TIM MOYA ASSOCIATES

Preliminary Ecological Appraisal

Including:
Extended Phase 1 Habitat Assessment
Bat Scoping Assessment
Great Crested Newt HSI Survey

Land on the south-east side of A12
Old Ipswich Road
Ardleigh
Essex
CO7 7QW

January 2024

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Limitations and Copyright

Project	Land on the south-east side of A12, Ardleigh
Report Type	Preliminary Ecological Appraisal
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NON-TECHNICAL SUMMARY

This report assesses the ecological value of the proposed development site at the Land on the south-east side of A12, Ardleigh.

The proposed development involves the construction of a storage warehouse alongside associated development, following the demolition of the existing industrial units.

The site survey included an assessment of the habitats found within the site and its immediate surroundings and the likely impact of the proposed development on habitats of ecological value and protected and notable species.

This report is broadly considered valid for a duration of eighteen months, although some ecological factors may change within shorter timescales.

Key results:

The site is dominated by hardstanding, buildings, trees, and scrub vegetation.

The site contains potentially suitable habitat for the following protected species: [redacted] bats, nesting birds, great crested newts, reptiles, and hedgehogs.

Stour and Orwell Estuaries SPA and Ramsar are located 6.1 km north-east of the proposed development site. The proposed development lies within the Stour and Orwel Estuaries SPA and Ramsar 13 km Zone of Influence (ZoI).

The proposed development is due to result in the loss of all buildings, some trees, areas of scrub, ruderal vegetation, and sparsely vegetated ground. Some trees, areas of scrub, ruderal vegetation, and hard standing are due to be retained within the development.

Recommendations (see report for details):

Trees should be retained or replaced wherever possible. Tree protection areas and methods should be advised by a suitably qualified arboricultural consultant.

To minimise the risk of [redacted] animals becoming trapped, excavations within the site should include ramps or sloped sides to allow animals to escape.

Features suitable for bats are present within Building B4 (disused structure). To confirm whether bat roosts are present, further emergence surveys should be undertaken on two occasions between May and August (inclusive).

Some of the trees within the site include features suitable for roosting bats. Individual recommendations for each tree are given in Appendix 4.

To avoid an impact on commuting and foraging bats, it is recommended that lighting is designed to minimise illumination of suitable habitats.

To avoid harm to great crested newts and reptiles (if present), precautionary working methods and timing are recommended for removal of suitable vegetation (see report for details).

Vegetation and buildings suitable for nesting birds may only be removed during the nesting season if they have been checked by an ecologist and no nests are present.

Care should be taken when removing dense vegetation to avoid harm to hedgehogs which may be present.

Recommendations are included at the end of this report for measures to enhance the site for local biodiversity.

1 INTRODUCTION

Background

1.1 This report has been instructed by Elmhurst.

1.2 The proposed development involves the construction of a storage warehouse alongside associated development, following the demolition of the existing industrial units.

Purpose of the report

1.3 This report assesses the ecological interest of the site and the potential impacts of the proposed development on biodiversity.

1.4 Ecological surveys are sequential in nature and any follow up, species-specific reports will supersede the information present in this report, even if both are submitted together.

1.5 TMA have been instructed to undertake a Preliminary Ecological Appraisal - a method of ecological assessment outlined in the CIEEM Guidelines for Preliminary Ecological Appraisal (2017). These guidelines state that the aims of the Preliminary Ecological Appraisal are to identify key ecological constraints associated with a project; identify any mitigation measures likely to be required; identify any additional surveys that may be required; and identify opportunities to deliver ecological enhancement.

1.6 This report aims to satisfy the requirements of the National Planning Policy Framework (MHCLG, 2021), identifying ecological features or protected species within or near the site that could potentially be impacted by the proposed development and opportunities for incorporating biodiversity enhancements into the development proposals.

1.7 This report has been produced with reference to current guidelines for preliminary ecological appraisal (CIEEM, 2017) and with Biodiversity - Code of Practice for Planning and Development (BSI, 2013).

1.8 To provide information to support the ecological assessment, a bat scoping survey and great crested newt (*Triturus cristatus*) Habitat Suitability Index (HSI) assessment have also been undertaken.

Limitations

1.9 The site was accessed during November, a time when some plant species may not be evident. However, extensive stands of invasive species such as Japanese knotweed (*Fallopia japonica*) or giant hogweed (*Heracleum mantegazzianum*) would be expected to be evident. Where further botanical or invasive species surveys are considered necessary, these have been recommended within this report.

1.10 Internal inspections of Building B4 were not undertaken as the building was fenced off, preventing access. Access around the back of the vegetated mound to the south-west of the site was not possible. All other areas of the site were accessed fully.

1.11 As the attributes of the site and its potential for protected, notable and invasive species may change over time, this report is broadly considered valid for a duration of **eighteen months**, after which time it is recommended that an update site assessment is undertaken. In some cases, protected or invasive species' use of a site may change over a shorter timescale, [redacted] In such cases, appropriate precautionary advice or recommendations for update surveys are given within this report. Although invasive plant species have been recorded if observed within the site, we cannot guarantee that all occurrences have been found.

Information supplied

1.12 This report has been prepared with reference to the following supplied plans, showing the extent of the site boundary and the proposed development (at this stage):

Proposed Site Plan, Front, 14/02/2023 (Ref. 100.1, Rev. P2).

1.13 Please note, the above-named plans may be superseded or updated without warranting an update of this report, if the changes are insignificant to the impact of the development on biodiversity.

Site location

1.14 The location of the site is rural, surrounded by industrial sites, arable fields, trees, scrub, woodland, water bodies, and landscaped areas. The A12 road runs adjacent to the west of the site. Crown Quarry is located 60 m to the east of the site.

1.15 The central grid reference for the site is TM 02459 29527. The surveyed site covers approximately 1 hectare.

2 RELEVANT LOCAL PLANNING POLICY

Tendring District Local Plan 2013-2033 and Beyond (Section 2) Adopted 25th January 2022

Policy HP 3 – Green Infrastructure

2.1 Green Infrastructure will be used as a way of adapting to, and mitigating the effects of, climate change, through the management and enhancement of existing spaces and habitats and the creation of new spaces and habitats, helping to provide shade during higher temperatures, flood mitigation and benefits to biodiversity, along with increased access.

All new development must be designed to include and protect and enhance existing Green Infrastructure in the local area, as appropriate.

Green Infrastructure as identified on the Policy Map, will be protected, managed and where necessary enhanced by:

a. managing development to secure a net gain in green infrastructure;

b. supporting investment priority projects set out in the Green Infrastructure Delivery Plan;

c. not permitting development that compromises the integrity of the overall Green Infrastructure networks;

d. investing in enhancement and restoration where opportunities exist; and

e. using developer contributions to facilitate improvements to their quality and accessibility.

The Council will work with all sectors and interest groups to help deliver Green Infrastructure projects. Developers should use the guiding principles set out in the Green Infrastructure Delivery Plan to influence all development proposals from an early stage in the design process. Any new Green Infrastructure proposed must be accompanied by a plan for the long-term sustainable maintenance and management of these assets, as well as phasing plans to demonstrate how they are to be delivered. New Green Infrastructure should incorporate semi-natural habitats and provide net gains in biodiversity wherever possible. The long-term management of assets should include biodiversity recording/monitoring to verify/ensure the ecological integrity of GI networks. Green Infrastructure should, where appropriate, include access for the widest range of user groups.

Policy PPL 3 – The Rural Landscape

2.2 The Council will protect the rural landscape and refuse planning permission for any proposed development which would cause overriding harm to its character or appearance, including to:

a. estuaries, rivers and undeveloped coast;

b. skylines and prominent views including ridge-tops and plateau edges;

c. traditional buildings and settlement settings;

d. native hedgerows, trees and woodlands;

e. protected lanes, other rural lanes, bridleways and footpaths; and

f. designated and non-designated heritage assets and historic landscapes including registered parks and gardens.

