

ECOLOGICAL IMPACT ASSESSMENT

AMBERLEY AND HARROGATE STREET, SUNDERLAND



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A. SUMMARY

E3 Ecology Ltd was commissioned to undertake an ecological impact assessment (EclA) of a parcel of land at Amberley and Harrogate Street, Sunderland, where it is proposed to construct residential houses. A desk study was completed, including consultation with DEFRA's MAGIC website and the Environmental Records Information Centre North East (ERIC NE), and an ecological walkover survey was undertaken on 11th March 2022 in order to inform this assessment.

The results of the desk study indicate that there are five statutorily protected sites within 2km of the proposed development site. The closest of these are Durham Coast Special Area of Conservation (SAC) and Northumbria Coast Special Protected Area (SPA) and Ramsar 1.7km to the south of the site. No direct development impacts are envisaged on this or any other nearby protected sites but there is a low risk of increased recreational disturbance on the coastal protected sites, therefore new residential developments in this area are required to make financial contributions towards the Coastal Mitigation Service. The site falls within a Site of Special Scientific Interest (SSSI) impact risk zone for this type of development as it is a development of more than 10 residential units, therefore the Local Planning Authority will be required to consult with Natural England on the application.

There are five records of granted European Protected Species (EPS) mitigation licences for works affecting bats within 2km, the closest located approximately 280m from the site. No non-statutorily protected sites were highlighted within 2km during the desk study and no priority habitats were shown on or adjacent to the site.

The proposed development site measures approximately 3ha and is dominated by strips of amenity and poor semi-improved grassland, intersected by roads and surrounded on all sides by residential housing. The development site is considered to be of low value for the habitats it supports.

No further ecological surveys are recommended. The site is considered of up to local value for foraging bats, birds and hedgehog, with other protected and priority species likely to be absent.

The results of the site survey combined with the desk study have highlighted the following further ecological survey, mitigation or compensation requirements.

Ecological Receptor	Impact	Mitigation
<i>Protected Sites</i>		
Three internationally designated sites; Northumbria Coast SPA and Ramsar, Durham Coast SAC and three nationally designated sites.	Potential indirect disturbance. No direct impacts anticipated.	Results of the Shadow Habitats Regulations Assessment can be found in report 6466 sHRA.
<i>Habitats</i>		
Grassland	Loss and degradation during construction and operational phase.	Wildflower grasslands, wildflower bulb planting, and native hedgerow will be incorporated into the landscape proposals.
Biodiversity	Loss of biodiversity as a	Habitat losses are to be balanced on site through

(general)	result of development of the site.	habitat enhancement and creation if possible, or if not possible then off-site opportunities will need to be explored so that the development provides a net gain in biodiversity.
<i>Species</i>		
Bats	Increased lighting affecting likely low value foraging/commuting areas potentially used by bats (and other nocturnal wildlife)	Light levels around newly installed roost locations (see enhancements) will be low level, below 2m in height, and low lux (below 1 lux 5m from the light source). Warm-light LEDs with very low UV will be used, with cowls designed to accurately target which areas are lit.
	Loss of bat foraging/commuting habitat of low value	Landscape planting to include plants bearing flowers, nectar and fruits which are attractive to invertebrates, thereby helping to maintain the food resource for bats and wildlife generally
Birds	Loss of bird foraging opportunities of up to local value	Landscape planting to include plants bearing flowers, nectar and fruits which are attractive to invertebrates, thereby helping to maintain the food resource for birds and wildlife generally
Hedgehog	Loss of hedgehog foraging habitat of local value	Landscape planting will include areas of dense shrubs to provide cover for hedgehogs and berry bearing species to provide a foraging resource.
	Creation of barriers to hedgehog movement	Close boarded fences will be avoided, or gaps 13cm x 13cm will be provided in fences between gardens and landscaped areas to allow hedgehogs to forage and commute across the site.
Wildlife (general)	Entrapment of wildlife during construction if trenches are left open overnight	Any excavations left open overnight will have a means of escape for wildlife that may become trapped in the form of a ramp at least 300mm in width and angled no greater than 45°.

Additional enhancements are proposed which are not considered within the metric, including:

- Provision of integrated bird nesting opportunities suitable for species such as swift, house sparrow, starling, house martin and/or swallow in 10% of new residential units. Bird nesting opportunities should ideally be north to east facing and a minimum of 2m high (swift 4m+) with a clear, open flight path (no trees/buildings in front of box).
- Provision of integrated bat roosting features in 10% of new residential units on site. Bat roosting features should be a minimum of 3-4m high, on gable ends or at eaves height and on southerly elevations. Both bat and bird boxes should be near suitable foraging habitat and away from windows.

The local planning authority is likely to require the means of delivery of the mitigation to be identified. It is recommended that mitigation, compensation and enhancement proposals are incorporated into the planning documents.

Provided that the above recommendations are implemented, it is anticipated that the proposals may proceed with no significant adverse effect on protected or notable habitats and species. Ecological opportunities including landscaping focussed on biodiversity and bat and bird nest box provision, contributing to local and national conservation targets.

If you are assessing this report for a local planning authority and have any difficulties interpreting plans and figures from a scanned version of the report, E3 Ecology Ltd would be happy to email a PDF copy to you. Please contact us on 01434 230982.

B. INTRODUCTION

E3 Ecology Ltd was commissioned by Thirteen Group in February 2022 to undertake an EclA of a proposed development site at Amberley & Harrogate Street, Sunderland.

This assessment has been prepared taking account of the Chartered Institute of Ecology and Environmental Management's (CIEEM) "Guidelines for Ecological Impact Assessment in the UK and Ireland" (2019).

B.1 AUTHOR, SURVEYORS & QUALIFICATIONS

The author's professional qualifications and survey licences are detailed in the table below, as well as those of additional lead surveyors who completed survey work at the proposed development site:

TABLE 1: LEAD SURVEYORS		
Name	Position	Professional Qualifications
Georgia Vessey	Graduate Ecologist	BSc

Further details of experience and qualifications are available at www.e3ecology.co.uk.

All surveyors have the knowledge, skills and experience identified within the relevant CIEEM Competencies for Species Survey guidance, or were under the supervision of a surveyor with the required competencies.

B.2 OBJECTIVES

The objectives of the assessment are to:

- Establish baseline ecological conditions and determine the importance of ecological features present or potentially present within the survey area;
- Identify and describe potentially significant ecological constraints and effects associated with the proposed development;
- Make recommendations for design options to avoid significant effects on important ecological resources at an early stage of development planning where possible;
- Identify the potential requirement for further surveys on protected species and habitats which may be present on site;
- Set out the mitigation, compensation and enhancement measures required to ensure compliance with nature conservation legislation and to address any potentially significant ecological effects;
- Identify how these measures could be secured; and
- Identify any requirements for post-construction monitoring of the site.

