fields and more improved pastures with tall, but less dense, field margins were considered to be more suitable for breeding, however, it was considered that brown hare may potentially forage within the site.

Common toad, hedgehog, polecat and brown hare are considered to be potentially present on the site. Appropriate avoidance measures are identified in respect of these species in Section 5.3



3.5 Importance of Ecological Features

In line with the CIEEM PEA Guidelines, and based on the above baseline information, each ecological feature recorded within the study area is considered to have the following importance, as defined within the CIEEM EcIA Guidelines (2016):

Table 9: Importance of Ecological Features

Feature	Importance	Rationale
River Ehen SAC	International	A designated Natura 2000 site for freshwater pearl mussel
Lake District High Fells SAC	International	A designated Natura 2000 site for upland habitats
River Ehen (Ennerdale Water to Keekle Confluence) SSSI	National	A designated SSSI for freshwater pearl mussel population
High Leys SSSI	National	A designated SSSI for mire and hay meadow communities
Pillar and Ennerdale Fells SSSI	National	A designated SSSI for upland vegetation communities
Ennerdale SSSI	National	A designated SSSI for Arctic char <i>Salvelinus alpinus</i> and swamp, mire and woodland vegetation
CWS sites	County	Designated for various features considered to be important at the county level
Species-rich Hedgerow	Local	Species-rich hedge containing ancient woodland indicator species, such as dog mercury. Provides ecological connectivity along Kirkland Road.
Semi-improved acid/marshy grassland	Site level	Moderate diversity, but low rarity of plant communities
Off-site roadside verge	Local	Unimproved grassland but small fragment
Running water	Site level	Minor seepage features lacking potential for protected species or associated plant communities
Otter	Local	Potential occasional use of the site
Pine marten	National	Use of the site unlikely, but discussed further due to value.
Red squirrel	Local	Likely occasional use of the site for foraging. Hedgerow 1 provides potential commuting route
Bats	Site level	Site of low to negligible value, but Hedgerow 1 provides a potential commuting route/foraging resource in combination with hedge on opposite side of Kirkland Road
Birds	Local	Several BoCC species present, potential for other species exists



Feature	Importance	Rationale
Badger	Site level	Potential occasional use of the site for foraging or commuting.
Other notable species (e.g. brown hare and hedgehog)	Local	Occasional use if present
<p>Either: International (incl. European) / National / Regional / County / Local / Site level Or: Unknown (i.e. further surveys/information needed)</p>		

The potential for the proposals to have adverse or beneficial impacts on these features, along with the need for any mitigation or enhancement measures are discussed in detail below.



4.0 Relevant Planning Policy & Legislation

4.1 National Planning Policy Framework

The NPPF was adopted in March 2012. Section 11 of the NPPF, *Conserving and Enhancing the Natural Environment* replaces *Planning Policy Statement 9 (PPS9): Biodiversity and Geological Conservation*. However, government Circular 06/2005, *Biodiversity and Geological Conservation: Statutory Obligations and their Impact within the Planning System*, which relates to PPS9 remains valid and is referenced within Paragraph 113 of the NPPF.

Circular 06/2005 states that the presence of protected species is a material consideration in the planning process. The NPPF also states that '*planning policies should promote the protection of priority species populations linked to national and local targets*'.

Furthermore, central and local government policy now points towards ecological enhancement on development sites. The NPPF considers enhancement in the statement '*The planning system should contribute to and enhance the natural and local environment by protecting and enhancing valued landscapes....and minimising impacts on biodiversity and providing net gains in biodiversity*'.

4.2 Biodiversity 2020: A strategy for England's wildlife & ecosystem services

Biodiversity 2020 replaces the previous UK Biodiversity Action Plan and sets national targets to be achieved. The intent of Biodiversity 2020, however, is much broader than the protection and enhancement of less common species, and is meant to embrace the wider countryside as a whole.

The priority species and habitats considered under Biodiversity 2020 are the SPI & HPI detailed under NERC Act (see Appendix A for further details).

4.3 Local Biodiversity Action Plan

Local Biodiversity Action Plans (LBAPs) identify habitat and species conservation priorities at a local level (typically County by County) and are usually drawn up by a consortium of local Government organisations and conservation charities. Although they are no-longer managed at a national level many are still reviewed and updated at a local level.

It should be noted that the existence of a Species Action Plan (SAP) or Habitat Action Plan (HAP) does not always infer an elevated level importance for those features. These plans may be designed to encourage an increase in these habitats/species, rather than to protect a county-scarce feature.

The Cumbria Biodiversity Action Plan (CBAP) was launched in 2001; s (SAPs) were drawn up for 21 species and (HAPs) were drawn up for 19 habitats. Following the UKBAP review in 2007, the CBAP was reviewed in 2009 and it was decided to include all habitats and species which are listed as HPI and SPI under the NERC Act 2006. A list of all 268 SPI which occur in Cumbria is provided at:

<https://www.cumbriawildlifetrust.org.uk/sites/default/files/cumbria%20bap%20species%20updated%20list%202009%20web.pdf>



The original action plans for Cumbria were further reviewed as part of the Cumbria Biodiversity Evidence Base (CBEB) and detailed statements have been prepared for 11 species/species groups (Table 10) and 21 habitats (Table 11). For the purposes of this report, the species and habitats listed in the following tables are considered to represent the current CBAP.

Table 10: LBAP SAPs

Species Action Plans	
Barn Owl	Red Squirrel
Bats	Reptiles
Great Crested Newt	Small Blue
Hen Harrier	Water Vole
Natterjack Toad	Wintering Geese and Swans
Otter	-

Table 11: LBAP HAPs

Habitats Action Plans	
Bogs	Hedgerows
Calaminarian Grasslands	Lakes, Ponds And Tarns
Calcareous Grassland	Lowland Dry Acid Grassland
Coastal And Floodplain Grazing Marsh	Montane Habitats
Coastal Habitats Above High Water	Open Mosaic Habitats on Previously Developed Land
Coastal Intertidal Habitats	Rivers
Coastal Subtidal Habitats	Rock Habitats
Fen, Marsh And Swamp	Saline Lagoons
Hay Meadows And Pastures	Semi-Natural Woodland
Heathland	Traditional Orchards
Wood-Pasture And Parkland	-

4.4 Local Plan for Copeland

The site lies within Copeland Borough. Chapter 7 of the adopted Local Plan for Copeland (LPC) (2013-2028) *Environmental Protection and Enhancement* incorporates one policy covering Biodiversity and Geodiversity.

Policy ENV3 – Biodiversity and Geodiversity



The Council will contribute to the implementation of the UK and Cumbria Biodiversity Action Plan within the plan area by seeking to:

- A. *Improve the condition of internationally, nationally and locally designated sites*
- B. *Ensure that development incorporates measures to protect and enhance any biodiversity interest*
- C. *Enhance, extend and restore priority habitats and look for opportunities to create new habitat*
- D. *Protect and strengthen populations of priority or other protected species*
- E. *Boost the biodiversity value of existing wildlife corridors and create new corridors, and stepping stones that connect them, to develop a functional Ecological Network*
- F. *Restrict access and usage where appropriate and necessary in order to conserve an area's biodiversity value*

Policy DM25 supports this policy, setting out the detailed approach towards managing development proposals that are likely to have an effect on nature conservation sites, habitats and protected species.

The core strategy policies are supported by Development Mitigation Policies, one of which relates to 'Nature Conservation, Habitat and Species Protection':

Policy DM25 – Protecting Nature Conservation Sites, Habitats and Species

A All development proposals should:

- i) *Protect the biodiversity value of land and buildings*
- ii) *Minimise fragmentation of habitats*
- iii) *Maximise opportunities for conservation, restoration, enhancement and connection of natural habitats and creation of habitats for species listed in UK and Cumbria Biodiversity Action Plans. Special consideration should also be given to those European habitats that lie outside the boundaries of European designated sites*

B Development proposals that would cause a direct or indirect adverse effect on locally recognised sites of biodiversity and geodiversity importance, including County Wildlife Sites, Local Nature Reserves and Regionally Important Geological/Geomorphological Sites or protected species will not be permitted unless:

- i) *The benefits of the development clearly outweigh the impacts on the features of the site and the wider network of natural habitats, and;*
- ii) *Prevention, mitigation and/or compensation measures are provided. An appropriate long-term management plan will be sought and arrangements to provide adequate funding will be made in accordance with a formal planning agreement or obligation*

C Where compensatory habitat is created, it should be of equal or greater size than the area lost as a result of the development

D Development proposals where the principal objective is to conserve or enhance biodiversity or geodiversity interests will be supported in principle



E Where there is evidence to suspect the presence of protected species any planning application should be accompanied by a survey assessing their presence and, if present, the proposal must be sensitive to, and make provision for, their needs

F All development proposals must take into account any likely significant effects on the internationally important sites both within the Borough and within a 20km radius of the Borough boundary as well as those that are hydrologically linked to the development plan area

4.5 Legislation

Full details of the UK legislation and offences which are relevant to the ecological receptors identified are included in Appendix A. However, based on the findings of our assessment, it is considered that the proposals will need to consider the following legal provisions:

- Harm to a Natura 2000 site
- Disturbance or killing of an EPS
- Disturbance of nesting wild birds
- Killing or injury of badgers



5.0 Discussion

5.1 Designated Sites

Natura 2000 Sites – Assessment of Likely Significant Effects (ALSE)

River Ehen SAC

As there are no existing public or known foul sewers serving the area, the properties will be drained to a privately maintained sewage treatment plant which will discharge treated effluent into the existing ditch outfall. A review of the BGS database has identified that the underlying ground consists of silty sandy clays which would not be conducive to utilising infiltration techniques to drain the future surface water run-off. On site attenuation is therefore to be provided by means of a below ground cellular storage tank to be located within the proposed open space within the south-eastern part of the development. The outflow from this tank is to be controlled by means of a suitable flow restrictor (rated at 5.3 l/s) and would also be discharged into the existing central ditch outfall located within the southern part of the site

Further investigations will be undertaken as part of the detailed drainage design and, if possible, infiltration will be the preferred surface water treatment method. If this is not available, other sustainable drainage options will be examined such as using permeable paving for the section of highway and the private parking areas. In this scenario the permeable paving would not drain into the underlying ground, but the surface water run off would drain into the basal stone layer and then drain into the main surface water drainage system. Adopting this proposal would provide an additional level of water treatment and also slow down the rate of discharge to the attenuation tank, and hence to outflow to the receiving ditch. As a minimum requirement, it is also recommended that the surface water drainage scheme incorporates sediment traps and oil interceptors, to mitigate the potential effects of these pollutants on the River Ehen SAC.

Discharge of both treated effluent and surface water to the Croasdale Beck and subsequently the River Ehen will require consent from the Environment Agency (EA), which will limit the discharge in terms of quality and quantity. The proposed scheme will have to comply with the discharge limits which will be imposed taking into account the receiving water quality and hydrology, and any existing consented discharges and therefore potential for in-combination effects. Therefore, provided the requirements of any granted discharge consent are complied with, there would be no likely significant effects on the qualifying features of River Ehen SAC.

The potential for air pollution from the completed development is considered to be minimal; dust generation during construction is also expected to be of a level below which would be expected to have a significant effect on the SAC, but will nevertheless be covered under a Construction Environmental Management Plan (CEMP), which is outlined in Section 0.

Although the main interest features of the River Ehen SAC are considered to be vulnerable to public access/disturbance (Natural England 2014a), the number of residential units proposed (nine) is relatively small and unlikely to result in a significant increase in visitors to the site. Furthermore, the river is generally inaccessible to the public, except for occasional footbridge crossings and around the western end of Ennerdale Water, 1.4km east of the site. It is considered any increase in visitor numbers to the SAC, as a result of the development, would not be of a sufficient scale to alter the current level of visitor pressure on the site's qualifying features.



Lake District High Fells

There are no direct terrestrial or aquatic pathways between the site and Lake District High Fells SAC. The potential for air pollution from the completed development is considered to be minimal; dust generation during construction is also expected to be of a level below which would be expected to have a significant effect on the SAC, but will nevertheless be covered under the CEMP, which is outlined in Section 0.

Although the main interest features of Lakeland District High Fells SAC are considered to be vulnerable to public access/disturbance (Natural England 2014b), the number of residential units proposed (nine) is relatively small and unlikely to result in a significant increase in visitors to the site. Furthermore, due to the relatively remote location of the SAC, it is not likely to be accessed by all residents. It is considered therefore any increase in visitor numbers to the SAC, as a result of the development, would not be of a sufficient scale to alter the current level of visitor pressure on the site's qualifying features.

Sites of Special Scientific Interest

The potential for impacts on River Ehen (Ennerdale Water to Keekle Confluence) SSSI and Pillar and Ennerdale Fells SSSI is addressed under 'Natura 2000 Sites' above.