Development proposals affecting protected landscapes must pay particular regard to the conservation and enhancement of the special character and appearance of the Dedham Vale and Suffolk Coast and Heaths AONBs, and their settings, including any relevant AONB Management Plan objectives. Elsewhere, development proposals should have regard to the Natural England Character Area profiles for the Greater Thames Estuary (No.81) and the Northern Thames Basin (No.111) and the Council's Landscape Character Assessments, as relevant, and should protect and reinforce identified positive landscape qualities.

New development within the rural landscape should minimise the impact of light pollution on the site and its surroundings, in order to protect rural amenity and biodiversity.

Policy PPL 4 – Biodiversity and Geodiversity

2.3 Sites designated for their international, European and national importance to nature conservation: including Ramsar sites; Special Protection Areas (SPAs); Special Areas of Conservation (SACs); Marine Conservation Zones (MCZs); National Nature Reserves (NNRs); and Sites of Special Scientific Interest (SSSIs) will be protected from development likely to have an adverse effect on their integrity.

Where proposals for development are likely to significantly impact upon International and European sites, applications must be supported by a Habitats Regulation Assessment (HRA) to provide sufficient information to the Council to establish the likelihood and nature of impacts before a decision can be made. If necessary, this may need to be followed by a more detailed 'Appropriate

Assessment' of the impacts. An Essex Coast Recreational disturbance Avoidance and Mitigation Strategy (RAMS) has been completed in compliance with the habitats Directive and Habitats Regulations. Contributions will be secured from residential development, within the Zones of Influence, towards mitigation measures identified in RAMS.

As a minimum, there should be no significant impacts upon any protected species, including European Protected Species and schemes should consider (and include provision, as may be relevant for) the preservation, restoration or re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations. Proposals for new development should also have regard to any published local Recreational Disturbance Avoidance and Mitigation Strategies and include any measures which may be necessary to support the aims of the strategy, to help to mitigate any likely recreational impacts arising from the development. Proposals for enhancement of special interest and features will be supported, subject to other material planning considerations.

Sites designated for their local importance to nature conservation, including Local Wildlife Sites (LoWS), Ancient Woodlands Protected Verges and aged or veteran trees will be protected from development likely to have an adverse impact on such sites or features. Proposals for enhancement of special interest and features will be supported, subject to other material planning considerations.

Proposals for new development should be supported by an appropriate ecological assessment. Where new development would harm biodiversity or geodiversity, planning permission will only be granted in exceptional circumstances, where the benefits of the development demonstrably outweigh the harm caused and where adequate mitigation or, as a last resort, compensation measures are included, to ensure a net gain, in biodiversity.

Proposals for new infrastructure and major development should consider the potential for enhanced biodiversity, appropriate to the site and its location, including, where appropriate, within Green Infrastructure.

Any proposed development on sites which may support protected species will require a relevant survey(s), undertaken by a suitably qualified ecologist. If protected species are present, a suitable mitigation plan will be required prior to planning permission being granted.

Policy PPL 6 – Strategic Green Gaps

2.4 The Strategic Green Gaps as shown on the Policies Maps and Local Maps will be protected in order to retain the separate identity and prevent coalescence of settlements. Any development permitted must be consistent with other policies in the plan and must not (individually or cumulatively) lead to the coalescence of settlements.

2.5 See Policies Map 1: West Tendring

3 SURVEY METHODOLOGY

Data Searches

3.1 The government's MAGIC search tool was searched for statutory sites designated for nature conservation interest within 7 km of the site, and for records of European Protected Species licences within 2 km of the site.

3.2 The Essex Field Club was consulted for records of non-statutory sites designated for nature conservation interest and for historic records of protected or notable species within 2 km of the site.

Site Survey

3.3 The survey was undertaken on 1st November 2023 by Brooke Waites of Tim Moya Associates, an experienced Principal Ecologist and Associate Member of the Chartered Institute for Ecology and Environmental Management (CIEEM), and Charlie Torr of Tim Moya Associates, an Assistant Ecologist and Qualifying Member of the Chartered Institute for Ecology and Environmental Management (CIEEM). During the survey the weather conditions were not considered to pose any limitations to the survey.

3.4 The vegetation and habitat types within the site were noted during the survey in accordance with the categories specified for a Habitat Survey (UKHab Ltd., 2023). Dominant plant species were recorded for each habitat present.

3.5 The site was inspected for evidence of and its potential to support protected or notable species, especially those listed under *The Conservation of Habitats and Species Regulations 2017,* the *Wildlife & Countryside Act 1981* (as amended), including those given extra protection under the *Natural Environment and Rural Communities (NERC) Act 2006* and *Countryside & Rights of Way (CRoW) Act 2000*, and listed on the UK and local Biodiversity Action Plans. Such species include amphibians, reptiles, bats, [redacted] birds, hazel dormice, and water voles. [redacted]

3.6 The site was searched for evidence of invasive non-native plant species, especially those listed under Schedule 9 of the Wildlife & Countryside Act *1981* (as amended), such as Japanese knotweed (*Fallopia japonica*), Himalayan balsam (*Impatiens glandulifera*), giant hogweed (*Heracleum mantegazzianum*), horizontal/wall

cotoneaster (*Cotoneaster horizontalis*) and floating pennywort (*Hydrocotyle ranunculoides)*.

Great Crested Newt HSI Assessment

3.7 The great crested newt habitat suitability index (HSI) assessment was undertaken based on methodologies detailed in Oldham *et al*., 2000. The HSI is a quantitative measure of the suitability of a pond to establish the likelihood of great crested newt being present. The assessment is based on ten factors including pond area, shade, terrestrial habitat and water quality. The resulting index for each pond is expressed as a figure between 0 and 1, with scores below 0.5 indicating poor suitability for great crested newt and above 0.8 indicating excellent suitability.

3.8 All ponds within a 500 m radius of the proposed development, where access was possible, were inspected, unless they were considered to be sufficiently separated from the development site that the dispersal of great crested newt into the site was considered highly unlikely.

Bat Scoping Survey

3.9 The bat scoping survey was undertaken in accordance with the Bat Conservation Trust's *Bat Surveys for Professional Ecologists: Good Practice Guidelines* (Collins, 2016). The surveyor holds a Natural England licence to disturb bats whilst surveying. The buildings were inspected externally from all angles using binoculars and internally using a high-powered torch to inspect loft spaces (where present). Trees were inspected from ground level, using binoculars where needed and a high-powered torch to inspect potential bat roost features. Where possible, a ladder was used to inspect features within 3 m of ground level. An endoscope was used to investigate cavities where possible. All aspects of each tree were viewed, and wherever visibility was restricted (e.g., due to ivy or foliage), this is stated in the report.

3.10 Evidence searched for included bat droppings, feeding remains, staining from urine or grease marks and potential access points into roosting cavities. Features indicating potential for bat roosts included gaps beneath roof tiles, weatherboarding and/or hanging tiles, missing mortar, holes in tree trunks, cracks in tree limbs, loose bark and dense ivy growth.