B.3 PROPOSED DEVELOPMENT SITE

The site is located at Amberley & Harrogate Street, Sunderland, at an approximate central grid reference of NZ 40231 56281.

The figures below illustrate firstly the survey boundary and secondly the broad habitats present on site and within an approximate 500m buffer zone.



FIGURE 1: SITE BOUNDARY
(Reproduced under licence from Google Earth Pro.)



FIGURE 2: SITE AND 500M SETTING
(Reproduced under licence from Google Earth Pro.)

B.4 DEVELOPMENT PROPOSALS

The proposed project/development includes the construction of 103 residential houses on the site including two SuDS basins, shared gardens and small areas of public open space.



FIGURE 3: DEVELOPMENT PROPOSALS (FAIRHURST/JDDK)

C. METHODOLOGY

C.1 SCOPE OF STUDY

The scope of the study, in terms of the survey area and the desk study area, is based on professional judgement. The likely zone of influence of the proposal has been considered, including both potential direct effects, such as habitat loss, and potential indirect effects, such as disturbance. Consideration has been given to potential effects both during the construction and operational phases of the development.

For this site the survey area comprised the green line boundary as defined within the figures in section B.

In some circumstances field signs and habitat suitability may indicate the potential presence of nearby protected species and/or habitats immediately adjacent to the site which may fall within the zone of influence. In this scenario, if access was available the survey boundary was extended to include these areas. If access was not possible at the time of initial survey, the ecological impact assessment and required mitigation measures have been prepared taking this limitation into account.

The desk study included an assessment of land-use in the surrounding area and a data search covering a 2km buffer zone (see below for further detail).

The following types of ecological receptors have been considered:

- Statutorily designated sites for nature conservation;
- Non-statutorily designated sites for nature conservation;
- Species protected by law;
- Species and/or habitats listed under the NERC Act (2009) as being of principal importance for conservation of biodiversity; and
- Species and/or habitats listed in relevant local biodiversity action plans.

Further details on planning and legislative context are provided in the appendices of this report.

C.2 DESK STUDY

Initially, the site was assessed from aerial photographs and 1:25,000 Ordnance Survey maps.

Due to the limited value of existing habitats on site it has not been considered necessary to request data from the Local Records Centre relating to protected species and non-statutory sites for nature conservation.

In addition, a search was made of the MAGIC website¹ for all statutorily protected sites for nature conservation within 2km of the survey area, as well as notable habitats or species records.

C.3 FIELD SURVEY

An ecological walkover survey of the site was completed, comprising a phase 1 habitat survey and a preliminary appraisal for protected and otherwise notable species.

¹ MAGIC Website: www.magic.gov.uk

C.3.1 METHODOLOGY

C.3.1.1 PHASE 1 HABITAT SURVEY

The field survey of the proposed site was conducted using the methodology of the Joint Nature Conservation Committee's Phase 1 Habitat Survey, as outlined in their habitat-mapping manual². Each parcel of land was assessed by a trained surveyor and classified as one of ninety habitat types. These were then mapped and the habitat information supplemented by dominant and indicator species codes and target notes where appropriate. Where areas within the study area do not fall into the Phase 1 Habitat Survey classification, alternative methods of classification have been used.

C.3.1.2 PRELIMINARY PROTECTED/NOTABLE SPECIES APPRAISAL

A preliminary appraisal of the site was completed to search for field signs or evidence of protected or notable³ species and to assess the suitability of habitats to support such species.

When conducting the survey, particular focus was concentrated on, but not restricted to, the following taxa:

- Amphibians, including great crested newt (GCN)
- Badger
- Bats
- Birds
- Brown hare
- Fish
- Hedgehog
- Notable butterfly species
- Non-native invasive species
- Otter
- Red squirrel
- Reptiles
- Water vole
- White-clawed crayfish

Assessment of habitat suitability to support such species was based on professional judgement and experience, species-specific habitat preferences, knowledge of local and broad geographical species distribution and connectivity to other areas of suitable habitat.

Where it is considered likely that there is a significant risk of protected or otherwise notable species being affected, or where habitats are of particularly high value, additional specialist survey work has been recommended. Further survey work may also be recommended where development proposals have the potential to affect statutorily designated sites in the vicinity.

BATS

Where present, the bat roosting suitability of any buildings/structures and trees on site, or within the zone of influence, were appraised in accordance with the guidelines provided within the Bat Conservation Trust Bat Survey: Good Practice Guidelines⁴ and these are detailed within the table below.

TABLE 2: ASSESSMENT OF BAT ROOSTING SUITABILITY OF BUILDINGS/STRUCTURES & TREES (TO BE APPLIED USING PROFESSIONAL JUDGEMENT, TAKEN FROM TABLE 4.1 OF BCT'S BAT SURVEY GUIDELINES)	
Suitability	Roosting Habitats
Negligible	Negligible habitat features 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

² Handbook for Phase 1 habitat survey, A Technique For Environmental Audit, JNCC, 2010

³ To include national priority species as listed in Section 41 of the NERC Act (2006) and local or regional priority species as listed within the relevant Biodiversity Action Plan

⁴ Collins, J. (ed) (2016) Bat Surveys for Professional Ecologists: Good Practice Guidelines (3rd Edition). Bat Conservation Trust

	<p>opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used by larger numbers of bats (i.e. unlikely to be suitable for maternity or hibernation).</p> <p>A tree of sufficient size and age to contain potential roosting features but with none seen from the ground or features seen with only very limited roosting potential.</p>
Moderate	A building/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 building/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 and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.

Note that any comments within this report on the state or condition of buildings/structures relate solely to their potential use by bats and must not be taken as a professional assessment of the structural integrity or safety of the structures.

C.3.2 SURVEY EQUIPMENT

The following equipment was used during the phase 1 habitat survey:

- Binoculars
- Camera

C.3.3 ENVIRONMENTAL CONDITIONS

The table below details the environmental conditions during the survey.

TABLE 3: SURVEY CONDITIONS				
Date	Temperature (°C)	Cloud Cover (%)	Precipitation	Wind Conditions (Beaufort scale)
11/03/2022	9	50	Dry	F4

C.4 SURVEY CONSTRAINTS

Certain plant species may not be identifiable throughout the year. However, it is considered that sufficient botanical identification was possible to facilitate a robust assessment of habitats for the purposes of this report.

C.5 ASSESSMENT METHODOLOGY

The relative value of the ecological receptors (habitats, species and designated sites) was assessed using a geographical frame of reference. For designated sites this is generally a straightforward process with the assigned designation generally being indicative of a particular value, e.g. Sites of Special Scientific Interest are designated under national legislation and are therefore generally considered to be receptors of national value. The assignment of value to non-designated receptors is less straightforward and as recognised by the Guidelines for Ecological Impact Assessment produced by CIEEM⁵, is a complex and subjective process and requires the application of professional judgement.