There are no direct terrestrial or aquatic pathways between the site and Ennerdale SSSI or High Leys SSSI. The potential for air pollution from the completed development is considered to be minimal; dust generation during construction is also expected to be of a level below which would be expected to have a significant effect on either SSSI, but will nevertheless be covered under the CEMP, which is outlined in Section 0.

High Leys can only be visited with a permit from Natural England and therefore visitor numbers would not be expected to increase significantly on this site as a result of the development. Visitor numbers to Ennerdale SSSI may increase slightly as a result of the development, but given the relative inaccessibility of the site's interest features this increase would be considered unlikely to result in a significant negative impact on the site.

County Wildlife Sites

There are no direct terrestrial or aquatic pathways between the site and any of the 10 CWS, 5 SRCV or 2 LGS sites within 2km. The potential for air pollution from the completed development is considered to be minimal; dust generation during construction is also expected to be of a level below which would be expected to have a significant effect on the interest features of any of the designated sites, but will nevertheless be covered under the CEMP, which is outlined in Section 0.

5.2 Habitats

Habitats within the Site

The landscape plan for the site is included in Appendix E. It is anticipated that approximately 1.25 ha of the semi-improved /marshy grassland within the site would be lost as a result of the proposed development. Approximately 40m of Hedgerow 1 would be removed, in order to create the access to the site, with an additional 10m removed to create an access to the water treatment plant.



The grassland is of relatively low ecological value and other grasslands of similar species composition are likely abundant in the local area. Direct mitigation for the loss of this feature would be through the creation of approximately 0.05 ha of wildflower grassland associated with the water treatment plant. The grassland will be created from seed of local provenance. Additional enhancement of the site will be provided through the provision of native species-rich hedges, with standard trees, along the north-western and western boundaries of the site and bordering the water treatment plant. The planted trees and shrubs will be of local provenance.

Hedgerow 1 is species-rich and meets the definition of the 'Hedgerows' HPI (Maddock 2011); furthermore the boundary is shown on the 1863 map of Cumberland and is therefore considered to be **'Important'** under the Hedgerows Regulations 1997. In addition to its intrinsic value, the hedgerow provides a potential commuting route for bats and red squirrels and provides potential foraging and breeding opportunities for birds. To mitigate for the removal of two sections of hedgerow to create the necessary access and visibility splays, the removed sections will be translocated to new locations, contiguous with the existing hedge, as indicated on the landscape plan (Appendix D). The translocations will have the effect of setting the hedgerow back slightly from the road in these locations and, although gaps will be created in the hedgerow, these will be 5m (for the main site access) and 3m (for the water treatment plant access) and will therefore have a negligible effect on the overall continuity of the hedge. The development is therefore considered to be in compliance with LPC policy ENV 3, part B, which seeks to ensure that developments incorporate existing biodiversity interest.

Habitats Outside the Site

Habitats bounding the site comprise semi-improved acid grassland, a residential garden and a track verge. A species-rich roadside verge is present to the east of Kirkland Road, opposite the north-eastern edge of the site. It is recommended that these habitats be protected during site preparation and construction, through the design of good site-specific working practices for implementation prior to and during site preparation and construction works.

Protection of Retained Habitats and Habitats Outside the Site

Construction Phase

It is recommended that protection of retained on-site habitats and habitats outside the site during construction should be addressed through the proposed CEMP and measures should include:

- Trees and hedgerows to be retained within and adjacent to the site should be protected from direct impact and from severance or asphyxiation of the roots in accordance with BS5837: 2012 "Trees in Relation to Design, Demolition and Construction – Recommendations" (British Standard, 2012).
- Site operations and plant should take into account wide and tall loads to prevent them coming into contact with the hedgerow on the eastern side of Kirkland Road, which is species-rich, and with any trees overhanging the road.
- Suitable protection measures should be installed to protect the species-rich roadside verge east of Kirkland Road from parking/vehicle movements and storage of materials.
- Run-off from bare ground and residues from de-watering of excavations should be managed so that it does not enter sensitive terrestrial habitats or watercourses.
- A safe system for the correct storage of materials/chemicals should be implemented to ensure that materials are stored in a suitable manner as to avoid spills or runoff.



- Appropriate measures to manage dust generation during construction should be implemented (e.g. damping down of site roads).
- A system to ensure waste is removed at the earliest opportunity to avoid contamination of ground. Contractors should also avoid leaving construction waste within the site.
- Chemical applications should be avoided where possible. If the application of herbicide or pesticide is required, then a non-residual chemical should be applied using either a wiping or spraying (i.e. localised) method only to clear areas of weeds.

5.3 Protected & Notable Species

Bats

Bat Roosts

All species of British bats and their roosts are fully protected under the Wildlife & Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2010 (as amended). Seven species of bats are listed as SPI under Section 41 of the *NERC Act 2006*. All bat species are included on the Cumbria LBAP.

No buildings are present on the site. Two trees (Trees 1 and 2) located within Hedgerow 1 have 'Low' roost suitability for bats. One building complex (Building 1) located adjacent to the southern boundary of the site has 'Moderate' roost suitability for bats.

Tree 1 will be removed to create the access into the water treatment plant. As it has an ivy covering, which may obscure suitable roost features, but is quite a young tree, it was assessed as having 'low' roost suitability for bats. It must therefore be felled under reasonable avoidance measures to include the following:

- Careful stripping of ivy to expose any potential roost features.
- A check of any suitable features immediately prior to works commencing, by a licenced bat ecologist.
- Avoidance of sensitive periods such as maternity and hibernation periods, works are best carried out late August to October.
- Avoid cross-cutting in proximity to cavities or hollows.
- Soft lowering of felled sections containing cavities, these should then be left on the ground with the openings exposed for 24 hours to allow natural dispersal.
- Wedge open split limbs to prevent crush injuries.

Should a bat or evidence of bats be found during works then activity must stop and advice sought from a bat licensed ecologist.

Tree 2 and Building 1 will be protected from direct disturbance during construction by the implementation of suitable buffer zones, to avoid any potential impacts on roosting bats. A wildlife sensitive lighting scheme (see below) should also be designed for the development in consultation with a bat ecologist, to avoid operational disturbance of these features by lighting.

Foraging and Commuting

ODPM 06/2005: Biodiversity and Geological Conservation, the circular that accompanied the now redundant Planning Policy Statement 9 (PPS9) but which itself is still valid, requests that mitigating



for impacts caused by developments to foraging and commuting routes should be considered when determining planning applications.

Bats are likely to forage and commute within the site; desk study data suggests that activity will be mainly of pipistrelle species, with occasional activity by other common species, such as, brown long-eared bat (*Plecotus auritus*) possible. It is considered unlikely that the grassland will provide a significant foraging resource for pipistrelle bats, because of its open character. Hedgerow 1 is considered likely to be used by foraging bats, especially on its eastern side, in combination with the hedge on the opposite side of Kirkland Road.

Approximately 40m of Hedgerow 1 will need to be removed, in order to create the main access to the site, with an additional 10m removed to create an access to the water treatment plant. However, these sections will be translocated to new locations contiguous with the existing hedge and the size of the gaps created for the two access points would be 5m and 3m. As the translocation will be completed in autumn/winter, it is anticipated the effect on commuting/foraging bats will be minimal. The impact on the potential foraging/commuting corridor will be further reduced by the presence of another good quality hedge on the opposite side of Kirkland, which will be unaffected by the development.

Artificial lighting can attract insects away from wider areas utilised for foraging by light sensitive species, potentially causing further, indirect, secondary, adverse impacts upon light sensitive species. Therefore, a wildlife sensitive lighting scheme (see below) will also need to be designed for the development in consultation with a bat ecologist, to avoid impacts on foraging and commuting habitats. The scheme will need to avoid lighting of Hedgerow 1 (including on the Kirkland Road side) and the track at the western edge of the development, together with the proposed newly created grassland and hedgerow habitats, so that these remain undisturbed during the construction and operational phases of the development.

Where lighting is necessary, the following measures should be considered to reduce adverse effects:

- Consideration of hood design, lamp height, and angle, to reduce light spill particularly avoiding illuminating retained foraging and commuting habitat on the site such as mature trees, the river corridor, tree lines, and hedgerows;
- Use of less ultra violet (UV) light emitting bulbs, such as metal halide or high pressure sodium; and
- Minimising hours of lighting to those absolutely necessary for security and safety purposes, where possible lighting should avoid key periods of bat activity (i.e. sunset and sunrise).

Further technical details are given in the BCT and the Institute of Lighting Engineers' Bats and Lighting in the UK (2009) and Artificial lighting and Wildlife: Interim Guidance: Recommendations to help minimise the impact of artificial lighting (BCT, 2014). Both publications are available at http://www.bats.org.uk/pages/bats_and_lighting.html.

Retention and enhancement of habitat features for bats would be in accordance with LPC policy ENV3, parts B and E, which are concerned with protecting and enhancing biodiversity interest, and policy DM25 part A, which is concerned with protecting the biodiversity value of land and maximising opportunities for Cumbria LBAP species.



Red Squirrel

Red squirrels and their resting places are protected under the *Wildlife and Countryside Act 1981 (as amended)* and are listed as a 'species of principal importance' under Section 41 of the *NERC Act 2006*. Red squirrels are also listed on the Cumbria LBAP.

Red squirrels could potentially use Hedgerow 1 for foraging and potentially for dispersal to other suitable habitats to the north and east, although the suitability of the hedgerow for dispersal is reduced by the presence of a 15m section of low gorse and the presence of a more optimal continuous hedgerow, with greater tree cover, to the east of Kirkland Road. The trees within Hedgerow 1 were considered to have negligible potential for red squirrel dreys, due to the lack of adjacent cover and disturbance associated with Kirkland road.

As detailed above, parts of Hedgerow 1 will be translocated to new locations to create necessary access points and associated visibility splays for the development. As these works will take place in autumn and winter and due to the proximity of a denser hedgerow on the eastern side of Kirkland road, the impact on red squirrels is considered likely to be negligible. The long-term impact of creating two gaps in the hedgerow will be mitigated by the planting of standard trees at each end of the new gap. The trees will be allowed to mature and their canopies to touch, creating connectivity across the gap which could be exploited by red squirrels.

The new native species-rich hedgerows included in the landscape scheme for the site (Appendix D) provide enhancements for red squirrels by increasing potential food sources and connectivity through the site. Such improvement of the site for red squirrels is in accordance with LPC policy ENV 3 parts D and E, which are concerned with protecting and strengthening populations of protected species and enhancing wildlife corridors, and with policy DM25 part A, which is concerned with maximising opportunities for SPI and Cumbria LBAP species.

Badger

Badgers and their setts are protected under the *Protection of Badgers Act 1992*.

The following measures to protect badgers from harm during the construction phase of the development are recommended:

- Access ramps (plank of roughened wood) to be installed each night within any trench or pit to allow any badgers or other animals which may accidentally fall into the excavation a means of escape.
- Daily checks of the excavations to be made by construction staff prior to commencing work to ensure that no badgers, or other animals have become trapped in the excavations. Should a trapped badger or other animal be found a suitably experienced ecologist should be immediately contacted for advice.
- Any pipes with a diameter of greater than 200mm stored, or installed on site, to be covered or capped at night to reduce the risk of badgers or other animals becoming trapped inside.
- Should lighting of the site be required during the construction phase, then a sympathetic lighting scheme should also be implemented that avoids and / or minimises the artificial lighting of the habitats adjacent to the site.



- Avoid works at night where possible to minimise potential disturbance to badgers foraging / commuting nearby to the site.

Otter

The avoidance measures recommended above for badgers would provide an appropriate level of protection for otters during the construction phase of the development.

Pine Marten

The avoidance measures recommended above for badgers would provide an appropriate level of protection for pine marten during the construction phase of the development.

Birds

All wild birds, their nests and eggs are protected by the *Wildlife and Countryside Act 1981* (as amended).

The development will result in the removal of all of the semi-improved acid grassland and marshy grassland, which may provide nesting habitat for meadow pipit and a foraging resource for a small number of other common breeding bird species. Removal of approximately 1.2 ha of this habitat is considered unlikely to have a significant impact on local breeding bird populations.

The new native species-rich hedgerows included in the landscape scheme for the site (Appendix D) will provide enhancements for breeding birds by increasing potential food sources, nesting opportunities and connectivity through the site. Such improvement of the site for red squirrels is in accordance with LPC policy ENV 3 parts D and E, which are concerned with protecting and strengthening populations of protected species and enhancing wildlife corridors.

As the grassland and hedgerow habitats have the potential to support nesting birds, it is recommended that all clearance of vegetation takes place outside the bird breeding season, which is normally regarded as being between March and August (inclusive).

If restricting works to outside the bird nesting season is not possible, it is recommended that an ECoW conducts a check for nesting birds within the site in advance of any works commencing. If a nesting bird is identified, the ECoW will advise on suitable working methods and exclusion zones to avoid damage to the nest. The measures recommended will depend on the nature of the works in the area close to the nest, as well the nesting bird species, and could result in delays to undertaking site works within specific areas of site until all the chicks have fledged.