4 DESK STUDY RESULTS

Designated Sites

4.1 The site itself is not covered by any statutory or non-statutory nature conservation designations.

4.2 There are 14 statutory designated sites within 7 km of the proposed development and four non-statutory designated sites within 2 km of the site, as follows:

Table 1. Statutory designated sites of nature conservation interest

Closest statutory site:			
Site name	**Designation**	**Distance and direction from proposed works (km)**	**Description**
Bullock Wood	SSSI	1.3 SW	Comprises mature coppice with a wide variety of trees. The main woodland type is hazel and sessile oak, which is rare nationally. The understorey is mainly coppiced hazel, and the ground flora is dominated by bramble and bracken.
Welsh Wood	LNR	2.9 S	Comprises rotationally coppiced woodland, including ash, hazel, sweet chestnut, and small leaved lime. Plants include bluebell, yellow archangel, and wood anemone. Dead wood provides a habitat for stag beetle larvae.
Ardleigh Gravel Pit	SSSI	3.3 SE	Comprises woodland, scrub, grassland meadow, and waterbodies.
Other statutory sites: Six further LNRs, three further SSSIs, one Ramsar, and one SPA are located between 4 km and 7 km from the proposed development site. Stour and Orwell Estuaries Ramsar and SPA is located 6.1 km north-east.			
Key (Refer to Appendix 6 for details): SPA – Special Protection Area SSSI – Site of Special Scientific Interest LNR – Local Nature Reserve Ramsar – Ramsar Site			

Table 2. Non-statutory designated sites of nature conservation interest

Closest non-statutory site:			
Site name	**Designation**	**Distance and direction from proposed works (km)**	**Description**
Kiln Wood	LWS	0.6 W	Comprises coppiced managed woodland, including mainly oak, hornbeam and hazel. A stream at the northern end has lady fern, herb paris, and broad buckler-fern.
Ardleigh Reservoir Wood	LWS	0.6 S	Woodland comprising oak, ash, silver birch, beech, sweet chestnut, and hazel coppice. Ground flora comprises bracken, bramble, foxglove, broad buckler fern, remote sedge, climbing corydalis, lesser celandine, and bluebell.
Other non-statutory sites: Two further LWS are located between 0.8 km and 2 km from the proposed development site.			
Key (Refer to Appendix 6 for details): LWS – Local Wildlife Site			

Historic Species Records

4.3 Local Ecological Records Centre data searches return hundreds of species records. The table below summarises records of key protected species considered to be most sensitive to impact from proposed developments. Numerous additional notable species records were returned for the 2 km radius, which are considered unlikely to be impacted by the proposed development and are therefore not summarised below. For instance, species for which no suitable habitat is present close to the site (see end of table).

Table 3. Existing protected species records

	Local Ecological Records Centre			**EPS Licences granted**
Species	**Number of records within 2 km**	**Closest record to site (km) and orientation**	**Most recent record**	**No. within 2 km**
[redacted]				

Bat species (*Chiroptera* sp.)	70 records; 6 species	Common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*), noctule bat (*Nyctalus noctula*); 0.7 SW	Brown long-eared bat (*Plecotus auritus*), pipistrelle species; 2018	Two licences, closest 1.5 km north; 2022; allowed damage of a brown long-eared bat breeding site.
Common Lizard (*Zootoca vivipara*)	1	1.1 SW	2016	N/A
Grass Snake (*Natrix helvetica*)	1	0.9 SW	2018	N/A
Great Crested Newt (*Triturus cristatus*)	2	1.7 SW	2007	None
Hedgehog (*Erinaceus europaeus*)	25	0.3 SW	2017	N/A
Otter (*Lutra lutra*)	6	0.7 SW	2020	None
No records were returned of the following key protected/notable species: Adder (*Vipera berus*), hazel dormouse (*Muscardinus avellanarius*), slow-worm (*Anguis fragilis*), stag beetle (*Lucanus cervus*), water vole (*Arvicola amphibius*), white-clawed crayfish (*Austropotamobius pallipes*)				

5 RESULTS OF HABITAT SURVEY

Habitats and Vegetation

5.1 A Habitat Plan can be found in Appendix 1 illustrating the habitats present. Photographs of the site are contained in Appendix 2.

Table 4. Habitats present within the site

Habitat type	Description	Dominant plant species	Overall biodiversity value*	Habitats of Principal Importance**	Additional Notes
Buildings and hard standing	The site is dominated by hard standing used for vehicle access and parking. Two large buildings and two smaller buildings are located on-site.	None	Negligible, other than potentially for roosting bats and nesting birds	No	Bat roost and nesting bird potential are assessed in Table 5, below.
Bramble scrub	Dense scrub on an earth bank dominates the southern boundary of the site. This area was generally overgrown and unmanaged.	Bramble (*Rubus fruticosus agg*.)	Moderate	No	Provides suitable shelter, nesting, and foraging habitat for birds, small mammals, reptiles, and invertebrates.

Habitat type	Description	Dominant plant species	Overall biodiversity value*	Habitats of Principal Importance**	Additional Notes
Ruderal/ephemeral and abandoned ruderal and derelict areas	Areas to the north, east, and west of the site include areas of ruderal vegetation. These areas were generally dense, overgrown, and unmanaged.	Netlle (*Urtica dioica*), spear thistle (*Cirsium vulgare*), bramble (*Rubus fruticosus agg*.), bracken (*Pteridium aquilinum*)	Moderate	No	Provides suitable shelter, nesting, and foraging habitat for birds, small mammals, reptiles, and invertebrates.
Trees	The site contains a number of trees of various species and sizes. Trees are located predominantly on the northern, eastern, and western boundaries. Trees on the northern and eastern boundaries are generally mature. Trees to the east of the site are outside the site boundary. The line of trees on the western boundary are semi-mature and ground cover is short and managed.	Oak (*Quercus robur*), ash (*Fraxinus excelsior*), field maple (*Acer campestre*)	Moderate	No	Each tree has been assessed individually for its potential for roosting bats (see Appendix 4). Provide suitable shelter, nesting, and foraging habitat for birds, small mammals, and invertebrates.

Habitat type	Description	Dominant plant species	Overall biodiversity value*	Habitats of Principal Importance**	Additional Notes
Sparsely vegetated land	A small area of sparsely vegetated land is located to the west of the site under the line of trees. This area was generally short and well managed.	Spear thistle (*Cirsium vulgare*)	Low	No	Provides suitable foraging habitat for birds, small mammals, and invertebrates.
Ponds	Three ponds were identified within 500 m of the site; one is located on-site (wet ditch east of site). The other two are located at 170 m and 220 m south-east of the site within an active quarry.	Bramble (*Rubus fruticosus agg*.)	Moderate	No	All ponds are assessed for their potential for great crested newts in Section 7.
Bare ground	A small area of bare ground covered with leaf litter is located to the north-west of the site.	None	Negligible	No	

*Overall biodiversity value of a habitat is guided by the criteria listed in section 4.6 of the Guidelines for Ecological Impact Assessment (CIEEM, 2018), which include habitats required by rare or uncommon animal or plant species, habitat connectivity and species-rich assemblages of plants.

** Habitats of principal importance included in Section 41 of the NERC Act – for details see Appendix 6.

Protected/Notable Species Potential

5.2 Table 5, below, details the suitability of habitats within the site for key protected/notable species.

5.3 Species not detailed below are considered unlikely to be significantly impacted by the proposed works.

Table 5. Protected species potential

Species group	Strict Protection*	Species of Principal importance **	General habitat requirements	Suitable habitat within site	Additional notes (e.g., evidence of species)
[redacted]					
Bats	Yes	Yes – Several species	Roost in buildings, tree cavities, bridges and caves.	Refer to Section 6 of this report.	Buildings B1, B2, B3, and B5 were assessed as having **Negligible** potential for roosting bats. Building B4 was assessed as having **Moderate** potential for roosting bats. Trees T1, T2, T3, T5, and T8 were assessed as having **Moderate** potential for roosting bats. Trees T7, T17, T16, T15, T14, T13, T12, T9, and T10 were assessed as having **Low** potential for roosting bats.