When assessing the value of species and habitats, relevant documents and legislation are considered including the lists of species and habitats of principal importance annexed to the NERC Act (2006) and those provided within relevant local Biodiversity Action Plans. Data

⁵ Chartered Institute for Ecology and Environmental Management (2019) Guidelines for Ecological Impact Assessment in the UK and Ireland - Terrestrial, Freshwater and Coastal

provided through consultation is also considered. These data sources can provide context at a local, regional and national scale.

The table below provides examples of receptors of value at different geographical scales.

Level of Value	Examples
International	An internationally designated site or candidate site.
	A site meeting criteria for international designation.
	A substantial* area of a habitat listed on Annex I of the EC Habitats Directive or smaller areas of such habitat, which are considered likely to be essential to maintain the functionality of a larger whole.
	The site is of functional importance** to a species population with internationally important numbers (i.e. >1% of the biogeographic population)
National	A nationally designated site.
	A substantial* area of a habitat listed as a Habitat of Principal Importance within Section 41 of the NERC Act (2006) or smaller areas of such habitat, which are considered likely to be essential to maintain the functionality of a larger whole.
	The site is of functional importance** to a species population with nationally important numbers (i.e. >1% of the national population)
Regional	An area of habitat that falls slightly below the criteria necessary for designation as a SSSI but is considered of greater than county value.
	The site is of functional importance** to a species population with regionally important numbers (i.e. >1% of the regional population)
County	A Local Wildlife Site (LWS) or equivalent, designated at a County level
	A substantial* area of a habitat listed within the relevant County Biodiversity Action plan or smaller areas of such habitat, which are considered likely to be essential to maintain the functionality of a larger whole.
	The site is of functional importance** to a species population of county value (i.e. >1% of the county population)
District	A Local Wildlife Site (LWS) or equivalent, designated at a District level
	A substantial* area of a habitat listed within the relevant District Biodiversity Action plan or smaller areas of such habitat, which are considered likely to be essential to maintain the functionality of a larger whole.
	The site is of functional importance** to a species population of district value (i.e. >1% of the district population)
Parish	Area of habitat or species population considered to appreciably enrich the habitat resource within the context of the parish.
	Local Nature Reserves
Local	Habitats and species that contribute to local biodiversity but are not exceptional in the context of the parish.
Low	Habitats that are unexceptional and common to the local area.
*Substantial defined as 'of considerable size or value within that area based on professional judgement, rather than a small, inconsequential area'	
** Functional importance defined as 'a feature which, based on professional judgement, is of importance to the day to day functioning of the population, the loss of which would have a detectable adverse effect on that population'.	

The site lies within Sunderland District Non-Civil Parish which covers approximately 11,378 ha and is mainly the city of Sunderland, suburbs and other towns along the coastline to the east.

D. RESULTS

D.1 DESK STUDY

D.1.1 PRE-EXISTING INFORMATION

D.1.1.1 ORDNANCE SURVEY MAPPING AND AERIAL PHOTOGRAPHY

The figures in Section B show that the general land use in the surrounding area is residential in all directions. The coast lies approximately 750m east of the site, in between which is residential and industrial development.

The most recent aerial photograph of the site (2021) indicates that habitats on site are dominated by rows of amenity grassland that were once terraced houses.

The earliest aerial photograph of the site (2001) shows terraced housing along the western-most strips of grassland, which are bisected by a road. The northern section of this terrace was demolished between 2008 and 2012, and the southern section between 2012 and 2014. Smaller blocks of terraces in the south of the site were also removed around this time. All demolished rows were converted to grassland.

D.1.1.2 MAGIC WEBSITE⁶

PROTECTED SITES

The table below details the internationally and nationally statutorily designated sites within 2km of the survey area.

Designation	Site Name	Brief Reason for Designation	Distance from Survey Area
Special Area of Conservation	Durham Coast	Vegetated sea cliffs on magnesian limestone exposures, including a mosaic of paramaritime, mesotrophic and calcicolous grasslands, tall herb fen, seepage flushes and wind-pruned shrub.	1.7km south-east
Special Protection Area	Northumbria Coast	This site is designated for internationally important populations of breeding little tern and non-breeding purple sandpiper and turnstone. It also supports nationally important breeding populations of arctic tern.	1.7km south-east
Ramsar	Northumbria Coast	Several discrete sections of rocky foreshore regularly supporting internationally important numbers of purple sandpiper and turnstone. The Ramsar site also supports a nationally important breeding colony of little tern and parts of three artificial piers which form important roost sites for purple sandpiper.	1.7km south-east
Site of Special Scientific Interest	Durham Coast	Paramaritime Magnesian limestone vegetation, a species-rich dune system and supports nationally important numbers of wintering shore birds and breeding little terns, which contribute to	1.7km south-east

⁶ Multi Agency Geographic Information for the Countryside (MAGIC) www.magic.gov.uk

		internationally important populations of the north-east coast.	
	Tunstall Hills and Ryhope Cutting	Species-rich grassland has developed over shallow calcareous soils, with areas of woodland and scrub.	1.7km south
Local Nature Reserve	Tunstall Hills	Overlapping with the SSSI above, the grasslands of this site are a hunting ground for kestrels, and home to smaller birds that nest in the hawthorn and gorse such as whitethroat, linnet and yellowhammer.	1.7km south

The site falls within a Site of Special Scientific Interest (SSSI) impact risk zone for this type of development as it is a development of more than 10 residential units, therefore the Local Planning Authority will be required to consult with Natural England on the application.

HABITATS

No Priority Habitats are mapped on or immediately adjacent to the site.

SPECIES

No granted GCN European Protected Species (EPS) mitigation licences, GCN survey licence returns or eDNA survey records (2017-2019) are shown within 2km of the site.

There are five records of granted EPS mitigation licences for works affecting bats within 2km, the closest located approximately 280m from the site concerning destruction of a common pipistrelle resting place from 2019.

D.2 FIELD SURVEY

D.2.1 HABITATS

The proposed development site measures approximately 3ha and is dominated by strips of amenity and poor semi-improved grassland, intersected by roads and surrounded on all sides by residential housing.

D.2.1.1 PHASE 1 HABITAT MAP

The habitats present within the survey area are illustrated within the figure below and described in more detail below.