Other notable species

Common toad, hedgehog, polecat and brown hare are listed as 'species of principal importance' under Section 41 of the *NERC Act 2006*.

Common toad may occur on the site and it is recommended that site clearance staff are made aware of this, and that any toads found should be carefully placed (where capture is possible and humane) in a ventilated box using gloved hands and released into suitable nearby vegetation that will be unaffected by the proposed works.

There is a low potential for hedgehog to be found on the site. It is recommended that site clearance staff are made aware of this, and that any hedgehogs found should be carefully placed (where



capture is possible and humane) in a ventilated box using gloved hands and released into suitable nearby vegetation that will be unaffected by the proposed works. If injured or diseased animals are found, then the animal should be admitted to a wildlife hospital or centre for relocation by an ECoW. Hedgehogs should not be touched using non-gloved hands and should not be handled for longer than is necessary. Hedgehogs can carry ticks and fleas. Hands should be washed immediately after handling this species.

No brown hare, polecat or signs of activity of either species were recorded on site however the species is likely to be present in the wider area. Brown hare may occasionally forage within the site. Brown hare and polecat are protected by the Wild Mammal Protection (WMP) Act 1996 from cruelty and unnecessary harm. Therefore, it is recommended that their potential presence be noted by contractors on site and they are briefed accordingly. Any brown hares or polecats disturbed by site works should be allowed to disperse of their own accord and should not be caught or handled.

5.4 Good Practice for Site Clearance

It is recommended that contractors are briefed accordingly as to the potential presence of notable/protected species during the site induction. The induction should include advice on best practice with regard to all ecological issues in advance of any works commencing and should include the following recommendations to reduce the risk of harming or disturbing them during the works phase:

- Emergency procedure: In the unlikely event that a protected/notable species, evidence of these or its resting/nesting place is located during site clearance then works in that area must cease until further advice has been sought from an ecologist;
- Avoid works at night where possible to minimise disturbance and the impact of noise and light pollution to wildlife foraging / commuting nearby to the site. When works after dark cannot be avoided, any lighting should only be used where necessary and be designed to be sympathetic by minimising light spill on the habitats adjacent to the works areas;
- Daily checks of any excavations should be made by contractors prior to commencing work to ensure that no foxes, hedgehogs or other animals have become trapped in the excavations. Should a trapped protected/notable species be found within the works, WYG should be immediately contacted for advice;
- Consideration should be given to the placement of any gravel storage, or piles of materials that may create mounds suitable for digging (e.g. burrow creation). We would advise that any such piles are checked on a daily basis by contractor staff to ensure that no digging/burrowing activity has taken place. If the mounds are to be in place overnight, the safest approach may be to temporarily fence them to ensure that animals cannot access the fresh soil; and
- If injured or sickly animals are found, then the animal should be admitted to a wildlife hospital or centre for relocation.

5.5 Proposed Enhancements

Opportunities should be sought where possible for nature conservation enhancement of the site in line with current policy guidance (Department for Communities and Local Government, 2012). We



recommend that the landscaping scheme for the new development should aim to incorporate the following:

- Where practicable in the context of the aims of the development and health and safety considerations, management of the hedgerows should aim to enhance their suitability for breeding birds and bats. Management aims could include reducing the cutting frequency to allow outwards and upwards growth of the hedgerows and the planting up of any gaps with native species, particularly those which produce nectar and fruit.
- Any new areas of soft landscaping provided within the individual plots should be specified to include herbaceous and woody species that produce nectar/fruit at different times of the year, to provide additional habitats for invertebrates, birds and bats (a list of suitable species is provided in Appendix E).
- Any perimeter fences or garden fences should leave a 12cm gap at the base of the fence line to allow hedgehog access to the site.



6.0 Summary & Recommendations

6.1 Designated Sites

- Design of the drainage scheme to incorporate silt traps and oil interceptors;
- Discharges of treated and surface water drainage must be limited to normal greenfield rates;
- On-site treatment plant for foul sewage must meet water quality specified in EA Permit to discharge;
- Develop a CEMP, covering mitigation measures and suitable working practices to protect the River Ehen SAC/SSSI from run-off/pollution and designated sites in the wider area from potential dust generation during the construction phase.

6.2 Habitats

- Translocation of removed section of Hedgerow 1 to retain its overall length, with standard trees planted at each end of the translocated sections to offset the creation of the access point into the site and a further into the water treatment plant.
- Species-rich hedges with standard native trees of local provenance along the north-western and western boundaries of the site and surrounding the water treatment plant to be provided through the landscape scheme.
- Wildflower grassland edges to the water treatment plant to be provided through the landscape scheme.
- Mitigation measures and suitable working practices to protect retained habitats within the site and off-site habitats, including the adjacent residential gardens and the road verge and hedgerow on the opposite side of Kirkland Road to be included in the CEMP.

6.3 Protected & Notable Species

Bats

Roosting bats

- Tree 1 to be felled under reasonable avoidance measures (see Section 5.3).
- Retention of Tree 2, within the southern part of Hedgerow 1, and protection during construction through the implementation of appropriate buffer zones.

Foraging / commuting bats

- To maintain the potential foraging/commuting corridor along Kirkland road, translocation of removed section of Hedgerow 1 with standard trees planted at each end of the translocated sections as per the habitat mitigation outlined above.
- Provision of species-rich hedges with standard trees along the north-western and western boundaries of the site and surrounding the water treatment plant through the landscape scheme, to enhance the value of the site for foraging bats.
- Incorporation of a sympathetic lighting scheme into the development including no lighting of any of the retained habitats/boundary features.



Red Squirrel

- To maintain connectivity along Kirkland road, translocation of removed section of Hedgerow 1 with standard trees planted at each end of the translocated sections as per the habitat mitigation outlined above.
- Provision of species-rich hedges with standard native trees of local provenance along the north-western and western boundaries of the site and surrounding the water treatment plant through the landscape scheme, to enhance the value of the site for red squirrel.

Otter, Pine Marten and Badger

- As a precaution, provision of escape routes for mammals within all excavations left unattended overnight.
- Avoidance of works at night, or where necessary minimise construction phase lighting by using only directional lighting and avoid lighting of Hedgerow 1 and light-spill outside of the site boundaries.

Birds

- To ensure legal compliance, it is recommended that vegetation clearance and tree works be avoided during the bird nesting season (March to September inclusive) or, if necessary, preceded by a search for nesting birds by an ecologist.
- Species-rich hedges with standard trees along the north-western and western boundaries of the site and surrounding the water treatment plant to be provided through the landscape scheme, to enhance the value of the site for breeding birds.

Other Notable Species

Common Toad and West European hedgehog

- Personnel involved in vegetation clearance should be made aware of the potential presence of toads and hedgehogs and how to avoid harming them. Any animals found should be carefully captured, placed (where capture is possible and humane) in a ventilated box and released at a safe and suitable location. If a hedgehog is found and a safe release site is not available, or the animal is ill, then it should be taken to a wildlife hospital or centre for relocation.
- Provide 12cm gaps under any boundary and residential fences to allow hedgehogs access to the site post-development.

Brown Hare and Polecat

- Personnel involved in vegetation clearance should be made aware of the potential presence of brown hare and polecat and how to avoid harming them. Any animals found should be allowed to disperse off the site of their own accord.



7.0 References

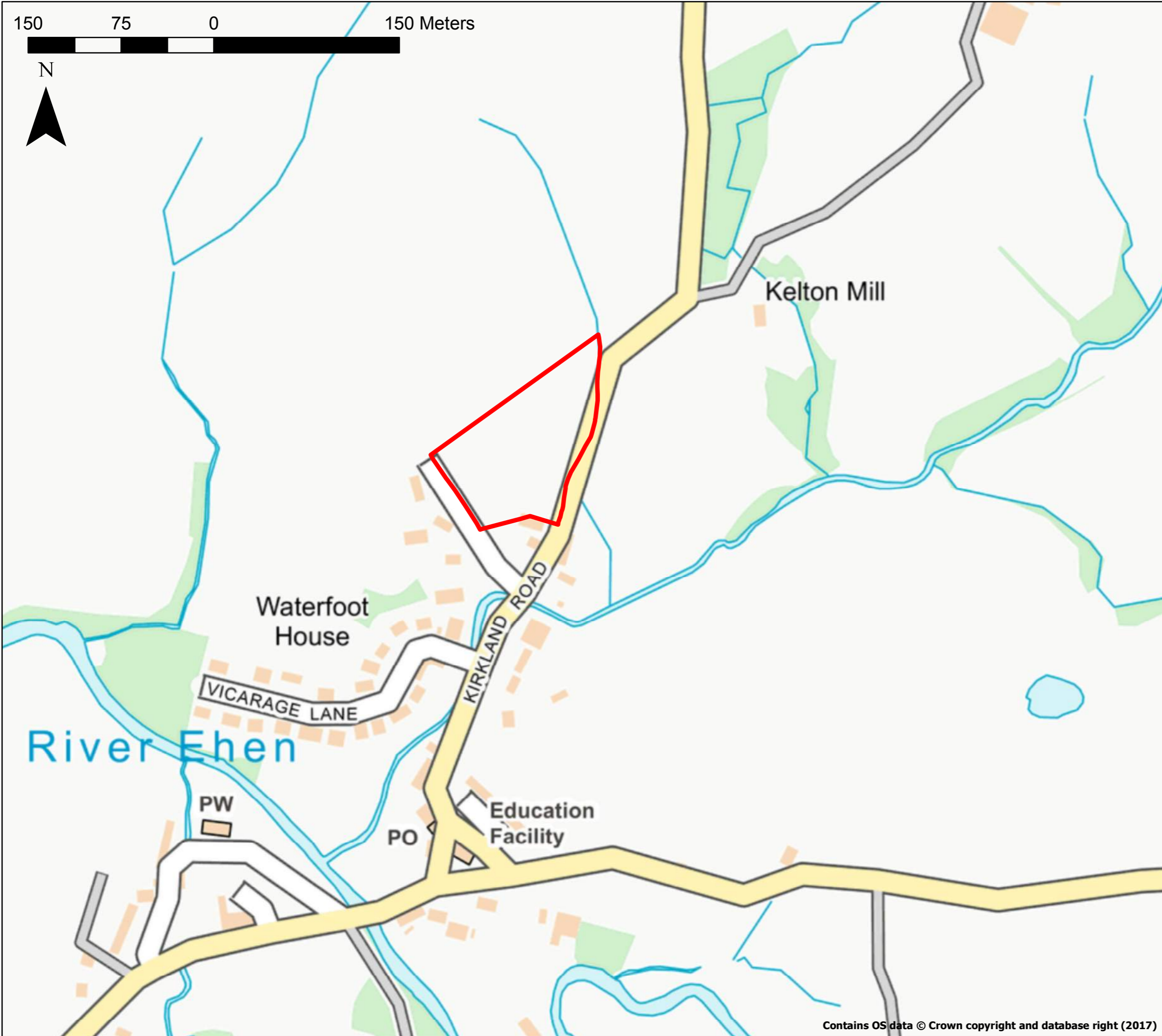
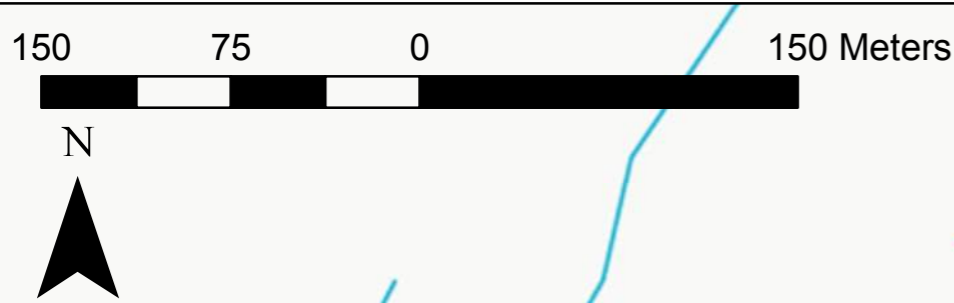
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FIGURES

Figure 1 – Site Location Plan

Figure 2 – Phase 1 Habitat Plan



Legend

Site Boundary

Quay West at MediaCityUK
 Trafford Wharf Road
 Trafford Park
 Manchester
 M17 1HH
 Tel: 0161 872 3223
 Fax: 0161 872 3193
 manchester.ecology@wyg.com