Species group	Strict Protection*	Species of Principal importance **	General habitat requirements	Suitable habitat within site	Additional notes (e.g., evidence of species)
Birds (nesting)	While nesting	Various	Trees, shrubs, scrub, hedgerows, cavities within buildings, waterbodies, arable fields, bare/stony ground.	Buildings, trees, scrub, ruderal vegetation	Site provides suitable shelter, foraging and nesting habitat for common bird species.
Great Crested Newts	Yes	Yes	Breed in ponds and other waterbodies. Terrestrial habitat includes woodland and grassland.	Refer to Section 7 and Appendix 5 of this report.	The HSI assessment has shown that Pond 1 (ditch) located on-site, was of **poor** suitability for great crested newts. Ponds P2 and P3, located 170 m and 220 m south-east of the site boundary respectively, **could not be accessed** during the survey as they are located within an active quarry. There is suitable terrestrial habitat with fairly good connectivity to other areas of suitable habitat.
Hazel Dormice	Yes	Yes	Hedgerows, dense scrub, deciduous woodland with connected canopy and good ground flora.	Trees, scrub on-site. Scrub and woodland habitat outside site boundary	Some connectivity between site and surrounding area, but connectivity is reduced due to adjacent roads. No dormice have been recorded within 2 km of the site boundary.
Hedgehogs	No	Yes	Woodland, hedgerow, gardens, parks	Scrub, ruderal vegetation	Site provides suitable shelter, foraging and nesting habitat for hedgehogs.

Species group	Strict Protection*	Species of Principal importance **	General habitat requirements	Suitable habitat within site	Additional notes (e.g., evidence of species)
Invasive Plant Species	No	No	Species-dependent: Waste land, railway verges, riverbanks, waterbodies	None	No invasive non-native species were recorded during the survey.
Other invertebrates	No	Various	Species-dependent. High invertebrate diversity is favoured in sites with a mosaic of habitats and diverse plant assemblage.	Trees, scrub, ruderal vegetation, sparsely vegetated land	Site provides suitable shelter, foraging and nesting habitat for common invertebrate species.
Otter	Yes	Yes	Rivers and lakes	On-site waterbody, scrub	On-site waterbody may provide suitable habitat for otters, however there is poor connectivity to other areas of suitable habitat in the local area such as waterbodies and scrub habitat. In addition, there is a lack of suitable waterbodies within close proximity to the site (nearest suitable waterbody is Ardleigh Reservoir Wood LWS located 0.6 S).
Reptiles	Yes	Yes – all reptiles	Long grass, scattered scrub, hedgerows, rubble, and log piles.	Scrub, ruderal vegetation, earth bank	Boundaries of the site provide suitable shelter, foraging and dispersal habitat for common reptile species. There is moderate connectivity between the site and other areas of suitable habitat in the local area.

Species group	Strict Protection*	Species of Principal importance **	General habitat requirements	Suitable habitat within site	Additional notes (e.g., evidence of species)
Water Vole	Yes	Yes	Rivers, streams, wet ditches.	On-site waterbody, scrub	On-site waterbody may provide suitable habitat for water voles, however there is poor connectivity to other areas of suitable habitat in the local area such as waterbodies and scrub habitat. In addition, there is a lack of suitable waterbodies within close proximity to the site (nearest suitable waterbody is Ardleigh Reservoir Wood LWS located 0.6 S). Holes along ditch on eastern bank are probable rat (see Appendix 1).
White-clawed crayfish	Yes	Yes	Canals, streams, rivers, lakes, reservoirs and water-filled quarries	No suitable habitats	

*Strict Protection – species for which individuals and/or their habitats are protected against harm/destruction/disturbance by European or UK Law – for details see Appendix 6.

** Species of principal importance included in Section 41 of the NERC Act – for details see Appendix 6.

6 RESULTS OF BAT SCOPING ASSESSMENT

Buildings

6.1 Building names and locations are shown on the Phase 1 Habitat Plan (Appendix 1). Full details of the Bat Scoping Survey findings are contained in Appendix 3, including building descriptions and inspection findings.

6.2 Roof voids are not the only area of a building that may be used by roosting bats. Bats often roost underneath roof tiles, hanging tiles, wooden cladding, inside cavity walls and amongst brickwork. In these locations, evidence of a bat roost may be concealed.

6.3 Internal inspections of Building B4 were not undertaken as the building was fenced off, preventing access. All other areas where bats may roost in all buildings were accessed fully.

6.4 Buildings B1, B2, B3, and B5 were assessed as having **Negligible** potential for roosting bats, due to the absence of suitable roosting features.

6.5 Building B4 was assessed as having **Moderate** potential for roosting bats, due to the presence of potential roost features such as cracks in blockwork, and access between roof tiles and timber boarding. Also, internal inspection was not possible so that bat roosting potential could not be ruled out.

Trees

6.6 There are a number of trees within the site boundary of various sizes and ages.

6.7 Tree dimensions, inspection notes and recommendations for each tree are listed in Appendix 4 of this report.

6.8 Trees T1, T2, T3, T5, and T8 were assessed as having **Moderate** potential for roosting bats as trees were of the size and maturity to hold potential roost features, and because dense canopy cover may obscure potential roost features from being seen.

6.9 Trees T7, T17, T16, T15, T14, T13, T12, T9, and T10 were assessed as having **Low** potential for roosting bats. Wounds were present on the westerly and easterly stems of T7; however, cavities do not lead into a sufficient feature for roosting bats. All other low potential trees were not assessed fully as access to neighbouring land

was required, however their size and condition indicates that features may be present.

6.10 All other trees on-site were assessed as having **Negligible** bat roosting potential, due to no notable potential bat roost features being viewed.

Foraging and commuting habitat

6.11 The location of the site and the surrounding area is considered to be of moderate value for commuting and foraging bats. The most valuable areas on-site for commuting and foraging bats include scrub habitat and trees on the boundaries of the site. The wider landscape contains a variety of habitats including woodland, landscaped areas, arable fields, and hedgerows. It is expected that a variety of bat species may be found in the local area. It is likely that foraging or commuting bats use the site itself to a certain extent.

7 RESULTS OF GREAT CRESTED NEWT HSI ASSESSMENT

7.1 Great crested newts breed within ponds but spend the majority of the year on land in habitats such as woodland, scrub and rough grassland. Newts may typically disperse up to 500 m from their breeding ponds. During the winter months, newts hibernate amongst habitats such as log piles, rubble and tree roots.

7.2 Three ponds were identified within 500 m of the proposed development using aerial photography, OS maps and ground-truthing. Full details of the Habitat Suitability Index (HSI) assessment for each pond are given in Appendix 5.

7.3 The HSI assessment has shown that Pond 1 (ditch) located on-site, was of **poor** suitability for great crested newts.

7.4 Ponds P2 and P3, located 170 m and 220 m south-east of the site boundary respectively, **could not be accessed** during the survey as they are located within an active quarry. However, using aerial photography and because these ponds are located within an active quarry, it is likely that these ponds are of poor suitability for great crested newts, for example due to assumed lack of aquatic and terrestrial vegetation, frequent disturbance, and pollution.

7.5 Areas of habitat on-site provide moderate suitability for great crested newts due to the presence of scrub and ruderal vegetation which provide suitable shelter, foraging, and commuting habitat. In addition, there is fairly good connectivity between the site and other areas of suitable habitat in the local area. Unsuitable habitats on-site include hardstanding, bare ground, and sparsely vegetated land.

8 CONCLUSIONS AND RECOMMENDATIONS

8.1 For any constraints identified, mitigation options should follow the Mitigation Hierarchy as set out in British Standard BS42020 (BSI, 2013). This seeks as a preference to avoid impacts then to mitigate unavoidable impacts, and, as a last resort, to compensate for unavoidable residual impacts that remain after avoidance and mitigation measures.

Overall Ecological Value

8.2 The proposed development site is considered to have moderate ecological value due to the presence of notable areas of habitat such as trees and scrub habitat. The site also includes areas of low and negligible value habitat such as hardstanding and bare ground.