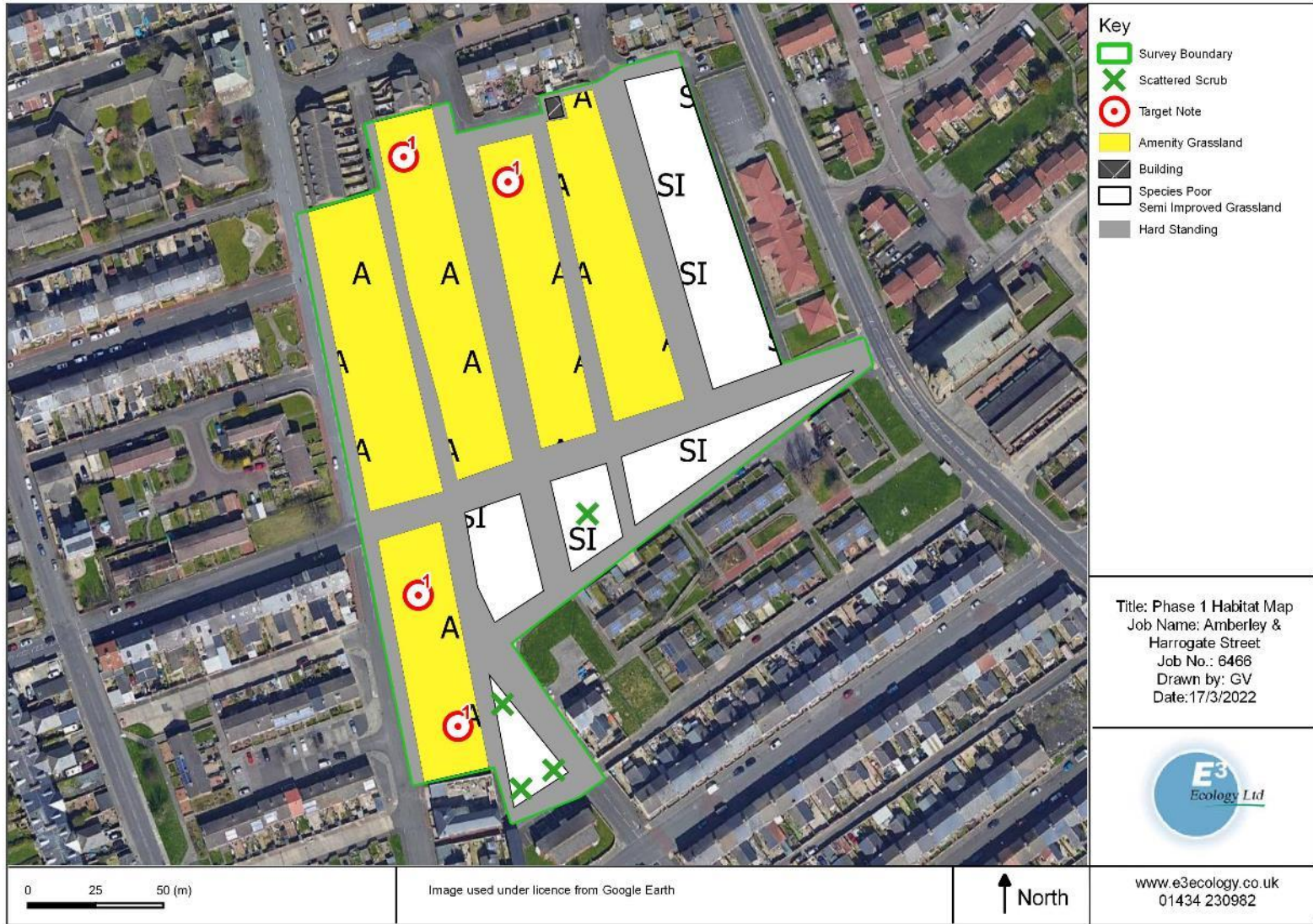


FIGURE 4: HABITAT MAP

D.2.1.2 TARGET NOTES

TARGET NOTE 1

Remains of bonfires.



D.2.1.3 HABITAT DESCRIPTIONS

POOR SEMI-IMPROVED GRASSLAND

The site is dominated by strips of grassland, some of which are of poor semi-improved character. These areas noticeably differ from the amenity grassland strips (described below); comprising coarser swards up to 1m high and averaging 0.5m. Species-richness is relatively low, with approximately 4 species per square metre and an average grass to forb ratio of 80:20.

Perennial rye grass *Lolium perenne*, cock's-foot *Dactylis glomerata* and fescue *Festuca* sp. dominate the swards. A limited range of forbs was recorded, including bush vetch *Vicia sepium*, creeping cinquefoil *Potentilla reptans*, cow parsley *Anthriscus sylvestris*, spear thistle *Cirsium vulgare*, creeping thistle *Cirsium arvense*, yarrow *Achillea millefolium*, white dead nettle *Lamium album*, common hogweed *Heracleum sphondylium*, dandelion *Taraxacum officinale*, *Geranium* sp., broad-leaved dock *Rumex obtusifolius*, creeping buttercup *Ranunculus repens* and columbine *Aquilegia* sp. Scattered individual buddleia *Buddleja davidi* are also present.

There is a low amount of scattered bramble *Rubus fruticosus* agg. scrub within the grassland areas to the south.

Litter was noted in all the grasslands.



AMENITY GRASSLAND

The amenity grassland areas are shorter (~10-30cm) and mown, with typical lawn grass species dominating the sward such as meadow grasses *Poa* sp. and perennial rye grass. Forb species are relatively sparse but include daisy *Bellis perennis*, ribwort plantain *Plantago lanceolata*, yarrow, white clover *Trifolium repens*, dove's-foot crane's-bill *Geranium molle* and dandelion with common whitlowgrass *Erophila verna* at the edges.



BUILDINGS & HARDSTANDING

There is a small sub-station in the north of site, which is to be retained. This is brick built with a flat bitumen lined roof.

Roads separate each of the grassland areas.



D.2.1.4 HABITAT ASSESSMENT

The development site is considered to be of low value for the habitats it supports.

D.2.2 SPECIES

BATS

A limited number of negligible-low suitability features were noted within the sub-station, however this building will be retained as part of the development.

The grassland will provide a very limited foraging resource in an urban surrounding area. There are no commuting routes leading to the site.

The site is considered to be of low value to foraging and commuting bats.

GREAT CRESTED NEWT

There are two mapped ponds within 500m of the site. Pond 1 lies 450m to the north-west of the site within the gardens of the Sunderland Museum, Pond 2 lies 450m north-east of the site within a business park. Both ponds are separated from the site by busy roads and intervening terrestrial habitats are considered unsuitable for GCN, comprising mainly dense residential housing.

The habitats present on the proposed development site are mostly unsuitable for use by GCN in their terrestrial phase. The site offers some sheltered foraging opportunities in the longer grassland however these habitats are isolated, regularly disturbed by people and dogs and surrounded by roads.

GCN and common amphibians are considered likely to be absent from the site.

BIRDS

Herring gull and black-headed gull were recorded on site and flying over the site.

The grassland is unsuitable for nesting birds and there are also no hedgerows or trees on site that could attract nesting birds. Despite the proximity to the coast, the site is regularly disturbed and enclosed by residential areas, therefore is considered unsuitable for significant use by foraging birds or over-wintering wader and goose species.