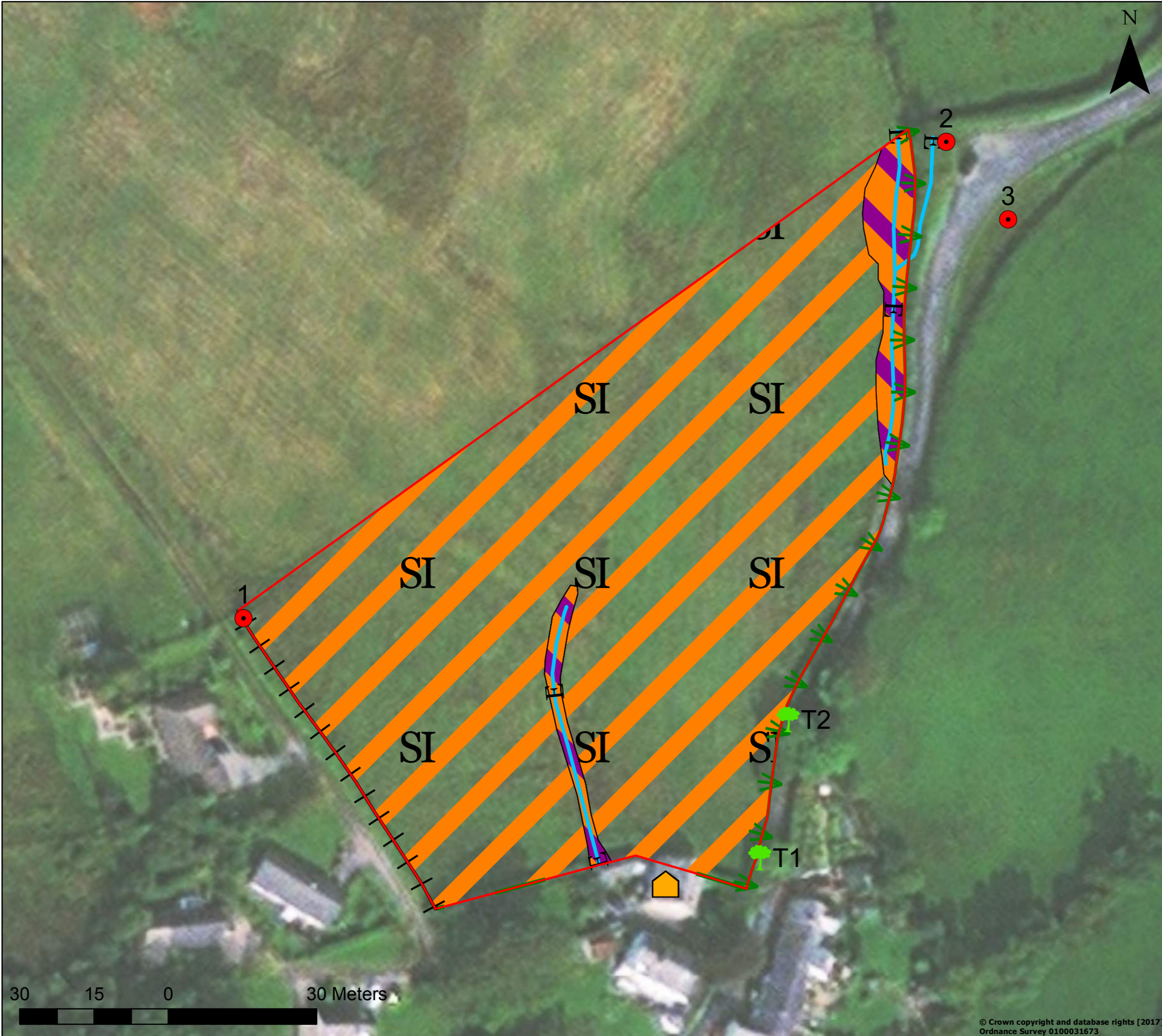


Environment

Project
 Land Adjacent to Kirkland Road, Ennerdale

Drawing Title:
 Site Location Plan

Drawn by:	Date:	Checked By:	Date:	Approved By:	Date:
ABI	10/08/17	PW	18/01/18	RK	30/01/18
Project No:	Office	Type	Drawing No.	Revision:	
A103748	-	-	Figure 1	00	



Legend

- Site Boundary
- Linear Features**
 - Running water
 - - - Species-poor hedgerow
 - Species-rich hedge with trees
 - Fence
- Habitats**
 - Semi-improved acid grassland
 - Marshy grassland
- Target Notes**
 - Target Notes
- Trees (Bat roost suitability)**
 - Low
- Buildings (bat roost suitability)**
 - Moderate

Quay West at MediaCityUK
 Trafford Wharf Road
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 Fax: 0161 872 3193
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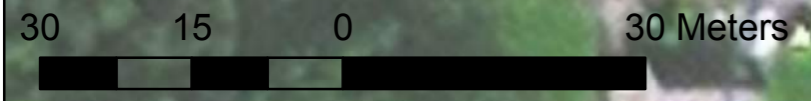


Environment

Project
 Kirkland Road, Ennerdale

Drawing Title:
 Phase 1 Habitat Map

Drawn by:	Date:	Checked By:	Date:	Approved By:	Date:
ABI	10/08/17	PW	18/01/18	RK	30/01/18
Project No:	Office	Type	Drawing No.	Revision:	
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Appendix A – Wildlife Legislation



Bern Convention

The *Convention on the Conservation of European Wildlife and Natural Habitats* (the *Bern Convention*) was adopted in Bern, Switzerland in 1979, and was ratified in 1982. Its aims are to protect wild plants and animals and their habitats listed in Appendices 1 and 2 of the of the Convention, and regulate the exploitation of speices listed in Appendix 3. The regulation imposes legal obligations on participating countires to protect over 500 plant species and more than 1000 animals.

To meet its obligations imposed by the Convention, the European Community adopted the *EC Birds Directive* (1979) and the *EC Habitats Directive* (1992 – see below). Since the Lisbon Treaty, in force since 1st December 2009, European legislation has been adopted by the European Union.

Bonn Convention

The Convention on the Conservation of Migratory Species of Wild Animals or 'Bonn Convention' was adopted in Bonn, Germany in 1979 and came into force in 1985. Participating states agree to work together to preserve migratory species and their habitats by providing strict protection to species listed in Appendix I of the Convention. It also establishes agreements for the conservation and management of migratory species listed in Appendix II.

In the UK, the requirements of the convention are implemented via the Wildlife & Countryside Act 1981 (as amended), Wildlife (Northern Ireland) Order 1985 (as amended), Nature Conservation and Amenity Lands (Northern Ireland) Order 1985 and the Countryside and Rights of Way Act 2000 (CRoW).

Habitats Directive

The Council Directive 92/43/EEC on the Conservation of Natural Habitats and of Wild Fauna and Fora, or the 'Habitats Directive', is a European Union directive adopted in 1992 in response to the Bern Convention. Its aims are to protect approximately 220 habitats and 1,000 species listed in its several Annexes.

In the UK, the Habitats Directive is transposed into national law via the Conservation of Habitats and Species Regulations 2010 (as amended) in England and Wales, and via the Conservation (Natural Habitats, &c) Regulations (Northern Ireland) 1995 (as amended) in Northern Ireland.

Birds Directive

The EC Directive on the Conservation of Wild Birds (791409/EEC) or 'Birds Directive' was introduced to achieve favourable conservation status of all wild bird species across their distribution range. In this context, the most important provision is the identification and classification of Special Protection Areas (SPAs) for rare or vulnerable species listed in Annex 1 of the Directive, as well as for all regularly occurring migratory species, paying particular attention to the protection of wetlands of international importance.



Conservation of Habitats and Species Regulations 2010 (as amended)

Regulations place a duty on the Secretary of State to propose a list of sites which are important for either habitats or species (listed in Annexes I or II of the Habitats Directive respectively) to the European Commission. These sites, if ratified by the European Commission, are then designated as Special Protection Areas (SPAs) within six years. Amendments made in 2012 stipulated that public bodies help preserve, maintain and re-establish habitats for wild birds.

The Regulations also make it an offence to deliberately capture, kill, disturb or trade in the animals listed in Schedule 2, or pick, uproot, destroy, or trade in the plants listed in Schedule 5 - see below:

Schedule 2 – European Protected Species of Animals	Schedule 5 – European Protected Species of Plants
Horseshoe bats <i>Rhinolophidae</i> - all species	Shore dock <i>Rumex rupestris</i>
Common bats <i>Vespertilionidae</i> - all species	Killarney fern <i>Trichomanes speciosum</i>
Wild cat <i>Felis silvestris</i>	Early gentian <i>Gentianella anglica</i>
Dolphins, porpoises and whales <i>Cetacea</i> – all sp.	Lady’s-slipper <i>Cypripedium calceolus</i>
Dormouse <i>Muscardinus avellanarius</i>	Creeping marshwort <i>Apium repens</i>
Pool frog <i>Rana lessonae</i>	Slender naiad <i>Najas flexilis</i>
Sand lizard <i>Lacerta agilis</i>	Fen orchid <i>Liparis loeselii</i>
Fisher’s estuarine moth <i>Gortyna borelii lunata</i>	Floating-leaved water plantain <i>Luronium natans</i>
Great crested newt <i>Triturus cristatus</i>	Yellow marsh saxifrage <i>Saxifraga hirculus</i>
Otter <i>Lutra lutra</i>	
Lesser whirlpool ram’s-horn snail <i>Anisus vorticulus</i>	
Smooth snake <i>Coronella austriaca</i>	
Sturgeon <i>Acipenser sturio</i>	
Natterjack toad <i>Epidalea calamita</i>	
Marine turtles <i>Caretta caretta</i> , <i>Chelonia mydas</i> , <i>Lepidochelys kempii</i> , <i>Eretmochelys imbricata</i> , <i>Dermochelys coriacea</i>	

Wildlife & Countryside Act 1981 (as amended)

This is the principal mechanism for the legislative protection of wildlife in the UK. This legislation is the chief means by which the ‘Bern Convention’ and the Birds Directive are implemented in the UK. Since it was first introduced, the Act has been amended several times.

The Act makes it an offence to (with exception to species listed in Schedule 2) intentionally:

- kill, injure, or take any wild bird;
- take, damage or destroy the nest of any wild bird while that nest is in use; or
- take or destroy an egg of any wild bird.

Or to intentionally do the following to a wild bird listed in Schedule 1:

- disturbs any wild bird while it is building a nest or is in, on or near a nest containing eggs or young; or
- disturbs dependent young of such a bird.

In addition, the Act makes it an offence (subject to exceptions) to:

- intentionally or recklessly kill, injure or take any wild animal listed on Schedule 5;



- interfere with places used for shelter or protection, or intentionally disturbing animals occupying such places; and
- The Act also prohibits certain methods of killing, injuring, or taking wild animals.

Finally, the Act also makes it an offence (subject to exceptions) to:

- intentionally pick, uproot or destroy any wild plant listed in Schedule 8, or any seed or spore attached to any such wild plant;
- unless an authorised person, intentionally uproot any wild plant not included in Schedule 8; or
- sell, offer or expose for sale, or possess (for the purposes of trade), any live or dead wild plant included in Schedule 8, or any part of, or anything derived from, such a plant.

Following all amendments to the Act, Schedule 5 'Animals which are Protected' contains a total of 154 species of animal, including several mammals, reptiles, amphibians, fish and invertebrates – see below for the full list. Schedule 8 'Plants which are Protected' of the Act, contains 185 species, including higher plants, bryophytes and fungi and lichens. A comprehensive and up-to-date list of these species can be obtained from the JNCC website.

Part 14 of the Act makes unlawful to plant or otherwise cause to grow in the wild any plant which is listed in Part II of Schedule 9. It is recommended that plant material of these species is disposed of as bio-hazardous waste, and these plants should not be used in planting schemes.