8.3 The proposed development will result in the loss of all buildings, line of trees, tree T8, areas of scrub, ruderal vegetation, and sparsely vegetated ground. Most trees, hard standing, and the on-site ditch will be retained within the development.

Designated sites

Statutory designated sites

8.4 The closest statutory designated sites are Bullock Wood SSSI and Welsh Wood LNR located at 1.3 km south-west and 2.9 km south of the proposed development site respectively. Stour and Orwell Estuaries SPA and Ramsar are located 6.1 km north-east of the proposed development site. The proposed development lies within the Stour and Orwel Estuaries SPA and Ramsar 13 km Zone of Influence (ZoI) (Place Services & Essex County Council, 2018). Given the small footprint and very localised scale of the development, there is unlikely to be a detrimental impact on these or any other statutory designated sites. However, trees and scrub vegetation on-site should be retained wherever possible to maintain habitat connectivity.

Non-statutory designated sites

8.5 The closest non-statutory designated sites are Kiln Wood LWS and Ardleigh Reservoir Wood LWS, located 0.6 km west and 0.6 km south respectively. Given the small footprint and very localised scale of the development, there is unlikely to be a detrimental impact on this or any other non-statutory designated sites.

However, trees and scrub vegetation on-site should be retained wherever possible to maintain habitat connectivity.

Habitats of Principal Importance

8.6 There are no habitats within or adjacent to the proposed development site that are listed as Habitats of Principal Importance under Section 41 of the NERC Act (Refer to Appendix 6).

Other Notable Habitats

8.7 The following habitats are not classed as Habitats of Principal Importance, but nevertheless are considered to be of notable biodiversity value in the context of the site and its surroundings:

Trees

8.8 The site includes a number of trees. Proposals for the development include the removal of tree T8 and the line of trees to accommodate the development. All other trees are due to be retained within the development.

8.9	Recommendation: Trees should be retained or replaced within the development site wherever possible. Where trees are to be retained, tree protection areas and methods should be advised by a suitably qualified arboricultural consultant.

Protected Species

8.10 The following species are protected against harm/destruction/disturbance by European or UK Law – for details see Appendix 6.

[redacted]

[redacted]

Roosting bats - buildings

8.15 All species of bat are legally protected from disturbance or harm and their roosts are protected from damage or destruction (see Appendix 6 for details).

8.16 Building B4 (disused structure) was assessed as having **Moderate** potential for roosting bats (Appendix 3), due to the presence of potential roost features such as cracks in blockwork, and access between roof tiles and timber boarding. Also, internal inspection was not possible so that bat roosting potential could not be ruled out.

8.17 The proposed development includes demolition of all buildings. Therefore, if Building B4 is used by roosting bats, bat roost features would be destroyed and bats may be disturbed, injured, or killed during demolition or dismantling works.

8.18 Recommendation: To ascertain whether the building is used by roosting bats, in accordance with Bat Surveys for Professional Ecologists: Good Practice Guidelines (Collins, 2016), it is recommended that the Building B4 is subject to nocturnal emergence surveys (also known as dusk or presence/absence). Building B4 should be surveyed on two occasions. Three observation points in total with infrared cameras will be required to cover all angles of the building. The surveys should be undertaken between May and August, inclusive, with a three-week gap between surveys.

8.19 If the surveys confirm the use of any buildings by roosting bats, additional emergence/re-entry surveys may be required (three total).

8.20 Any proposed development works likely to disturb bats or damage/destroy bat roosts may only be undertaken once a Natural England Mitigation Licence has been obtained. This would require a detailed bat mitigation strategy including the provision of alternative roosting features within the development site.

Roosting bats - trees

8.21 Trees T1, T2, T3, T5, and T8 were assessed as having **Moderate** potential for roosting bats as the trees were of the size and maturity to hold potential roost features, and because dense canopy cover may obscure potential roost features from being seen.

8.22 Trees T7, T17, T16, T15, T14, T13, T12, T9, and T10 were assessed as having **Low** potential for roosting bats. Wounds were present on the westerly and easterly stems of T7; however cavities do not lead into a sufficient feature for roosting bats. All other low potential trees were not assessed fully as access to neighbouring land was required, however their size and condition indicates that features may be present.

8.23 All other trees on-site were assessed as having **Negligible** bat roosting potential, due to no notable potential bat roost features being viewed.

8.24 Recommendation: Because T8 is due to be removed to accommodate the proposed development, and because it has potential to be used by roosting bats, it is recommended that further climbed inspections are undertaken to confirm roosting potential. All other trees are due to be retained within the proposed development and therefore no further surveys are required.

Climbed inspection

8.25 Where trees appear to include features suitable for roosting bats, further elevated/climbed inspection can be undertaken to investigate the potential bat roost features closely, using an endoscope to search for evidence of bats and investigate the extent of potential bat roost features. Elevated inspections should be undertaken by ecologists or competent persons licensed to use endoscopes to investigate potential bat roosts. Access by ropes or mobile platforms is required. Elevated inspection can be undertaken at any time of year and in many cases can rule out the need for further survey. In some cases, elevated inspection will show that a potential roost feature does not extend into a cavity and therefore is not of roosting potential. In such cases the tree may be removed or pruned without further ecological constraints. Where elevated inspection shows that cavities are extensive, or finds evidence of roosting bats, additional surveys visit, or further emergence/re-entry surveys may still be required.

Foraging and commuting bats

8.26 Due to suitable habitats present within the site and in the local area such as scrub habitat and trees, it is considered likely that foraging or commuting bats use the site to a certain extent.

8.27 The foraging and commuting behaviour of bats is known to be altered by artificial lighting and bats may avoid illuminated areas (ILP, 2023).

8.28 Recommendation: To avoid a detrimental impact on bats using the site, there should be no increased light spillage on to suitable habitats, particularly on the trees and scrub habitat on the periphery of the site, where bats are most likely to forage and commute. Lighting should be restricted to the interior of the site and should be kept to a low level. The following measures should be implemented within the lighting scheme:

Minimise light spill through careful aiming, positioning and selection of luminaires and column heights.

LED luminaires should be used where possible due to their sharp cut off, lower intensity and dimming capacity.

Lighting must have no upward spill.

Warm white luminaires with peak >550nm. UV lighting should be avoided.

Reduce the light intensity to the minimum required for safety and security;

Where security lamps are used these should use a trigger to illuminate them (e.g. infra-red detector), and switch off after a short period, rather than remaining on all night.

Further guidance is available in Bats and artificial lighting in the UK (ILP, 2023).

In some cases a Lighting Impact Assessment may be required to demonstrate that lighting will not have a detrimental impact on bats.

Great Crested Newts

8.29 Great crested newts (GCN) are legally protected from killing, injury, capture and deliberate disturbance. Habitats used by GCN are also protected (see Appendix 6 for details).

8.30 GCN have previously been recorded as close as 1.7 km south-west from the proposed development site. The landscape surrounding the site includes three waterbodies within 500 m of the proposed development site. The closest waterbody is on-site (Pond P1; ditch). The other two waterbodies are located 170 m and 220 m southeast of the site boundary respectively. The site provides suitable terrestrial habitat for sheltering, foraging, and dispersing GCN such as scrub habitat and ruderal vegetation on the boundaries. Other areas on-site such as hardstanding and bare ground provide negligible value habitat for GCN.

8.31 However, the HSI assessment has shown that Pond 1 (ditch) located on-site, was of **poor** suitability for great crested newts. Furthermore, the other two ponds were assumed to be of poor suitability for GCN as they are located within an active quarry, though not assessed in person.

8.32 As GCN may typically disperse up to 500 m from their breeding ponds, there is a low potential that individual newts from the wider area (if present) may potentially disperse into the terrestrial habitats on the boundaries of the site which are due to be impacted by the proposed development, through killing, injury, or disturbance.