Overall, the site is considered to be of low-local value to foraging birds.

BADGER

The site lacks suitable habitat for badger, is highly disturbed and is isolated from better quality habitat. Badger are considered likely to be absent from the site.

REPTILES

The site lacks the typical mosaic of habitat types and vegetation structures used by reptiles. They are therefore considered likely to be absent from the site.

RED SQUIRREL

There are no trees on site and therefore are no habitats considered suitable for supporting red squirrel. They are therefore considered likely to be absent from the site.

INVERTEBRATES

The site lacks key larval food-plants for priority butterfly species and also lacks typically favoured habitat mosaics. Notable populations of priority butterfly species are considered likely to be absent.

OTTER, WATER VOLE & WHITE-CLAWED CRAYFISH

There are no aquatic habitats on or within the vicinity of the site with suitability to support these species and they are considered likely to be absent from the site.

OTHER NATIONAL PRIORITY AND LOCAL BAP SPECIES

The site contains some limited foraging habitat for hedgehog and is considered to be of low value for these species.

E. IMPACT ASSESSMENT & RECOMMENDATIONS

E.1 POTENTIAL IMPACTS, MITIGATION, COMPENSATION & FURTHER SURVEY

The likely impacts of the proposed development, without appropriate targeted mitigation and/or compensation, are detailed in the table below.

Ecological Receptor	Impact	Mitigation
<i>Protected Sites</i>		
Three internationally designated sites; Northumbria Coast SPA and Ramsar, Durham Coast SAC and three nationally designated sites.	Potential indirect disturbance. No direct impacts anticipated.	Results of the Shadow Habitats Regulations Assessment can be found in report 6466 sHRA.
<i>Habitats</i>		
Grassland	Loss and degradation during construction and operational phase.	Wildflower grasslands, wildflower bulb planting, and native hedgerow will be incorporated into the landscape proposals.
Biodiversity (general)	Loss of biodiversity as a result of development of the site.	Habitat losses are to be balanced on site through habitat enhancement and creation if possible, or if not possible then off-site opportunities will need to be explored so that the development provides a net gain in biodiversity.
<i>Species</i>		
Bats	Increased lighting affecting likely low value foraging/commuting areas potentially used by bats (and other nocturnal wildlife)	Light levels around newly installed roost locations (see enhancements) will be low level, below 2m in height, and low lux (below 1 lux 5m from the light source). Warm-light LEDs with very low UV will be used, with cowls designed to accurately target which areas are lit.
	Loss of bat foraging/commuting habitat of low value	Landscape planting to include plants bearing flowers, nectar and fruits which are attractive to invertebrates, thereby helping to maintain the food resource for bats and wildlife generally
Birds	Loss of bird foraging opportunities of up to local value	Landscape planting to include plants bearing flowers, nectar and fruits which are attractive to invertebrates, thereby helping to maintain the food resource for birds and wildlife generally
Hedgehog	Loss of hedgehog foraging habitat of local value	Landscape planting will include areas of dense shrubs to provide cover for hedgehogs and berry bearing species to provide a foraging resource.
	Creation of barriers to hedgehog movement	Close boarded fences will be avoided, or gaps 13cm x 13cm will be provided in fences between gardens and landscaped areas to allow hedgehogs to forage and commute across the site.
Wildlife (general)	Entrapment of wildlife	Any excavations left open overnight will have a

	during construction if trenches are left open overnight	means of escape for wildlife that may become trapped in the form of a ramp at least 300mm in width and angled no greater than 45°.
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E.2 RESIDUAL & CUMULATIVE IMPACTS

Provided that the measures detailed in the above table are implemented, no significant residual adverse impacts are envisaged.

No cumulative impacts have been identified during the impact assessment.

E.3 MONITORING

Given the nature of the proposed mitigation and compensation strategy, no monitoring is proposed.

E.4 ADDITIONAL ENHANCEMENT RECOMMENDATIONS

Additional enhancements are proposed which are not considered within the metric, including:

- Provision of integrated bird nesting opportunities suitable for species such as swift, house sparrow, starling, house martin and/or swallow in 10% of new residential units. Bird nesting opportunities should ideally be north to east facing and a minimum of 2m high (swift 4m+) with a clear, open flight path (no trees/buildings in front of box).
- Provision of integrated bat roosting features in 10% of new residential units on site. Bat roosting features should be a minimum of 3-4m high, on gable ends or at eaves height and on southerly elevations. Both bat and bird boxes should be near suitable foraging habitat and away from windows.

F. CONCLUSIONS

Provided that the recommendations in this report are implemented, it is anticipated that proposals may proceed with no significant adverse effect on notable species and/or habitats. Ecological enhancement opportunities include landscaping focused on biodiversity and bat and bird nest box provision, contributing to local and national conservation targets

APPENDICES

APPENDIX 1 – COPYRIGHT, CONFIDENTIALITY & LIABILITY

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APPENDIX 2 - PLANNING POLICY AND LEGISLATIVE CONTEXT

NATIONAL PLANNING POLICY

The table below details the key paragraphs from the National Planning Policy Framework (NPPF)⁷ relating to the natural environment:

Table 6: NATIONAL PLANNING POLICY FRAMEWORK: CONSERVING AND ENHANCING THE NATURAL ENVIRONMENT	
Statement	Paragraph
<p>Planning policies and decisions should contribute to and enhance the natural and local environment by:</p> <ul style="list-style-type: none"> a) protecting and enhancing valued landscapes, sites of biodiversity or geological value and soils (in a manner commensurate with their statutory status or identified quality in the development plan); b) recognising the intrinsic character and beauty of the countryside, and the wider benefits from natural capital and ecosystem services – including the economic and other benefits of the best and most versatile agricultural land, and of trees and woodland; c) maintaining the character of the undeveloped coast, while improving public access to it where appropriate; d) minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures; e) preventing new and existing development from contributing to, being put at unacceptable risk from, or being adversely affected by, unacceptable levels of soil, air, water or noise pollution or land instability. Development should, wherever possible, help to improve local environmental conditions such as air and water quality, taking into account relevant information such as river basin management plans; and f) remediating and mitigating despoiled, degraded, derelict, contaminated and unstable land, where appropriate 	174
Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework ⁸ ; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries.	175
Great weight should be given to conserving and enhancing landscape and scenic beauty in National Parks, the Broads and Areas of Outstanding Natural Beauty which have the highest status of protection in relation to these issues. The conservation and enhancement of wildlife and cultural heritage are also important considerations in these areas, and should be given great weight in National Parks and the Broads ⁹ . The scale and extent of development within all these designated areas should be limited, while development within their setting should be sensitively located and designed to avoid or minimise adverse impacts on the designated areas.	176
<p>When considering applications for development within National Parks, the Broads and Areas of Outstanding Natural Beauty, permission should be refused for major development¹⁰ other than in exceptional circumstances, and where it can be demonstrated that the development is in the public interest. Consideration of such applications should include an assessment of:</p> <ul style="list-style-type: none"> a) the need for the development, including in terms of any national considerations, and the impact of permitting it, or refusing it, upon the local economy; b) the cost of, and scope for, developing outside the designated area, or meeting the need for it in some other way; and c) any detrimental effect on the environment, the landscape and recreational opportunities, and the extent to which that could be moderated 	177
Within areas defined as Heritage Coast (and that do not already fall within one of the designated areas mentioned in paragraph 176), planning policies and decisions should be consistent with the	178

⁷ National Planning Policy Framework (July 2021), Department for Communities and Local Government,

⁸ Where significant development of agricultural land is demonstrated to be necessary, areas of poorer quality land should be preferred to those of a higher quality.