Schedule 1 - Birds which are protected by special penalties

Avocet	<i>Recurvirostra avosetta</i>	Osprey	<i>Pandion haliaetus</i>
Bee-eater	<i>Merops apiaster</i>	Owl, Barn	<i>Tyto alba</i>
Bittern	<i>Botaurus stellaris</i>	Owl, Snowy	<i>Nyctea scandiaca</i>
Bittern, Little	<i>Ixobrychus minutus</i>	Peregrine	<i>Falco peregrinus</i>
Bluethroat	<i>Luscinia svecica</i>	Petrel, Leach's	<i>Oceanodroma leucorhoa</i>
Brambling	<i>Fringilla montifringilla</i>	Phalarope, Red-necked	<i>Phalaropus lobatus</i>
Bunting, Cirl	<i>Emberiza cirrus</i>	Plover, Kentish	<i>Charadrius alexandrinus</i>
Bunting, Lapland	<i>Calcarius lapponicus</i>	Plover, Little Ringed	<i>Charadrius dubius</i>
Bunting, Snow	<i>Plectrophenax nivalis</i>	Quail, Common	<i>Coturnix coturnix</i>
Buzzard, Honey	<i>Pernis apivorus</i>	Redstart, Black	<i>Phoenicurus ochruros</i>
Capercaillie	<i>Tetrao urogallus</i>	Redwing	<i>Turdus iliacus</i>
Chough	<i>Pyrrhocorax pyrrhocorax</i>	Rosefinch, Scarlet	<i>Carpodacus erythrinus</i>
Corncrake	<i>Crex crex</i>	Ruff	<i>Philomachus pugnax</i>
Crake, Spotted	<i>Porzana porzana</i>	Sandpiper, Green	<i>Tringa ochropus</i>
Crossbills (all species)	<i>Loxia</i>	Sandpiper, Purple	<i>Calidris maritima</i>
Curlew, Stone	<i>Burhinus oediconemus</i>	Sandpiper, Wood	<i>Tringa glareola</i>
Divers (all species)	<i>Gavia</i>	Scaup	<i>Aythya marila</i>
Dotterel	<i>Charadrius morinellus</i>	Scoter, Common	<i>Melanitta nigra</i>
Duck, Long-tailed	<i>Clangula hyemalis</i>	Scoter, Velvet	<i>Melanitta fusca</i>
Eagle, Golden	<i>Aquila chrysaetos</i>	Serin	<i>Serinus serinus</i>
Eagle, White-tailed	<i>Haliaetus albicilla</i>	Shorelark	<i>Eremophila alpestris</i>
Falcon, Gyr	<i>Falco rusticolus</i>	Shrike, Red-backed	<i>Lanius collurio</i>
Fieldfare	<i>Turdus pilaris</i>	Spoonbill	<i>Platalea leucorodia</i>
Firecrest	<i>Regulus ignicapillus</i>	Stilt, Black-winged	<i>Himantopus himantopus</i>
Garganey	<i>Anas querquedula</i>	Stint, Temminck's	<i>Calidris temminckii</i>
Godwit, Black-tailed	<i>Limosa limosa</i>	Swan, Bewick's	<i>Cygnus bewickii</i>
Goshawk	<i>Accipiter gentilis</i>	Swan, Whooper	<i>Cygnus cygnus</i>
Grebe, Black-necked	<i>Podiceps nigricollis</i>	Tern, Black	<i>Chlidonias niger</i>



Grebe, Slavonian	<i>Podiceps auritus</i>	Tern, Little	<i>Sterna albifrons</i>
Greenshank	<i>Tringa nebularia</i>	Tern, Roseate	<i>Sterna dougallii</i>
Gull, Little	<i>Larus minutus</i>	Tit, Bearded	<i>Panurus biarmicus</i>
Gull, Mediterranean	<i>Larus melanocephalus</i>	Tit, Crested	<i>Parus cristatus</i>
Harriers (all species)	<i>Circus</i>	Treecreeper, Short-toed	<i>Certhia brachydactyla</i>
Heron, Purple	<i>Ardea purpurea</i>	Warbler, Cetti's	<i>Cettia cetti</i>
Hobby	<i>Falco subbuteo</i>	Warbler, Dartford	<i>Sylvia undata</i>
Hoopoe	<i>Upupa epops</i>	Warbler, Marsh	<i>Acrocephalus palustris</i>
Kingfisher	<i>Alcedo atthis</i>	Warbler, Savi's	<i>Locustella luscinioides</i>
Kite, Red	<i>Milvus milvus</i>	Whimbrel	<i>Numenius phaeopus</i>
Merlin	<i>Falco columbarius</i>	Woodlark	<i>Lullula arborea</i>
Oriole, Golden	<i>Oriolus oriolus</i>	Wryneck	<i>Jynx torquilla</i>
Schedule 5- Animals which are protected			
Adder (re: S.9(5) only)	<i>Vipera berus</i>	Lagoon Worm, Tentacled (re: S.9(4)(a) only)	<i>Alkmaria romijni</i>
Allis Shad (re: S.9(1) & (4)(a) only)	<i>Alosa alosa</i>	Leech, Medicinal	<i>Hirudo medicinalis</i>
Anemone, Ivell's Sea	<i>Edwardsia ivelli</i>	Lizard, Sand (re: S.9(4)(b) & (c) & (5) only)	<i>Lacerta agilis</i>
Anemone, Startlet Sea	<i>Nematosella vectensis</i>	Lizard, Viviparous (re: S.9(5) only)	<i>Lacerta vivipara</i>
Apus	<i>Triops cancriformis</i>	Marten, Pine	<i>Martes martes</i>
Bats, Horseshoe (all sp. but re: S.9(4)(b) & (c) & (5) only)	<i>Rhinolophidae</i>	Mat. Trembling Sea	<i>Victorella pavidia</i>
Bats, Typical (all sp. but re: S.9(4)(b) & (c) & (5) only)	<i>Vespertilionidae</i>	Moth, Barberray Carpet	<i>Pareulype berberata</i>
Beetle	<i>Graphoderus zonatus</i>	Moth, Black-veined	<i>Siona lineata / Idaeia lineata</i>
Beetle	<i>Hypebaeus flavipes</i>	Moth, Fiery Clearwing	<i>Bembecia chrysidiformis</i>
Beetle	<i>Paracymus aeneus</i>	Moth, Fisher's Estuarine (re: S.9(4)(b) & (c) & (5) only)	<i>Gortyna borelii</i>
Beetle, Lesser Silver Water	<i>Hydrochara caraboides</i>	Moth, New Forest Burnet	<i>Zygaena viciae</i>
Beetle, Mire Pill (re: S.9(4)(a) only)	<i>Curimopsis nigrita</i>	Moth, Reddish Buff	<i>Acosmetia caliginosa</i>
Beetle, Rainbow Leaf	<i>Chrysolina cerealis</i>	Moth, Slender Scotch Burnet (re: S.9(5) only)	<i>Zygaena loti subspecies scotica</i>
Beetle, Stag (re: S.9(5) only)	<i>Lucanus cervus</i>	Moth, Sussex Emerald	<i>Thalera fimbrialis</i>
Beetle, Violet Click	<i>Limoniscus violaceus</i>	Moth, Talisker Burnet (re: S.9(5) only)	<i>Zygaena loniceriae subspecies jocelynae</i>
Burbot	<i>Lota lota</i>	Mussel, Fan (re: S.9(1), (2) & (5) only)	<i>Atrina fragilis</i>
Butterfly, Northern Brown Argus	<i>Aricia artaxerxes</i>	Mussel, Freshwater Pearl	<i>Margaritifera margaritifera</i>
Butterfly, Adonis Blue	<i>Lysandra bellargus</i>	Newt, Great Crested or Warty (re: S.9(4)(b) & (c) & (5) only)	<i>Triturus cristatus</i>
Butterfly, Chalkhill Blue	<i>Lysandra coridon</i>	Newt, Palmate (re: S.9(5) only)	<i>Triturus helveticus</i>
Butterfly, Silver-studded Blue	<i>Plebejus argus</i>	Newt, Smooth (re: S.9(5) only)	<i>Triturus vulgaris</i>
Butterfly, Small Blue	<i>Cupido minimus</i>	Otter, Common (re: S.9(4)(b) & (c) & (5) only)	<i>Lutra lutra</i>
Butterfly, Large Copper	<i>Lycaena dispar</i>	Porpoises (all species but re: S.9(5) only)	<i>Cetacea</i>
Butterfly, Purple Emperor	<i>Apatura iris</i>	Sandworm, Lagoon	<i>Armandia cirrhosa</i>
Butterfly, Duke of Burgandy Fritillary	<i>Hamearis lucina</i>	Sea Fan, Pink (re: S.9(1), 9(2) & 9(5) only)	<i>Eunicella verrucosa</i>
Butterfly, Glanville Fritillary	<i>Melitaea cinxia</i>	Seahorse, Short Snouted (re: England & Wales only)	<i>Hippocampus hippocampus</i>
Butterfly, Heath Fritillary	<i>Mellicta athalia Melitaea athalia</i>	Seahorse, Spiny (re: England & Wales only)	<i>Hippocampus guttulatus</i>
Butterfly, High Brown Fritillary	<i>Argynnis adippe</i>	Sea Slug, Lagoon	<i>Tenellia adpersa</i>
Butterfly, Marsh Fritillary	<i>Eurodryas aurinia</i>	Shad, Twaite (re: S.9(1) & (4)(a) only)	<i>Alosa fallax</i>



Butterfly, Pearl-bordered Fritillary <i>Boloria euphrosyne</i>	Shark, Angel (re: S.9(1), (2) & (5) only) <i>Squatina squatina</i>
Butterfly, Black Hairstreak <i>Strymonidia pruni</i>	Shark, Basking <i>Cetorhinus maximus</i>
Butterfly, Brown Hairstreak <i>Thecla betulae</i>	Shrimp, Fairy <i>Chirocephalus diaphanus</i>
Butterfly, White Letter Hairstreak <i>Stymonida w-album</i>	Shrimp, Lagoon Sand (re: S.9(4)(a) only) <i>Gammarus insensibilis</i>
Butterfly, Large Heath <i>Coenonympha tullia</i>	Skate, White (re: S.9(1), (2) & (5) only) <i>Rostroraja alba</i>
Butterfly, Large Blue (re: S.9(4)(b) & (c) & (5) only) <i>Maculinea arion</i>	Slow-worm (re: S.9(5) only) <i>Anguis fragilis</i>
Butterfly, Mountain Ringlet <i>Erebia epiphron</i>	Snail, Glutinous <i>Myxas glutinosa</i>
Butterfly, Chequered Skipper <i>Carterocephalus palaemon</i>	Snail, Roman (in re: S.9(1), (2) & (5) only & in England & Wales only) <i>Helix pomatia</i>
Butterfly, Lulworth Skipper <i>Thymelicus acteon</i>	Snail, Sandbowl <i>Catinella arenaria</i>
Butterfly, Silver Spotted Skipper <i>Hesperia comma</i>	Snake, Grass (re: S.9(5) only) <i>Natrix helvetica</i> / <i>Natrix natrix</i>
Butterfly, Swallowtail <i>Papilio machaon</i>	Snake, Smooth (re: S.9(4)(b) & (c) & (5) only) <i>Coronella austriaca</i>
Butterfly, Large tortoiseshell <i>Nymphalis polychloros</i>	Spider, Fen Raft <i>Dolomedes plantarius</i>
Butterfly, Wood White <i>Leptidea sinapis</i>	Spider, Ladybird <i>Eresus niger</i>
Cat, Wild (re: S.9(4)(b) & (c) & (5) only) <i>Felis silvestris</i>	Squirrel, Red <i>Sciurus vulgaris</i>
Cicada, New Forest <i>Cicadetta montana</i>	Sturgeon (re: S.9(4)(b) & (c) & (5) only) <i>Acipenser sturio</i>
Crayfish, Atlantic Stream or White-clawed <i>Austropotamobius pallipes</i>	Toad, Common (re: S.9(5) only) <i>Bufo bufo</i>
Cricket, Field <i>Gryllus campestris</i>	Toad, Natterjack (re: S.9(4)(b) & (c) & (5) only) <i>Bufo calamita</i>
Cricket, Mole <i>Gryllotalpa gryllotalpa</i>	Turtle, Flatback <i>Natator depressus</i>
Damselfly, Southern <i>Coenagrion mercuriale</i>	Turtle, Green Sea (re: S.9(4)(b) & (c) & (5) only) <i>Chelonia mydas</i>
Dolphins (re: S.9(4A) & (5) only) <i>Cetacea</i>	Turtle, Hawksbill (re: S.9(4)(b) & (c) & (5) only) <i>Eretmochelys imbricata</i>
Dormouse (re: S.9(4)(b) & (c) & (5) only) <i>Muscardinus avellanarius</i>	Turtle, Kemp's Ridley Sea (re: S.9(4)(b) & (c) & (5) only) <i>Lepidochelys kempii</i>
Dragonfly, Norfolk Aeshna <i>Aeshna isosceles</i>	Turtle, Leatherback Sea (re: S.9(4)(b) & (c) & (5) only) <i>Dermochelys coriacea</i>
Frog, Common (re: S.9(5) only) <i>Rana temporaria</i>	Turtle, Loggerhead Sea (re: S.9(4)(b) & (c) & (5) only) <i>Caretta caretta</i>
Frog, Pool (Northern Clade) (re: S.9(4)(b) & (c)(1) & in England only) <i>Pelophylax lessonae</i>	Turtle, Olive Ridley <i>Lepidochelys olivacea</i>
Goby, Couch's <i>Gobius couchii</i>	Vendace <i>Coregonus albula</i>
Goby, Giant <i>Gobius cobitis</i>	Vole, Water <i>Arvicola terrestris</i> / <i>Arvicola terrestris</i>
Grasshopper, Wart-biter <i>Decticus verrucivorus</i>	Walrus <i>Odebenus rosmarus</i>
Hatchet Shell, Northern <i>Thyasira gouldi</i>	Whale (all sp. but re: S.9(4A) & (5) only) <i>Cetacea</i>
Hydroid, Marine <i>Clavopsella navis</i>	Whitefish <i>Coregonus lavaretus</i>
Lagoon Snail, De Folin's <i>Caecum armoricum</i>	Lagoon Worm, Tentacled (re: S.9(4)(a) only) <i>Alkmaria romijni</i>
Adder (re: S.9(5) only) <i>Vipera berus</i>	
Schedule 9 – List of Invasive plant species	
Australian swamp stonecrop or New Zealand pygmyweed <i>Crassula helmsii</i>	Japanese rose <i>Rosa rugosa</i>
Californian red seaweed <i>Pikea californica</i>	Japanese seaweed <i>Sargassum muticum</i>
Curly waterweed <i>Lagarosiphon major</i>	Laver seaweeds (except native species) <i>Porphyra</i> spp