8.33 Recommendation: To avoid an impact on GCN, the following precautionary methods must be implemented prior to and during the works. Given the low potential for GCN to be present on-site, these measures are considered appropriate to reduce the risk of an offence to a negligible level, provided the measures are fully adhered to:

To maintain the low suitability of the development footprint for dispersing GCN (if present) vegetation to be removed should be managed regularly. Vegetation should be kept short throughout the year. GCN dispersal will be more likely through peripheral belts of shrubbery and trees, which are due to be retained.

Prior to construction/demolition operations being undertaken, vegetation to be retained should be clearly marked out to ensure that this area is protected through the construction process. Materials must not be stored or dumped in this area.

During the GCN active period (March – October) any excavations that are created during works will be backfilled and compacted before nightfall or have a gentle sloping gradient at one end to allow any newts to exit. The accumulation of rainwater within excavations should be particularly avoided, as any temporary pools may become colonised by GCN.

During the GCN active period (March – October) stored materials such as rubble (that may act as temporary resting places) should be raised off the ground on pallets.

During the GCN active period (March – October) prior to works each morning, a walk over will be completed by the site manager or other competent person to ensure that no GCN are present within excavations or other suitable places within the working area.

In the event any GCN are identified during site works, operations in the area will stop and an ecological consultant will be contacted. A Natural England licence may be required for completion of the works.

Prior to construction all contractors will receive a formal briefing in relation to the protection of GCN, as set out here. A copy of this method statement must be read and understood by all contractors conducting the clearance works. Site staff must be familiar with identifying GCN.

Alternatively, if access is available, Pond P1 may be subject to testing by environmental DNA (eDNA) analysis. eDNA samples can only be taken between **April and June**. If use of this method confirms the absence of newt populations, the above measures will not be necessary.

8.34 A Natural England licence will be required for works where an impact on GCN cannot be avoided.

Hazel Dormice

8.35 Hazel dormice are legally protected from disturbance or harm and their breeding sites and resting places are protected from damage or destruction (see Appendix 6 for details).

8.36 The site and the surrounding area include suitable habitat for hazel dormice such as scrub habitat and trees, with some connectivity between the site and surrounding habitats. However, connectivity is reduced due to adjacent roads, particularly by Old Ipswich Road to the west which separates the site from suitable scrub and woodland habitat on the A12 road verge. Furthermore, no records of dormice have been returned within 2 km of the site.

8.37 Therefore, hazel dormice are considered unlikely to be present, and the proposed development is considered unlikely to impact hazel dormice and no further surveys or mitigation are recommended.

Invertebrates

8.38 Approximately 400 invertebrate species are listed as ‘Species of Principle Importance’ under Section 41 of the NERC Act (see Appendix 6) and decision makers must have regard to the conservation of these species.

8.39 Due to the common habitats present within the site, it is considered unlikely that the proposed works will significantly impact important populations of invertebrates.

Section 9 of this report includes measures to enhance the development for invertebrates.

Reptiles

8.40 All species of native reptiles are legally protected against killing or injury (see Appendix 6 for details).

8.41 Common lizard, and grass snake have all been previously recorded within 2 km of the site. The scrub and ruderal vegetation present on the boundaries of the site offer moderately suitable habitat for reptiles. Other areas on-site such as hardstanding and bare ground provide negligible value habitat for reptiles.

8.42 Recommendation: Where removal of suitable reptile habitat is due to be removed, to avoid harm to reptiles (if present) it is recommended that scrub and ruderal vegetation should be strimmed carefully, using hand tools, in two phases:

The habitat should be strimmed outwards toward the site boundary, to flush any reptile species into the adjacent habitats.

The first pass should be cut to a height of no less than 150 millimetres. After the first strim, the area should be left for two days to allow any remaining animals to move into surrounding habitats.

The second phase should be cut down to ground level under ecological supervision.

Any sheltering places such as log piles or animals' burrows must be dismantled by hand under ecological supervision, to remove any reptiles present.

This approach can only be undertaken between **March and October** inclusive (when temperatures are not below 10^{o}C) when reptiles are active.

Water Vole and Otter

8.43 Otters and water voles are legally protected from harm, capture and disturbance and their breeding sites and resting places are fully protected (see Appendix 6 for details).

8.44 On-site ditch and scrub habitat on the boundaries of the site provide low suitability shelter, foraging, and commuting habitat for otters and water voles. Furthermore, there is poor connectivity to other areas of suitable habitat in the local area such as waterbodies and scrub habitat. In addition, there is a lack of suitable waterbodies

within close proximity to the site (nearest suitable waterbody is Ardleigh Reservoir Wood LWS located 0.6 S). Furthermore, holes present along ditch on eastern bank were deemed to be probable rat holes and not evidence of water vole (see Appendix 1).

8.45 Therefore, otters and water voles are considered unlikely to be present, and the proposed development is considered unlikely to impact these species and no further surveys or mitigation are recommended.

White-clawed crayfish

8.46 White-clawed crayfish are legally protected from harm, capture and disturbance (see Appendix 6 for details).

8.47 No habitat suitable for white-clawed crayfish is present within or adjacent to the site. The proposed development is considered unlikely to impact this species and no further surveys or mitigation are recommended.

Nesting birds

8.48 All birds are protected against killing, injury or capture, and eggs and active nests are protected. Some bird species are also protected against disturbance (see Appendix 6 for details).

8.49 The site includes buildings, trees, and scrub, all of which are suitable for nesting birds during the nesting season (typically March to August inclusive).

8.50 Recommendation: To avoid destruction of active bird nests, it is recommended that building demolition and vegetation removal is only undertaken outside the bird nesting season. Building demolition and vegetation removal may only be undertaken during the nesting season if a careful check by a suitably experienced ecologist can confirm that no active bird nests are present. If bird nests are present within buildings or vegetation to be removed, they must be left in place and not disturbed until all the young have fledged and cease to return to the nest.

8.51 The typical nesting season for birds (March to August) coincides with the majority of the active season for reptiles (March to September, weather dependent). When removing habitats where both may be present, careful timing is required to avoid impacting active bird nests whilst also protecting reptiles from killing or injury. Ideally, dense vegetation should be removed in September, when birds have largely finished nesting, but reptiles are still active and are therefore at lower risk of harm. Ground clearance should be undertaken under the supervision of a suitably experienced ecologist to minimise the risk of harm to reptiles. Alternatively,

vegetation should be removed down to 15 cm height during the winter (October to February) to remove bird nesting habitat, and then cleared completely to ground level or below during the summer (March to September), when reptiles are active. This phased timing minimises the risk to both reptiles and nesting birds.

Other Species

Hedgehog

8.52 The site includes habitats suitable for hedgehogs to be present. Whilst not a strictly protected species, the hedgehog is listed as a Species of Principal Importance (see Appendix 6) and decision makers must have regard to the conservation of their populations.

8.53 Recommendation: Care should be taken when removing scrub and ruderal vegetation to avoid harm to hedgehogs which may be present. Once vegetation has been removed to a height of 150-300 mm, it should be checked by a member of site staff to ensure that no hedgehogs are present. If any hedgehogs are present, they may be moved to suitable habitat nearby. Section 9 of this report includes measures to enhance the development for hedgehogs.

9 OPPORTUNITIES FOR BIODIVERSITY ENHANCEMENT

9.1 In accordance with the National Planning Policy Framework, recommended opportunities for biodiversity enhancement (above and beyond those required to mitigate for the identified impacts) are set out below. Any additional measures pending the results of the recommended bat surveys should be incorporated as necessary. The below recommendations may not all be feasible within the final development and alternative enhancements should also be considered. A detailed Ecological Mitigation and Enhancement scheme may be appropriate to confirm the details and locations of enhancements which are due to be included within the development.