⁹ English National Parks and the Broads: UK Government Vision and Circular 2010 provides further guidance and information about their statutory purposes, management and other matters.

¹⁰ For the purposes of paragraphs 177 and 178, whether a proposal is 'major development' is a matter for the decision maker, taking into account its nature, scale and setting, and whether it could have a significant adverse impact on the purposes for which the area has been designated or defined.

Table 6: NATIONAL PLANNING POLICY FRAMEWORK: CONSERVING AND ENHANCING THE NATURAL ENVIRONMENT

Statement	Paragraph
special character of the area and the importance of its conservation. Major development within a Heritage Coast is unlikely to be appropriate, unless it is compatible with its special character.	
<p>To protect and enhance biodiversity and geodiversity, plans should:</p> <ul style="list-style-type: none"> a) Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity¹¹; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation¹²; and b) promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity. 	179
<p>When determining planning applications, local planning authorities should apply the following principles:</p> <ul style="list-style-type: none"> a) if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused; b) development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest; c) development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons⁶³ and a suitable compensation strategy exists; and d) development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate. 	180
<p>The following should be given the same protection as habitats sites:</p> <ul style="list-style-type: none"> a) potential Special Protection Areas and possible Special Areas of Conservation; b) listed or proposed Ramsar sites¹³; and c) sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites. 	181
<p>The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other plans or projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site.</p>	182

Section 40 of the Natural Environment and Rural Communities Act 2006, places a duty on all public authorities in England and Wales to have regard, in the exercise of their functions, to the purpose of conserving biodiversity.

Planning Practice Guidance¹⁴ states:

¹¹ Circular 06/2005 provides further guidance in respect of statutory obligations for biodiversity and geological conservation and their impact within the planning system.

¹² Where areas that are part of the Nature Recovery Network are identified in plans, it may be appropriate to specify the types of development that may be suitable within them.

¹³ Potential Special Protection Areas, possible Special Areas of Conservation and proposed Ramsar sites are sites on which Government has initiated public consultation on the scientific case for designation as a Special Protection Area, candidate Special Area of Conservation or Ramsar site.

¹⁴ Planning Practice Guidance: Natural Environment (www.planningguidance.communities.gov) Updated July 2019

- Planning authorities need to consider the potential impacts of development on protected and priority species, and the scope to avoid or mitigate any impacts when considering site allocations or planning applications. (para. 016)
- Information on biodiversity and geodiversity impacts and opportunities needs to inform all stages of development (including site selection and design, pre-application consultation and the application itself). An ecological survey will be necessary in advance of a planning application if the type and location of development could have a significant impact on biodiversity and existing information is lacking or inadequate. (para. 018)
- Even where an Environmental Impact Assessment is not needed, it might still be appropriate to undertake an ecological survey, for example, where protected species may be present or where biodiverse habitats may be lost. (para. 018)
- As with other supporting information, local planning authorities should require ecological surveys only where clearly justified. Assessments should be proportionate to the nature and scale of development proposed and the likely impact on biodiversity. (para. 018)
- The National Planning Policy Framework encourages net gains for biodiversity to be sought through planning policies and decisions. Biodiversity net gain delivers measurable improvements for biodiversity by creating or enhancing habitats in association with development. Biodiversity net gain can be achieved on-site, off-site or through a combination of on-site and off-site measures. (para. 022)

PROTECTED SPECIES LEGISLATION

The table below details the relevant legislation for the protected species covered within the scope of the survey.

TABLE 7: SUMMARISED SPECIES LEGISLATION		
Species	Relevant Legislation	Level of Protection
Bats (All species)	<ul style="list-style-type: none"> • Protection under the Wildlife and Countryside Act (WCA) (1981) (Listed on Schedule 5) - as amended • Classified as protected species under The Conservation of Habitats and Species Regulations 2017 (as amended) • Bats are also protected by the Wild Mammals (Protection) Act 1996 	<p>The WCA (1981) and The Conservation of Habitats and Species Regulations 2017 (as amended) make it an offence to:</p> <ul style="list-style-type: none"> • Intentionally kill, injure, or take any species of bat • Intentionally or recklessly disturb bats • Intentionally or recklessly damage destroy or obstruct access to bat roosts
Otter	<ul style="list-style-type: none"> • Protection under the Wildlife and Countryside Act (WCA) (1981) (Listed on Schedule 5) - as amended • Classified as protected species under The Conservation of Habitats and Species Regulations 2017 (as amended) • Otters are also protected by the Wild Mammals (Protection) Act 1996 	<p>The WCA (1981) and The Conservation of Habitats and Species Regulations 2017 (as amended) make it an offence to:</p> <ul style="list-style-type: none"> • intentionally kill, injure, or take otters • intentionally or recklessly disturb otters • intentionally or recklessly amage destroy or obstruct access to otter holts or any place used by the animal for shelter or protection
Great Crested Newt	<ul style="list-style-type: none"> • Protection under the Wildlife and Countryside Act (WCA) (1981) (Listed on Schedule 5) - as amended • Classified as protected species under The Conservation of Habitats and Species Regulations 2017 (as amended) 	<p>The WCA (1981) and The Conservation of Habitats and Species Regulations 2017 (as amended) make it an offence to:</p> <ul style="list-style-type: none"> • intentionally kill, injure, or take great crested newts • intentionally or recklessly disturb great crested newts • intentionally or recklessly damage destroy or obstruct access to any place used by the animal for shelter or protection