Duck potato	<i>Sagittaria latifolia</i>	Parrot's-feather	<i>Myriophyllum aquaticum</i>
Entire-leaved cotoneaster	<i>Cotoneaster integrifolius</i>	Perfoliate alexanders	<i>Smyrnum perfoliatum</i>
False Virginia creeper	<i>Parthenocissus inserta</i>	Pontic rhododendron	<i>Rhododendron ponticum</i>
Fanwort or Carolina water-shield	<i>Cabomba caroliniana</i>	Purple dewplant	<i>Disphyma crassifolium</i>
Few-flowered garlic	<i>Allium paradoxum</i>	Red algae	<i>Grateloupia luxurians</i>
Floating pennywort	<i>Hydrocotyle ranunculoides</i>	Rhododendron	<i>Rhododendron ponticum</i> × <i>Rhododendron maximum</i>
Floating water primrose	<i>Ludwigia peploides</i>	Small-leaved cotoneaster	<i>Cotoneaster microphyllus</i>
Giant hogweed	<i>Heracleum mantegazzianum</i>	Three-cornered garlic	<i>Allium triquetrum</i>
Giant kelp	<i>Macrocystis</i> spp.	Variegated yellow archangel	<i>Lamiastrum galeobdolon</i> subsp. <i>argentatum</i>
Giant knotweed	<i>Fallopia sachalinensis</i>	Virginia creeper	<i>Parthenocissus quinquefolia</i>
Giant rhubarb	<i>Gunnera tinctoria</i>	Wakame	<i>Undaria pinnatifida</i>
Giant salvinia	<i>Salvinia molesta</i>	Wall cotoneaster	<i>Cotoneaster horizontalis</i>
Green seafringers	<i>Codium fragile</i>	Water fern	<i>Azolla filiculoides</i>
Himalayan cotoneaster	<i>Cotoneaster simonsii</i>	Water hyacinth	<i>Eichhornia crassipes</i>
Hollyberry cotoneaster	<i>Cotoneaster bullatus</i>	Water lettuce	<i>Pistia stratiotes</i>
Hooked asparagus seaweed	<i>Asparagopsis armata</i>	Water primrose	<i>Ludwigia grandiflora</i>
Hottentot fig	<i>Carpobrotus edulis</i>	Water primrose	<i>Ludwigia uruguayensis</i>
Hybrid knotweed	<i>Fallopia japonica</i> × <i>Fallopia sachalinensis</i>	Waterweeds	<i>Elodea</i> spp.
Indian (Himalayan) balsam	<i>Impatiens glandulifera</i>	Yellow azalea	<i>Rhododendron luteum</i>
Japanese knotweed	<i>Fallopia japonica</i>		

Protection of Badgers Act 1992

The main legislation protecting badgers in England and Wales is the Protection of Badgers Act 1992 (the 1992 Act). Under the 1992 Act it is an offence to: wilfully kill, injure, take or attempt to kill, injure or take a badger; dig for a badger; interfere with a badger sett by, damaging a sett or any part thereof, destroying a sett, obstructing access to a sett, causing a dog to enter a sett or disturbing a badger while occupying a sett.

The 1992 Act defines a badger sett as: "any structure or place which displays signs indicating current use by a badger"

Natural Environment and Rural Communities Act 2006

Section 41 (S41) of this Act requires the Secretary of State to publish a list (in consultation with Natural England) of Habitats and Species which are of Principal Importance for the conservation of biodiversity in England. The S41 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 Natural Environment and Rural Communities (NERC) Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal (e.g. planning) functions. The S41 list includes 65 Habitats of Principal Importance and 1,150 Species of Principal Importance.



Hedgerow Regulations 1997

The Hedgerow Regulations were made under Section 97 of the Environment Act 1995 and came into force in 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. Important hedgerows are defined by complex assessment criteria, which draw on biodiversity features, historical context and the landscape value of the hedgerow.

Birds of Conservation Concern

This is a review of the status of all birds occurring regularly in the United Kingdom. It is regularly updated and is prepared by leading bird conservation organisations, including the British Trust for Ornithology (BTO), Joint Nature Conservation Committee (JNCC) and The Royal Society for the Protection of Birds (RSPB).

The latest report was produced in 2015 (Eaton *et al*, 2015) and identified 67 red list species, 96 amber species, and 81 green species. The criteria are complex, but generally:

- **Red list** species are those that have shown a decline of the breeding population, non-breeding population or breeding range of more than 50% in the last 25 years.
- **Amber list** species are those that have shown a decline of the breeding population, non-breeding population or breeding range of between 25% and 50% in the last 25 years. Species that have a UK breeding population of less than 300 or a non-breeding population of less than 900 individuals are also included, together with those whose 50% of the population is localised in 10 sites or fewer and those whose 20% of the European population is found in the UK.
- **Green list** species are all regularly occurring species that do not qualify under any of the red or amber criteria are green listed

Global IUCN Red List

The International Union for Conservation of Nature (IUCN) Threatened Species was devised to provide a list of those species that are most at risk of becoming extinct globally. It provides taxonomic, conservation status and distribution information about threatened taxa around the globe.

The system catalogues threatened species into groups of varying levels of threat, which are: Extinct (EX), Extinct in the Wild (EW), Critically Endangered (CE), Endangered (EN), Vulnerable (VU), Near Threatened (NT), Least Concern (LC), Data Deficient (DD), Not Evaluated (NE). Criteria for designation into each of the categories is complex, and consider several principles.

Local Biodiversity Action Plan (LBAP)

Local Biodiversity Action Plans (LBAP) identify habitat and species conservation priorities at a local level (typically at the County level), and are usually drawn up by a consortium of local Government organisations and conservation charities.

Some LBAP's may also include Habitat Action Plans (HAP) and/or Species Action Plans (SAP), which are used to guide and inform the local decision making process.



Wild Mammals (Protection) Act 1996

This Act offers protects a form of protection to all wild species of mammals, irrespective of other legislation, and focussed on animal welfare, rather than conservation.

Unless covered by one of the exceptions, a person is guilty of an offence if he mutilates, kicks, beats, nails or otherwise impales, stabs, burns, stones, crushes, drowns, drags or asphyxiates any wild mammal with intent to inflict unnecessary suffering.

It's application is typically restricted to preventing deliberate harm to wildlife (in general) during construction works etc.



Appendix B – Desk Study Data



Table B1: Records of Notable Bird Species Within 2km of the Site

Common Name	Scientific Name	Status	No. of Records
Common Gull	<i>Larus canus</i>	BoCC Amber List	2
Cuckoo	<i>Cuculus canorus</i>	BoCC Red List, S41, LBAP	1
Curlew	<i>Numenius arquata</i>	BoCC Red List, S41, LBAP	3
Dipper	<i>Cinclus cinclus</i>	BoCC Amber List	1
Dunnock	<i>Prunella modularis</i>	BoCC Amber List, LBAP	4
Grey Wagtail	<i>Motacilla cinerea</i>	BoCC Red List	2
Greylag Goose	<i>Anser anser</i>	Sched 1 (part 2), BoCC Amber List	1
Herring Gull	<i>Larus argentatus</i>	BoCC Red List	7
House Martin	<i>Delichon urbicum</i>	BoCC Amber List	2
House Sparrow	<i>Passer domesticus</i>	BoCC Red List, S41, LBAP	10
Kestrel	<i>Falco tinnunculus</i>	BoCC Amber List	3
Lapwing	<i>Vanellus vanellus</i>	BoCC Red List, S41, LBAP	1
Lesser Black-backed Gull	<i>Larus fuscus</i>	BoCC Amber List	1
Linnet	<i>Linaria cannabina</i>	BoCC Red List, LBAP	2
Mallard	<i>Anas platyrhynchos</i>	BoCC Amber List	2
Meadow Pipit	<i>Anthus pratensis</i>	BoCC Amber List	3
Mistle Thrush	<i>Turdus viscivorus</i>	BoCC Red List	2
Pink-footed Goose	<i>Anser brachyrhynchus</i>	BoCC Amber List	1
Redstart	<i>Phoenicurus phoenicurus</i>	BoCC Amber List	4
Redwing	<i>Turdus iliacus</i>	Sched 1, BoCC Red List	1
Reed Bunting	<i>Emberiza schoeniclus</i>	BoCC Amber List, S41, LBAP	1
Skylark	<i>Alauda arvensis</i>	BoCC Red List, S41, LBAP	3
Song Thrush	<i>Turdus philomelos</i>	BoCC Red List, LBAP	6
Spotted Flycatcher	<i>Muscicapa striata</i>	BoCC Red List, S41, LBAP	1
Starling	<i>Sturnus vulgaris</i>	BoCC Red List, LBAP	4
Stock Dove	<i>Columba oenas</i>	BoCC Amber List	2
Swift	<i>Apus apus</i>	BoCC Amber List	1
Tree Sparrow	<i>Passer montanus</i>	BoCC Red List, S41, LBAP	1
Whooper Swan	<i>Cygnus cygnus</i>	Annex 1, Sched 1, BoCC Amber List	1
Willow Warbler	<i>Phylloscopus trochilus</i>	BoCC Amber List	4
Woodcock	<i>Scolopax rusticola</i>	BoCC Red List	1



Common Name	Scientific Name	Status	No. of Records
Yellowhammer	<i>Emberiza citrinella</i>	BoCC Red List, S41, LBAP	1
<p>Key: Annex 1: Species listed on Annex 1 of the Eu Birds Directive Sched 1: Birds protected under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). BoCC Red and Amber Lists: Birds of Conservation Concern 4 (Eaton <i>et al.</i>, 2015). S41: Species listed under section 41 of the Natural Environment and Rural Communities Act 2006. LBAP: Species listed within the Cumbria Local Biodiversity Action Plan</p>			