Wildlife Boxes

Bird boxes (general)

9.2 Installation of bird boxes increases nesting opportunities for bird species. A variety of bird box designs are available, for installation on existing mature trees, on external building walls, or to be in-built into the structure of new buildings. Bird boxes should be installed above 2 m in height facing north and east, thus avoiding strong sunlight and wet winds.

Swift nest boxes

9.3 Swifts are an iconic urban bird species typically using buildings as nesting places. This species is listed as a Red List Species of conservation concern in the UK due to population declines. The inclusion of swift boxes will provide a new potential nesting site for this species. In this case the recommended model is an **Ibstock Eco-habitat for Swifts** (or similar), to be installed into the fabric of the new buildings. As swifts nest colonially, groups of four to ten nest boxes should be installed on suitable buildings. The swift boxes will be installed at the highest possible level, to provide sufficient height for swifts to access the box, with a clear flight path to the entrance and out of prevailing winds and strong sunlight.

House sparrow nest boxes

9.4 The house sparrow (*Passer domesticus*) is an iconic species whose populations have faced steep declines in recent decades. ‘Sparrow terraces’ are available which can accommodate multiple nests and are designed to be incorporated into the fabric of a building as it is built. Boxes should ideally be installed between 2 and 5 m

above ground, preferably avoiding areas that are exposed to strong sunlight or prevailing winds. Siting boxes close to vegetation is helpful for young birds taking their first flights.

Bat boxes

9.5 The inclusion of bat boxes provides new roost sites for bats within the local area. A variety of bat box designs are available, for installation on existing mature trees, on external building walls, or to be in-built into the structure of new buildings. Bat boxes should be located in sheltered spots away from artificial lighting and placed at a height of above 3 metres from the ground, ideally facing south.

Hedgehog boxes

9.6 To enhance the site for hedgehogs, it is recommended that hedgehog nest boxes/domes are installed in undisturbed locations within the site.

Invertebrate boxes

9.7 A wide variety of invertebrate boxes/bug houses are available for installation on trees or poles, to provide nesting and sheltering opportunities for solitary bees, lacewings and various other insects. Boxes should ideally be placed in sunny locations that are protected from wind and rain. Examples of good locations include walls, pergolas, gardens and balconies up to the third or fourth floor. Installing invertebrate boxes close to fruit trees can improve pollination of the trees.

Vegetation and Planting

Tree and shrub planting

9.8 Wherever possible, additional tree and shrub planting is recommended within the site which will increase feeding resources and connectivity for wildlife including bats, birds and invertebrates. Connected corridors of shrubbery within the site will have a larger impact than isolated patches.

9.9 Shrub planting should include a variety of species found on the Royal Horticultural Society's 'Plants for Pollinators' lists, such as lavender (*Lavandula* species), heather (*Calluna vulgaris*), common box (*Buxus sempervirens*), common hawthorn (*Crataegus monogyna*), bell heather (*Erica cinerea*), blackthorn (*Prunus spinosa*), knapweeds (*Centaurea* species), guelder rose (*Viburnum opulus*), barberry (*Berberis species*) and honeysuckle (*Lonicera peridymenum*).

9.10 Native tree species such as hazel (*Corylus avellana*), rowan (*Sorbus aucuparia*), crab apple (*Malus sylvestris* sens.str), elder (*Sambucus nigra*), field maple (*Acer campestre*), holly (*Ilex aquifolium*) and English oak (*Quercus robur*) can be used to provide known benefit to wildlife.

Grassland planting

9.11 Wherever possible, areas of informal 'meadow' grassland should be included, seeded with a species-rich wildflower grassland mix to provide foraging opportunities, particularly for pollinating invertebrates. Areas of longer informal grassland also offer shelter for reptiles, amphibians and small mammals. Recommended grassland species are included in the Royal Horticultural Society's 'Plants for Pollinators' lists.

9.12 To encourage butterflies and bumblebees, the grassland can be designed to incorporate a mosaic of habitats including patches of bare ground, short open turf, tall grass, tussocks and plants in all stages of development. A varied topography which incorporates south facing slopes and sheltered areas is also recommended.

9.13 Grassland managed for invertebrates should be cut only once or twice per year, always allowing plants to set seed in the summer before cutting. If possible, some areas should remain uncut each year.

Log or Stone Piles

9.14 To enhance the site for invertebrates such as the stag beetle (*Lucanus cervus*), reptiles and amphibians, it is recommended that log piles, 2 m width/length and 1 m in height, are created in shaded and undisturbed locations, within the site.

9.15 Alternatively, piles of rocks in both sunny and shaded areas of the site can provide enhancement for a variety of species.

Biodiverse Green Roof

9.16 Wherever feasible, a biodiverse green roof makes a significant enhancement to the biodiversity value of a site and the local area without occupying additional land space. Green roofs can be designed to recreate grassland, brownfield or wasteland habitats critical for many rare species, including bird species and invertebrates. Crushed aggregate can be used to provide green roof substrate. Variable substrate grade and depth is encouraged. The green roof should be designed following the principles of Buglife's 'Creating Green Roofs for Invertebrates' Best Practice Guide wherever feasible. A range of native plant species can be plug planted on the roof, as recommended by Buglife to provide a ready resource for invertebrates,

particularly during the first few years whilst naturally colonised plants become fully established. A locally-sourced log pile can be installed on the green roof, to provide shelter and nesting sites for invertebrates that burrow into or shelter amongst dead wood. Green roofs also have many additional benefits in terms of building insulation, drainage and roof lifespan.

10 REFERENCES

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11 APPENDICES

Appendix 1- Habitat Plan & Target Notes

Appendix 2- Photographs

Appendix 3- Bat Scoping Assessment (Buildings)

Appendix 4– Bat Scoping Assessment (Trees)

Appendix 5– Great Crested Newt Habitat Suitability Index (HSI)

Appendix 6- Wildlife Law and Planning Policy

Appendix 1 - Habitat Plan & Target Notes

Legend

NORTH

- Site Boundary
- Target Note
- w1g6 - Line of trees
- s - sparsely vegetated land
- u1b - developed land, sealed surface
- 17 - Ruderal/ ephemeral
- 73 - Bare ground
- h3d - Bramble scrub
- 350 - Abandoned ruderal and derelict areas
- Building
- Water Body

Tree/Tree Group Bat Potential

- Moderate/High Roost Potential or Confirmed Roost
- Low potential

Title: Habitat Plan		
Client: Elmhurst		
Project: Ardleigh Oaks, Ardleigh		
Date	Drawn by	Authorised
15/12/2023	JCF	BW
Drawing No	Rev	Scale
230961-EC-01	-	1:750

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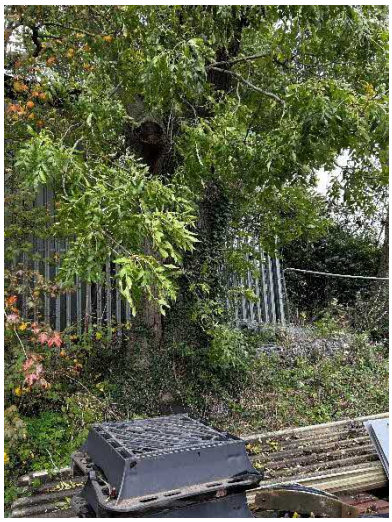
Target Note Schedule

Target notes

Object ID	Type	Notes and findings
TN1	Miscellanous target note	Earth bank covered in scrub vegetation.
TN2	Miscellanous target note	Earth bank covered in scrub vegetation.
TN3	Habitat description	Ditch outside of site boundary.
TN4	Miscellanous target note	Numerous mature oak trees outside of site boundary on the eastern side of the ditch. Not assessed for bat roosting potential.
TN5	Bird nest	Bird nest box present on tree. Evidence of previous use internally.
TN6	Mammal evidence	Probable rat holes along ditch on eastern bank.
TN7	Habitat description	A number of shipping containers present. No suitable bat roosting features.