TABLE 7: SUMMARISED SPECIES LEGISLATION

Species	Relevant Legislation	Level of Protection
Red Squirrel	<ul style="list-style-type: none"> • Full protection under the Wildlife and Countryside Act (WCA) (1981) (Listed on Schedule 5) - as amended • Red squirrels are also protected by the Wild Mammals (Protection) Act 1996 	The WCA (1981) makes it an offence to: <ul style="list-style-type: none"> • intentionally kill, injure, or take red squirrels • intentionally or recklessly damage destroy or obstruct access to any place used by the animal for shelter or protection or disturb red squirrels whilst they are using such a place.
Birds	<ul style="list-style-type: none"> • Protection under the Wildlife and Countryside Act (1981) as amended with the exception of some species listed in Schedule 2 of the Act 	The WCA (1981) makes it an offence to (with exceptions for certain species): <ul style="list-style-type: none"> • Intentionally kill, injure or take any wild bird • Intentionally take, damage or destroy nests in use or being built (including ground nesting birds) • Intentionally take, damage or destroy eggs • Species listed on Schedule 1 of the WCA or their dependant young are afforded additional protection from disturbance whilst they are at their nests
White-clawed Crayfish	<ul style="list-style-type: none"> • Partially protected by the Wildlife and Countryside Act (1981) 	The WCA (1981) makes it an offence to: <ul style="list-style-type: none"> • Take a white-clawed crayfish from its habitat • Sell, offer for sale, advertise for sale, possess or transport for the purposes of selling any live or dead white clawed crayfish
Badger	<ul style="list-style-type: none"> • Protection of Badgers Act 1992 • Badgers are also protected by the Wild Mammals (Protection) Act 1996 	The Protection of Badgers Act (1992) makes it an offence to intentionally or recklessly: <ul style="list-style-type: none"> • Damage a badger sett or any part of it • Destroy a badger sett • Obstruct access to, or any entrance of a badger sett • Disturb a badger whilst it is occupying a badger sett
Water Vole	<ul style="list-style-type: none"> • Full protection under the Wildlife and Countryside Act (WCA) (1981) (Listed on Schedule 5) - as amended • Water voles are also protected by the Wild Mammals (Protection) Act 1996 	The WCA (1981) makes it an offence to: <ul style="list-style-type: none"> • intentionally kill, injure, or take water voles • intentionally or recklessly damage destroy or obstruct access to any place used by the animal for shelter or protection or disturb water voles whilst they are using such a place
Common reptiles (Slow-worm, Adder, Grass Snake, Common Lizard)	<ul style="list-style-type: none"> • Partially protected by the Wildlife and Countryside Act 	The WCA (1981) makes it an offence to: <ul style="list-style-type: none"> • intentionally kill or injure these animals • sell, offer for sale, advertise for sale, possess or transport for the purposes of selling any live or dead animals or part of these animals
<p><i>Under the Countryside and Rights of Way Act 2000 (CROW Act) the offence in section 9(4) of the Wildlife and Countryside Act 1981 of damaging a place of shelter or disturbing those species given full protection under the act is extended to cover reckless damage or disturbance.</i></p>		

INVASIVE SPECIES LEGISLATION

The table below details the legislation in relation to invasive species and lists those invasive species most likely to be found in this region.

TABLE 8: SUMMARISED INVASIVE SPECIES LEGISLATION

Relevant Legislation	Description of Offence	Species <i>(Covered by the Legislation and most likely to be found in this Region)</i>
Listed on Part II of Schedule 9 of the Wildlife and Countryside Act (1981 as amended)	Section 14 of the WCA (1981) states: <ul style="list-style-type: none"> if any person plants or otherwise causes to grow in the wild any plant which is included in Part II of Schedule 9, he shall be guilty of an offence. 	Himalayan balsam Cotoneaster Montbretia Japanese knotweed Giant hogweed Rhododendron Pirri-pirri bur New Zealand pygmyweed Giant rhubarb Japanese rose

PROTECTED SITE LEGISLATION

CONTEXT IN REGARD TO THE UK'S EXIT FROM THE EUROPEAN UNION

As of 1st January 2021, the UK is no longer bound by the Birds Directive and Habitats Directive. However, the Conservation of Habitats and Species Regulations still applies, which formerly acted to transpose the Birds Directive and the Habitats Directive into English and Welsh law. These are still referred to below for contextual purposes, as designated site citations and conservation objectives may not have been updated following the changes to applicable legislation and may still refer to the Directives.

STATUTORILY DESIGNATED SITES

Ramsar Site

Ramsar sites are designated under the Convention on Wetlands of International Importance, agreed in Ramsar, Iran, in 1971. The Convention recognises wetlands as important ecosystems and includes a range of wetland types from marsh to both fresh and salt water habitats. The wetlands can also include additional areas adjacent to the main water-bodies such as river banks or coastal areas where appropriate.

Special Protection Area (SPA)

SPAs are classified by the UK Government under the EC Birds Directive and comprise areas which are important for both rare and migratory birds.

Special Areas of Conservation (SAC)

SACs are designated under the EC Habitats Directive and are areas which have been identified as best representing the range and variety of habitats and (non-bird) species listed on Annexes I and II to the Directive. SACs are designated under the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 unless they are offshore.

Sites of Special Scientific Interest (SSSI)

SSSIs are designated as sites which are examples of important flora, fauna, or geological or physiographical features. They are notified under the Wildlife and Countryside Act 1981 with improved provisions introduced by the Countryside and Rights of Way Act 2000.

National Nature Reserve (NNR)

NNRs are designated by Natural England under the National Parks and Access to the Countryside Act 1949 and the Wildlife and Countryside Act 1981 and support important ecosystems which are managed for conservation. They may also provide important opportunities for recreation and scientific study.

Country Parks

Country Parks are statutorily designated and managed by local authorities in England and Wales under the Countryside Act 1968. They do not necessarily have any nature conservation importance, but provide opportunities for recreation and leisure near urban areas.

Local Nature Reserves (LNR)

LNRs are designated under the National Parks and Access to the Countryside Act 1949 by local authorities in consultation with Natural England. They are managed for nature conservation and used as a recreational and educational resource.

NON-STATUTORILY DESIGNATED SITES

Non-Governmental Organisation Property

These are sites of biodiversity importance which are managed as reserves by a range of NGOs. Examples include sites owned by the RSPB, the Woodland Trust and the Wildlife Trusts.

Local Wildlife Site (LWS)

These are sites defined within the local plans under the Town and Country Planning system and are material considerations of any planning application determination. They are designated by the local authority although criteria for designation can vary between authorities.

PRIORITY SPECIES

Although not afforded any legal protection, national priority species (species of principal importance, as listed in Section 41 of the NERC Act (2006)), and local and regional priority species, as detailed within the relevant biodiversity action plans, are material considerations in the planning process and as such have been assessed accordingly within this report.

The tables below detail the species/species groups and habitats listed as priorities within the biodiversity action plans of the main Local Planning Authorities' within the north-east of England.