FIGURES

Figure 1 – County Wildlife Site Locations

Cumbria Biodiversity Data Centre (CBDC): Non-Statutory Sites Search



For: Alistair Blackshaw at WYG

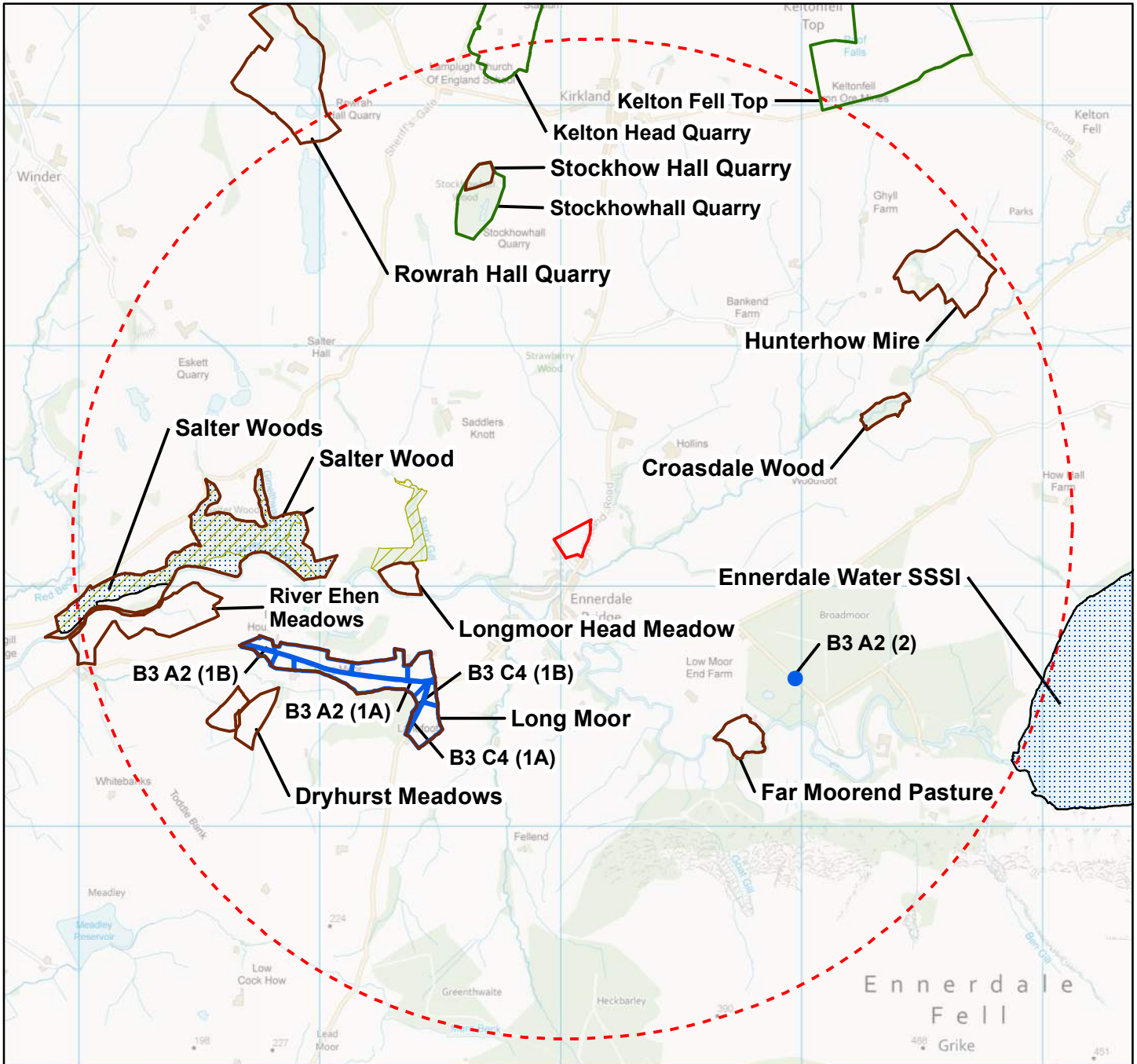
Centroid: NY 07074 16166

Site Name: Land Adjacent to Kirkland Road, Ennerdale

Search Buffer: 2km

Search Date: 08/08/2017

N.B. Sites are displayed only if they exist within the search area



Key
— Site Boundary
- - - 2km Buffer

County Wildlife Sites

Local Geological Sites

Special Roadside Verges

Site of Invertebrate Significance

Ancient Woodland

0 250 500 1,000
 Metre




Any queries in the first instance contact:
 Dr Moustafa Eweda
 Biological Data Officer
 Cumbria Biodiversity Data Centre (CBDC)
 T. 01228 618770
 E. dataofficer@cbdc.org.uk





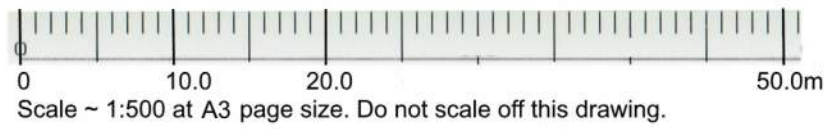
Appendix C – Target Notes



Target Note	Description	Photograph
1	Small ash tree – negligible bat roost suitability	
2	Small stream adjacent to lay-by	
3	Species-rich verge	



Appendix D – Landscape Scheme Details



Woodland on northern up-slope of development frames it and "backdrops" new rooftops. Where necessary, trees are planted offsite, to avoid being too close to windows of new homes

Semi-native hedges and trees at bend in road creates a green view into the road and improves amenity for new residents

New native field hedgerow defines and encloses the proposed development, provides a backdrop to new dwellings, and supports local landscape character by strengthening the field pattern in a currently large, sprawling field.

Trees within site soften appearance of development and break up appearance of roofs when seen from higher viewpoints in Lake District fells

Use of mainly native local species with occasional more ornamental, statuesque specimens (as are found elsewhere in the village) supports landscape character.

Tree and hedge planting along south western edge of site softens views into site for existing residents living at Back Lane. Single storey dwellings here reduces visual impact.

Simple entrance with existing hedges realigned to provide both a baffle to views in and privacy for new residents

Wildflowers to give soft rural appearance

Statuesque and distinctive tree at entrance, similar to others found elsewhere in village

Trees positioned to screen views of proposed houses

Treatment plant

Wildflower edges to treatment plant area to give a soft, rural "field-like appearance."

Location of treatment plan creates distance between existing and proposed dwellings

Self-fertile plum provides roadside fruit for people walking by, adding richness to village experience.

Key

- Existing buildings (ridge lines not shown)
- Proposed dwellings and garages (ridge lines shown)
- Existing trees
- Existing hedgerows
- Existing hedgerow to be translocated
- Proposed trees
- Proposed woodland block
- Proposed native field hedgerow
- Proposed semi-ornamental hedge (a mix of native and ornamental)
- Proposed ornamental hedge
- Proposed mown grass
- Proposed wildflower grass
- Black notes** Black notes specify the details of the planting proposals
- Blue notes** Blue notes provide explanation of landscape and mitigation measures

Note: all existing tree positions are approximate.

R 00	12.01.2018	original drawing
revision	date	notes

drawing number 03

drawing name Landscape and planting plan

project Residential Development Land at Kirkland Road Ennerdale Bridge

client Genesis Homes

This plan is based on the following drawing prepared by Manning Elliott.

Project title	Proposed Housing Development Kirkland Road Ennerdale Bridge
Drawing title	Site Plan as Proposed
Issue title	PLANNING ISSUE
Date	NOV 17 2018
Scale	1:250 / 500
Drawing number	1722-PL201
Revision	
Description	

PLANT SPECIFICATION AND SCHEDULES

Note: see final page of this document for reference, revision number, document number and date of issue.

Trees

Latin name (common name)	Form	Age	Girth (cm)	Height (cm)	Root or pot size(L)	% of mix	Planting density	No
Acer pseudoplatanus (Sycamore)	Standard	2X	8-10	250-300	BR	-	as shown	3
Aesculus hippocastanum (horse chestnut)	Select Standard	2X	10-12	300-350	BR	-	as shown	1
Alnus glutinosa (Common Alder)	Standard	2X	8-10	250-300	BR	-	as shown	2
Amelanchier lamarckii (Snowy Mespilus)	Feathered	2X	-	200-250	BR	-	as shown	3
Betula pendula (Birch)	Feathered	2X	-	200-250	BR	-	as shown	3
Betula utilis var Jacquemontii (White-stemmed Jacquemontii birch)	Select Standard	2X	10-12	300-350	BR	-	as shown	3
Fagus sylvatica (Beech)	Select St'd	2X	10 - 12	300-350	BR	-	as shown	1
Fagus sylvatica Purpurea (Copper Beech)	Select St'd	2X	10 - 12	300-350	BR	-	as shown	1
Malus sylvestris (Common Wild Crabapple)	Standard	2X	8-10	250-300	BR	-	as shown	4
Prunus avium (Wild Cherry)	Feathered	2X	-	150 – 175	BR	-	as shown	4
Prunus domestica 'the Czar' (self-fertile Plum)	Standard	2X	8-10	250-300	BR	-	as shown	1
Prunus padus (Bird cherry)	Select Standard	2X	10-12	300-350	BR	-	as shown	3
Quercus petraea (Sessile Oak)	Standard	2X	8-10	250-300	BR	-	as shown	4
Sorbus aria (Whitebeam)	Heavy Standard	3X	12-14	350-425	BR	-	as shown	5
Sorbus aucuparia (Rowan)	Select St'd	2X	10 – 12	300 – 350	BR	-	as shown	7
Sorbus aucuparia 'Streetwise' (Rowan)	Standard	2X	8 – 10	250 – 300	BR	-	as shown	3

Woodland mix 210 m²

Plant in random groups of 3 to 5

Latin name (common name)	Form	Age	Girth (cm)	Height (cm)	Root or pot size(L)	% of mix	Planting density	No
Acer pseudoplatanus (Sycamore)	Transplant Cell grown	1+1	-	40-60	CGP	15	0.5 / m ²	15
Alnus glutinosa (Common Alder)	Transplant Cell grown	1+1	-	40-60	CGP	10	0.5 / m ²	10
Prunus avium (Wild Cherry)	Transplant Cell grown	1+1	-	40-60	CGP	15	0.5 / m ²	15
Corylus avellana (Common Hazel)	Transplant Cell grown	1U1	-	40-60	CGP	10	0.5 / m ²	10
Quercus petraea (Sessile Oak)	Transplant Cell grown	1U1	-	40-60	CGP	20	0.5 / m ²	20
Salix caprea (Goat willow)	Transplant Cell grown	1+1	-	40-60	CGP	10	0.5 / m ²	10
Sorbus aucuparia (Rowan)	Transplant Cell grown	1+1	-	40-60	CGP	20	0.5 / m ²	20

Native field hedgerow 198 linear metres

All hedgerow plants to be planted in double staggered row, plant in random groups of 7-15

Latin name (common name)	Form	Age	Girth (cm)	Height (cm)	Root or pot size(L)	% of mix	Planting density	No
Corylus avellana (hazel)	Transplant	1U1	-	60-80	BR	5	5 / lin m	50
Crataegus monogyna (hawthorn)	Transplant	1+1	-	40-60	BR	40	5 / lin m	400
Fagus sylvatica (beech)	Transplant	1+1	-	40-60	BR	5	5 / lin m	50
Ilex aquifolium (holly)	-	-	-	40-60	2L	15	5 / lin m	150
Lonicera periclymenum	-	-	-	20-30	2L	5	5 / lin m	50
Prunus padus (bird cherry)	Transplant	1+1	-	40-60		5	5 / lin m	50
Prunus spinosa (blackthorn)	Branched, 2 breaks	1+1	-	40-60	BR	10	5 / lin m	100
Rosa canina (dog rose)	Transplant	1+1	-	40-60	BR	5	5 / lin m	50
Sambucus nigra (common elder)	Transplant	1U1	-	60-80	BR	5	5 / lin m	50
Viburnum opulus (guelder rose)	Transplant	1+1	-	40-60		5	5 / lin m	50

Mixed semi-ornamental hedges 102 linear metres

All hedgerow plants to be planted in double staggered row, plant in random groups of 7-15

Latin name (common name)	Form	Age	Girth (cm)	Height (cm)	Root or pot size(L)	% of mix	Planting density	No
Aucuba japonica 'Crotonifolia' (Japanese Laurel)	-	-	-	30-40	3L	10	5 / lin m	50
Corylus avellana (hazel)	Transplant	1U1	-	60-80	BR	15	5 / lin m	75
Eleagnus ebbingei 'Gilt Edge' (Eleagnus)	-	-	-	30-40	3L	10	5 / lin m	50
Fagus sylvatica (beech)	Transplant	1+1	-	40-60	BR	15	5 / lin m	75
Griselinia littoralis	-	-	-	40-60	3L	10	5 / lin m	50
Ilex aquifolium (holly)	-	-	-	40-60	2L	10	5 / lin m	50
Prunus lusitanica (Portugese Laurel)	-	-	-	40-60	3L	10	5 / lin m	50
Rosa canina (dog rose)	Transplant	1+1	-	40-60	BR	10	5 / lin m	50
Viburnum opulus (guelder rose)	Transplant	1+1	-	40-60		10	5 / lin m	50

Mixed-species ornamental hedge 186 linear metres

All hedgerow plants to be planted in double staggered row, plant in random groups of 7-15

Latin name (common name)	Form	Age	Girth (cm)	Height (cm)	Root or pot size(L)	% of mix	Planting density	No
Aucuba japonica 'Crotonifolia' (Japanese Laurel)	-	-	-	30-40	3L	15	5 / lin m	150
Eleagnus ebbingei 'Gilt Edge' (Eleagnus)	-	-	-	30-40	3L	15	5 / lin m	150
Escallonia Donard Radiance (Escallonia)	-	-	-	30-40	3L	15	5 / lin m	150
Fagus sylvatica (beech)	Transplant	1+1	-	40-60	BR	15	5 / lin m	150
Griselinia littoralis	-	-	-	40-60	3L	20	5 / lin m	200
Prunus lusitanica (Portugese Laurel)	-	-	-	40-60	3L	20	5 / lin m	200

Wildflower grass seed mix

Wildflower species to be selected following detailed soil sampling, Seed to be of local (Cumbrian) provenance.

Proposed maintenance regime for first 5 years

Year 1 preparatory work (growing season before winter planting)

- Undertake this work outside the bird nesting season
- Mark length of hedgerow to be translocated (the part of the hedgerow which would fall within the sight line. Clearly mark any suitable existing specimens within this length (e.g. the ashes) which will form good hedgerow trees in the future.
- Coppice hedgerow to a height of approximately 1.2 m, ensuring that the trees to be retained as hedgerow trees are left intact.
- Trim roots to a depth of 1m and approximately 0.5m clear of sides of hedgerow, with a straight cut, avoiding excavation. This is to encourage a neat, fibrous root zone which will be easy to lift with a toothed excavator bucket.
- Mark trimmed hedgerow into approximately 1m lengths, trimming tangled branches as necessary to allow easy lifting of individual 1m long sections.