TABLE 9: BIODIVERSITY ACTION PLANS					
Northumberland Biodiversity Action Plan					
Species			Habitats		
Barn Owl	Bats	Black Grouse	Blanket Bog	Built Environment	Brownfield Land
Coastal Birds	Common Seal	Dingy Skipper	Calaminarian Grassland	Coastal heathland	Fen, Marsh & Swamp
Dormouse	Farmland Birds	Freshwater Fish	Gardens & Allotments	Heather Moorland	Lowland Heathland
Freshwater Pearl Mussel	Garden Birds	Great Crested Newt	Lowland Meadows & Pastures	Maritime Cliffs & Slopes	Native Woodland
Grey Seal	Hedgehog	Otter	Ponds, Lakes & Reservoirs	Recreational & Amenity Space	Reedbed
Red Squirrel	River Jelly Lichen	Upland Waders	Rivers & Streams	Rocky Shore, Reefs & Islands	Saline Lagoons
Violet Crystalwort	Water Rock-bristle	Water Vole	Saltmarsh & Mudflat	Sand Dunes	Transport Corridors
White-Clawed Crayfish			Trees & Hedgerows	Upland Hay Meadows	Whin Grassland
Durham Biodiversity Action Plan					
Species			Habitats		
Barn Owl	Coastal Birds	Farmland Birds	Native Hedgerows	Veteran Trees, Parkland and Wood Pasture	Woodland and Scrub
Nightjar	Spotted Flycatcher	Upland Birds	Ponds, Lakes & Reservoirs	Lowland Fen	Rivers & Streams
Urban and Garden Wildlife	Freshwater Fish	Grass Snake	Blanket Bog and Upland Wet Heath	Calaminarian Grassland	Upland Calcareous Grassland
Great Crested	Reptiles	Chalk Carpet	Upland Dry	Upland	Upland Screes

TABLE 9: BIODIVERSITY ACTION PLANS								
Newt		Moth	heath and Acid Grassland	Haymeadows	and Rock Habitats			
Cistus Forrester	Dark Green Fritillary	Dingy Skipper	Brownfield Sites	Built Structures	Coastal Habitats			
Glow Worm	Grayling	Green Hairstreak	Lowland Heath	Lowland Meadows & Pasture	Magnesian Limestone Grassland			
Least Minor Moth	Mud Snail	Northern Brown Argus	Transport Corridors	Waxcap Grassland				
Northern Dart	Round Mouthed Whorl Snail	Small Pearl-bordered Fritillary						
White Clawed Crayfish	White-letter Hairstreak	Badger						
Bats	Brown Hare	Dormouse						
Harvest Mouse	Hedgehog	Otter						
Pine Marten	Polecat	Red Squirrel						
Water Vole	Water Shrew	Black Poplar						
Juniper	Pale Bristle-Moss	Yellow Marsh Saxifrage						
Newcastle and North Tyneside Biodiversity Action Plan								
Habitats						Species		
Brownfield Land	Transport Corridors	Open Water & Wetland				Amphibians	Dingy Skipper	Otter
Rivers and Watercourses	Managed Urban Greenspace	Native Woodland	Urban Birds	Water Vole	Red Squirrel			
Lowland Grassland	Scrub, Shrub & Hedgerow	Buildings and Structures	Hedgehog	Slow Worm	Bumblebee			
Estuary & Coastal			Brown hare	Farmland Birds	Bats			
Tees Valley Biodiversity Action Plan								
Species			Habitats					
Barn Owl	Ringed Plover	Grey Partridge	Tree Sparrow	Traditional Orchards	Semi-natural Broadleaved Lowland Woodland			
Little Tern	Corn Bunting	Shelduck	Wagtail Yellow	Reedbeds	Rivers & Streams			
Bittern	Swift	Purple Milk-vech	Water Violet	Arable field Margins	Roadside Verges			
Globeflower	Pepper saxifrage	Tufted Sedge	Knotted hedge-parsley	Lowland Meadows	Sand Dunes			
Yellow Star of Bethlehem	Burnt Orchid	Green Winged Orchid	Strawberry Clover	School Grounds	Maritime Cliffs and Slopes			
Flat Sedge	Small Leaved Lime	Black Poplar	Lyme Grass	Grazing Marsh	Hedgerows			
Scarlet Wax Cap	White-letter Hairstreak	Grayling	Dingy Skipper	Gardens and Allotments	Saline Lagoons			
Blomer's Rivulet	Crescent Striped	Forester	Large Red-Belted Clearwing	Marsh and Saltmarsh	Ponds, Lakes & Reservoirs			
Fen Wainscot	Shore Wainscot	Eccentric Grass Snail	Moss Chrysalis Snail	Parks and Recreation Grounds	Lowland Heath			
Moss Chrysalis Snail	Bats (except common pipistrelle)	Brown Hare	Harvest Mouse	Brownfields	Churchyards and Cemeteries			
Harbour Seal	Water Vole	Common Lizard	Slow Worm					
Great Crested Newt	Bullhead	Salmon	Brown Trout					
European Eel	Brook Lamprey	Sea Lamprey	River Lamprey					
Cumbria Biodiversity Action Plan								
Species			Habitats					
Red Wood Ant	Wall Mason Bee	a ground beetle	Rivers	Lakes, Ponds	Hedgerows			

TABLE 9: BIODIVERSITY ACTION PLANS

		<i>Dyschirius angustatus</i>		and Tarns	
a ground beetle <i>Bembidion testaceum</i>	Oxbow Diving Beetle	Barn Owl	Traditional Orchards	Wood-Pasture & Parkland	Semi-natural Woodland
Song Thrush	Pearl Bordered Fritillary	High Brown Fritillary	Lowland Dry Acid Grassland	Calcareous Grassland	Hay Meadows and Pastures
Marsh Fritillary	Netted Carpet	Least Minor	Coastal and Floodplain Grazing Marsh	Heathland	Fen, Marsh and Swamp
a caddisfly <i>Glossosoma intermedium</i>	Freshwater Crayfish	Variable Damselfly	Bogs	Montane Habitats	Rock habitats
White-faced Dragonfly	Atlantic Salmon	Schelly	Calaminarian Grasslands	Previously developed land	Coastal Habitats above High Water
Vendace	Southern silver Stiletto-fly	Northern Silver Stiletto-fly	Coastal Intertidal Habitats	Coastal Saline lagoons	Coastal Subtidal Habitats
River Jelly Lichen	a lichen <i>Lobaria amplissima</i>	Pink Waxcap			
Medicinal Leech	Whiskered Bat	Brandt's Bat			
Natterer's Bat	Daubenton's Bat	Noctule			
Common Pipistrelle	Soprano Pipistrelle	Brown Long-eared Bat			
Red Squirrel	Water Vole	Hazel Dormouse			
Sandbowl Snail	a whorl snail <i>Vertigo geyeri</i>	Slender Green Feather-moss			
Great Crested Newt	Natterjack Toad	Pillwort			
Juniper	Northern Hawksbeard	Small White Orchid			