Year 1 establishment (planting year)

- Carry out planting between November and March
- Plant trees in prepared pits backfilled with topsoil, fertiliser and soil conditioner, in accordance with manufacturer's recommendations
- Lift and immediately replant 1m long sections of hedgerow to be translocated into prepared trench, using a large toothed excavator bucket, to ensure receiving ground does not become compacted, and that root zone is easily lifted. Adapt trench by further digging as necessary to accommodate roots. Take care to protect any retained hedgerow trees within each translocated section. Ensure each section abuts adjacent ones neatly.
- Protect new hedging along garden frontages with chestnut pale fencing to the road-side of hedge
- Protect shrubs with shelters and stakes
- Support and protect trees with double stakes
- Protect hedgerows from cattle with stock proof fence
- Sow wildflower areas, grass seed or lay turf on prepared bed during correct climatic conditions, and mow as necessary to achieve thick sward no higher 75mm

Years 1 – 5, each year (maintenance)

- Keep grass short around bases of trees with mowing, herbicides and / or mulch mats, as appropriate
- Inspect tree ties, stakes and shelters / guards; loosen and remove as necessary with all being removed by year 5.
- Trim ornamental and semi-ornamental hedges annually during correct season to obtain a dense, formal shaped hedge of 1.2m ultimate height.
- Prune and lay native rural hedgerows as necessary once a year to develop dense, evenly shaped hedgerow
- Replace any trees or shrubs which are dead or failing to thrive in the winter of each year
- Mow wildflower meadow annually after flowering; allow cuttings to lie on ground for two weeks (so seeds shed) before removing from site
- Mow grass areas indicated as 'Mown' as required to ensure sward does not exceed 50mm.
- Water trees, hedgerows, hedges and shrubs if drought conditions occur.
- Inspect and maintain stock proof fencing

Suggested ongoing maintenance operations

- grass: keep grass short around bases of trees with regular mowing
- *hedges*: regular trimming to ensure dense, neat shape
- *hedgerows*: regular trimming to ensure dense, neat shape, laying as required
- *trees*: prune as necessary to maintain good shape and to avoid disease, overcrowding, or low canopies
- *woodland blocks*: thin as necessary as trees mature, and; to ensure good conditions for slow growing and longer lasting specimens which will form a long term backdrop for development, and setting for wider built up environment.

revision	date	notes
00	15.01.2018	original

drawing number	04
drawing name	Plant specification & schedule
Project	Residential development Land at Kirkland Road Ennerdale Bridge
Client	Genesis Homes
Eden Environment Ltd www.edenenvironment.com	



Appendix E – Planting for Wildlife



Table E1 Shrub species of native origin or generally thought to be beneficial to wildlife

(Source: 'Gardening with wildlife in mind', Natural England, 2008)

Common name	Scientific name
Hazel	<i>Corylus avellana</i>
Elder	<i>Sambucus nigra</i>
Goat willow	<i>Salix caprea</i>
Hawthorn	<i>Crataegus monogyna</i>
Dog rose	<i>Rosa canina</i>
Butterfly bush	<i>Buddleia davidii</i>
Guelder rose	<i>Viburnum opulus</i>
Gorse	<i>Ulex europaeus</i>
Broom	<i>Cytisus scoparius</i>
Wayfaring tree	<i>Viburnum lantana</i>
Shrubby cinquefoil	<i>Potentilla fruticosa</i>
Raspberry	<i>Rubus idaeus</i>
Alder buckthorn	<i>Frangula alnus</i>
Wild privet	<i>Ligustrum vulgare</i>
Barberry	<i>Berberis × stenophylla</i>
Barberry	<i>Berberis vulgaris</i>
Bell heather	<i>Erica cinerea</i>
Bilberry	<i>Vaccinium myrtillus</i>
Black currant	<i>Ribes nigrum</i>
Blackthorn	<i>Prunus spinosa</i>
Buckthorn	<i>Rhamnus catharticus</i>
Butcher's-broom	<i>Ruscus aculeatus</i>
Cherry laurel	<i>Prunus laurocerasus</i>
Cowberry	<i>Vaccinium vitis-idaea</i>
Cross-leaved heath	<i>Erica tetralix</i>
New Zealand holly	<i>Olearia macrodonta</i>
Daphne	<i>Daphne odora</i>
Dogwood	<i>Cornus sanguinea</i>
Field rose	<i>Rosa arvensis</i>
Firethorn	<i>Pyracanthus angustifolia</i>
Flowering Currant	<i>Ribes sanguineum</i>
Gooseberry	<i>Ribes uva-crispa</i>
Hebe 'Midsummer Beauty'	<i>Hebe species</i>
Hedgehog Rose	<i>Rosa rugosa</i>
Himalayan honeysuckle	<i>Leycesteria formosa</i>
Holly	<i>Ilex aquifolium</i>
Japanese quince	<i>Chaenomeles japonica</i>
Lilac	<i>Syringa vulgaris</i>
Mexican orange	<i>Choisya ternata</i>
Mezereon	<i>Daphne mezereum</i>
Midland Hawthorn	<i>Crataegus laevigata</i>
Oregon Grape	<i>Mahonia aquifolium</i>
Osier	<i>Salix viminalis</i>
Portugal laurel	<i>Prunus lusitanica</i>
Privet	<i>Lustrum ovalifolium</i>
Purple Willow	<i>Salix purpurea</i>



Common name	Scientific name
Snowy Mespilus	<i>Amelanchier canadensis</i> , <i>Amelanchier lamarckii</i>
Spindle	<i>Euonymus europaeus</i>
Spurge laurel	<i>Daphne laureola</i>
Sweet briar	<i>Rosa rubiginosa</i>
Wild privet	<i>Ligustrum vulgare</i>

Table E2 Tree species of native origin or generally thought to be beneficial to wildlife

(Source: 'Gardening with wildlife in mind', Natural England, 2008)

Common name	Scientific name
Pedunculate oak	<i>Quercus robur</i>
Ash	<i>Fraxinus excelsior</i>
Wych Elms	<i>Ulmus glabra</i>
Whitebeams	<i>Sorbus aria</i> agg.
Rowan	<i>Sorbus aucuparia</i>
Aspen	<i>Populus tremula</i>
Apple	<i>Malus domestica</i>
Bird Cherry	<i>Prunus pardus</i>
Common Alder	<i>Alnus glutinosa</i>
Crab apple	<i>Malus sylvestris</i>
Crack Willow	<i>Salix fragilis</i>
Downy Birch	<i>Betula pubescens</i>
False Acacia	<i>Robinia pseudoacacia</i>
Field Maple	<i>Acer campestre</i>
Hornbeam	<i>Carpinus betulus</i>
Juniper	<i>Juniperus communis</i>
Large-leaved lime	<i>Tilia platyphyllos</i>
Small-leaved lime	<i>Tilia cordata</i>
Pear	<i>Pyrus communis</i>
Scots Pine	<i>Pinus sylvestris</i>
Sessile oak	<i>Quercus petraea</i>
Silver birch	<i>Betula pendula</i>
Sweet chestnut	<i>Castanea sativa</i>
Wild Cherry	<i>Prunus avium</i>
Wild service-tree	<i>Sorbus torminalis</i>
Yew	<i>Taxus baccata</i>



Table E3 Gardening for bats

Aim at having flowers in bloom throughout the year, including both annuals and herbaceous perennials. Below are some suggestions, but this is not an exhaustive list. Flowering times are approximate, varying dependent on region. Regular dead-heading extends flowering period in many flowers.

A=annual, HA= hardy, annual, HHA=half-hardy annual, P=perennial, W=wild flower.

Flowers for borders			
St. John's Wort	<i>Hypericum</i>	P	March
Marigolds	<i>Calendula</i>	H/A	March-October
Aubrietia	<i>Aubrietia deltoidea</i>	P	March-June
Honesty	<i>Lunaria rediviva</i>	HB	March
Forget-me-not	<i>Myosotis</i> sp.	A/P	March-May
Elephant ears	<i>Bergenia</i>	P	April
Wallflowers	<i>Erysimum</i>	B	April-June
Cranesbills	<i>Geranium</i> sp.	P	May-September
Yarrow	<i>Achillea</i>	P	May-
Poppies	<i>Papaver</i> sp.	A	May- July
Dames violet	<i>Hesperis matronalis</i>	P	May-August
Red Valerian	<i>Centranthus ruber</i>	P	May-Sept
Poached egg plant	<i>Limnanthes</i>	HA	June-August
Knapweed	<i>Centaurea nigra</i>	P	June-September
Phacelia		HA	June-September
Ox-eye daisy	<i>Leucanthemum vulgare</i>	P	June-August
Evening primrose	<i>Oenothera biennis</i>	B	June-September
Candytuft	<i>Iberis umbellate</i>	HA	June-September
Sweet William	<i>Dianthus barbatus</i>	B	June-July
Blanket flowers	<i>Gaillardia</i>	P	June -
Verbena	<i>Verbena bonariensis</i>	HHA	June-October
Scabious	<i>Knautia arvensis</i>	P	July-August
Night-scented stock	<i>Mattiola bicornia</i>	HA	July-August
Pincushion flower	<i>Scabious</i> sp.	A/P	July-September
Cherry pie	<i>Heliotrope</i>	HHA	July-October
Mexican aster	<i>Cosmos</i> sp.	A/P	July-October
Cone flower	<i>Rudbeckia</i> sp.	A/P	August-November
Mallow	<i>Lavatera</i> sp.	P	August-October
Michaelmas daisy	<i>Aster</i> sp.	P	August-September
Ice plant 'Pink lady'	<i>Sedum spectabile</i>	P	September
Herbs – both leaves and flowers are fragrant			
Fennel	<i>Foeniculum vulgare</i>		July-September
Bergamont	<i>Monarda didyma</i>		June-September
Sweet Cicely	<i>Myrrhis odorata</i>		April-June
Hyssop	<i>Hyssopus officinalis</i>		July-September



Feverfew	<i>Tanacetum parthenium</i>		June-September
Borage	<i>Borago officinalis</i>		May-September
Rosemary	<i>Rosmarinus officinalis</i>		March-May
Lemon balm	<i>Melissa officinalis</i>		
Coriander	<i>Coprianrum sativum</i>		June-August
Lavenders	<i>Lavendula</i> sp.		
Marjoram	<i>Origanum</i> sp.		
Trees, shrubs and climbers important to insects			
Oak	<i>Quercus</i> sp.		large gardens only
Silver birch	<i>Betula pendula</i>		
Common alder	<i>Alnus glutinosa</i>		Suitable for coppicing
Hazel	<i>Corylus avellana</i>		Suitable for coppicing
Elder	<i>Sambucus nigra</i>		Small
Goat willow	<i>Salix caprea</i>		Suitable for coppicing
Hawthorn	<i>Crataegus monogyna</i>		Suitable for coppicing
Honeysuckle	<i>Lonicera</i> sp.		Grow a variety for succession
Dog rose	<i>Rosa canina</i>		Climber
Bramble	<i>Rubus fruticosus</i>		Climber
Ivy	<i>Hedera helix</i>		Climber
Buddleia	<i>Buddleija davidii</i>		Shrub
Guelder rose	<i>Vibernum opulus</i>		Shrub
Gorse	<i>Ulex</i> sp.		Shrub
Plants for pond edges and marshy areas			
Purple loosestrife	<i>Lythrum salicaria</i>	W	June-August
Meadow sweet	<i>Filipendula ulmaria</i>	W	June-September
Lady's smock	<i>Cardamine pratensis</i>	W	April-June
Water mint	<i>Mentha aquatica</i>	W	July-September
Angelica	<i>Angelica sylvestris</i>	W	July-September
Hemp agrimony	<i>Eupatorium cannabinum</i>	W	March-May
Marsh marigold	<i>Caltha palustris</i>	W	June-September
Creeping Jenny	<i>Lysimachia nummularium</i>	W	May-August
Fringed water lily	<i>Nymphoides peltata</i>	W	June-September
Water forget-me-not	<i>Myosotis scorpioides</i>	W	June-September

Allow part lawns to grow long in summer and cut in autumn, removing the clippings. Avoid using fertilisers. Compost heaps are food producers of insects too.

(Source: 'Gardening for bats', Bat Conservation Trust, 2004)



Table E4 Planting to encourage and support badgers

Badger Friendly Plants – Planting to Encourage and Support Badgers	
Common Name	Botanical Name
Blackberry	<i>Rubus fruticosus agg.</i>
Elder	<i>Sambucus nigra</i>
Apple	<i>Pyrus malus</i>
Pear	<i>Pyrus communis</i>
Oak	<i>Quercus robur</i>
Blackthorn (sloe)	<i>Prunus spinosa</i>
Bird cherry	<i>Prunus padus</i>
Wild cherry	<i>Prunus avium</i>
Crabapple (wild)	<i>Malus sylvestris</i>
Guelder rose	<i>Viburnum opulus</i>
Hazel	<i>Corylus avellana</i>
Holly	<i>Ilex aquifolium</i>
Mountain ash (rowan)	<i>Sorbus aucuparia</i>
Plum	<i>Prunus cerasifera</i>
Hawthorn	<i>Crataegus monogyna</i>
Dog rose (and other native roses)	<i>Rosa canina</i>
Wayfaring tree	<i>Viburnum lantana</i>