Appendix 2 - Photographs

Photo 1 – Earth bank with scrub vegetation west and south of site.	Photo 2 – Line of trees west of site.
	
Photo 3 – Ditch, scrub vegetation, and trees, east of site.	Photo 4 – View from north-west of site.
	
Photo 5 – Building B4.	Photo 6 – Tree T8.
	

Appendix 3 - Bat Scoping Assessment (Buildings)

Bat Building Assessment Summary

230961 - Ardleigh Oaks, Ardleigh

230961ED-11

Object ID REF	Storeys	Use of Building	Roof type Condition	Materials	Cellars	Chimneys	Roof void present	Bats evidence	Bat roost potential	Hibernation pot.	Internal Inspection	Potential bat access points Potential bat roost features	Ecological notes	Recommendations
1 Storage warehouse	1	Grit storage	Pitched Good	Roof external: Plastic sheeting Roof internal: Plastic sheeting Wall: Single skinned metal sheeting.	N	0	N	N	N	N	Yes		Warehouse open on one side. No suitable bat roosting features present. Internal floodlights present and appear to be on constantly. Beams are metal offering no suitable crevice features for bats.	- No further surveys required-
2 Site Office	1	Office	Flat Good	Roof external: Bitumen felt Roof internal: Unknown. Wall: Vinyl	N	0	N	N	N	N	No		No loft void present. No suitable bat roosting features.	- No further surveys required-
3 Storage Area	1	Storage	Pitched null	Roof external: Plastic sheeting Roof internal: Plastic sheeting Wall: Composite boarding	N	0	N	N	N	N	Yes		No suitable bat roosting features.	- No further surveys required-
4 Disused structure	1	Unknown	Pitched Poor	Roof external: Corrugated metal Roof internal: unknown Wall: Cinder blocks	N	0		N	M	N	No	Eaves - gaps under roof eaves. Tiles - gaps between. Wall materials - gaps in brickwork/masonry Roof materials - gaps between wooden boarding and roof tiles. Tiles - gaps under roof tiles	Building fenced off so internal inspection was not possible. Potential roost features include cracks in blockwork and access between roof tiles and timber boarding.	- Emergence / return surveys (May to August), if bat roost features are due to be impacted- Two surveys to be undertaken. Surveys should be seperated by at least 3 weeks. Three surveyor positions required (with infra-red cameras).

Bat roost and Hibernation potential

C - Confirmed H - High M - Moderate L - Low N - Negligible

Generated By MyTREES tree management software

Printed on 19/12/23 (Building Assessment)

230961 - Ardleigh Oaks, Ardleigh

230961ED-11

Object ID REF	Storeys	Use of Building	Roof type Condition	Materials	Cellars	Chimneys	Roof void present	Bats evidence	Bat roost potential	Hibernation pot.	Internal Inspection	Potential bat access points Potential bat roost features	Ecological notes	Recommendations
5 Storage area	1	Storage	Sloped Medium	Roof external: Bitumen felt Roof internal: Wall: Cinder block	N	0	N	N	N	N	Yes		Semi-open structure. No suitable bat roosting features present.	- No further surveys required-

Bat roost and Hibernation potential

C - Confirmed H - High M - Moderate L - Low N - Negligible

Generated By MyTREES tree management software

Printed on 19/12/23 (Building Assessment)

Appendix 4 – Bat Scoping Assessment (Trees)

Tree bat potential

230961 - Ardleigh Oaks, Ardleigh
230961-ED-12

Tree No.	Species	Tree Tree group	BCT Category (explanation at end of schedule)	Notes	Recommendations
null1	*Quercus robur* English Oak	Tree	Moderate	No suitable bat roosting features visible from ground level, although canopy restricts view. Further investigation required if due to be impacted.	Climbed inspection if felling or pruning required. To inspect for suitable bat roosting features. If suitable features are identified, further inspections may be required.
null2	*Quercus robur* English Oak	Tree	Moderate	No suitable bat roosting features visible from ground level, although canopy restricts view. Further investigation required if due to be impacted. Two stem oak.	Climbed inspection if felling or pruning required. To inspect for suitable bat roosting features. If suitable features are identified, further inspections may be required.
null3	*Quercus robur* English Oak	Tree	Moderate	No suitable bat roosting features visible from ground level, although canopy restricts view. Further investigation required if due to be impacted. Large oak with DBH >90 cm.	Climbed inspection if felling or pruning required. To inspect for suitable bat roosting features. If suitable features are identified, further inspections may be required.
null5	*Quercus robur* English Oak	Tree	Moderate	No suitable bat roosting features visible from ground level, although canopy restricts view. Further investigation required if due to be impacted. Large oak with DBH >90 cm.	Climbed inspection if felling or pruning required. To inspect for suitable bat roosting features. If suitable features are identified, further inspections may be required.
null7	*Acer campestre* Field Maple	Tree	Low	2 stems present. Wound on westerly stem facing north-east approx 1.2 m high. Wound on easterly stem facing north approx 1.1 m high. Both inspected using an endoscope. The cavities do not lead into a sufficient feature for bat roosting.	Precautionary soft-fell if felling required.
null8	*Fraxinus excelsior* Ash	Tree	Moderate	A number of potential features present including deadwood and previous pruning wounds, although extent unclear due to dense canopy cover.	Climbed inspection if felling or pruning required. To inspect for suitable bat roosting features. If suitable features are identified, further inspections may be required.
null9	*Quercus robur* English Oak	Tree	Low	Off-site tree not fully assessed for bat roosting potential. Size, condition and species indicates features may be present. Access to neighbouring land required for full assessment.	Climbed inspection if felling or pruning required.
null10	*Fraxinus excelsior* Ash	Tree	Low	Off-site tree not fully assessed for bat roosting potential. Location approximated as not shown on TOPO. Size, condition and species indicates features may be present. Access to neighbouring land required for full assessment.	Climbed inspection if felling or pruning required.

230961 - Ardleigh Oaks, Ardleigh
230961-ED-12

Tree No.	Species	Tree Tree group	BCT Category (explanation at end of schedule)	Notes	Recommendations
null12	*Quercus robur* English Oak	Tree	Low	Off-site tree not fully assessed for bat roosting potential, condition and species indicates features may be present. Access to neighbouring land required for full assessment.	Climbed inspection if felling or pruning required.
null13	*Quercus robur* English Oak	Tree	Low	Off-site tree not fully assessed for bat roosting potential. Location approximated as not shown on TOPO. Size, condition and species indicates features may be present. Access to neighbouring land required for full assessment.	Climbed inspection if felling or pruning required.
null14	*Quercus robur* English Oak	Tree	Low	Off-site tree not fully assessed for bat roosting potential. Location approximated as not shown on TOPO. Size, condition and species indicates features may be present. Access to neighbouring land required for full assessment.	Climbed inspection if felling or pruning required.
null15	*Quercus robur* English Oak	Tree	Low	Off-site tree not fully assessed for bat roosting potential. Location approximated as not shown on TOPO. Size, condition and species indicates features may be present. Access to neighbouring land required for full assessment.	Climbed inspection if felling or pruning required.
null16	*Quercus robur* English Oak	Tree	Low	Off-site tree not fully assessed for bat roosting potential. Location approximated as not shown on TOPO. Size, condition and species indicates features may be present. Access to neighbouring land required for full assessment.	Climbed inspection if felling or pruning required.
null17	*Quercus robur* English Oak	Tree	Low	Off-site tree not fully assessed for bat roosting potential. Location approximated as not shown on TOPO. Size, condition and species indicates features may be present. Access to neighbouring land required for full assessment.	Climbed inspection if felling or pruning required.

Bat Potential

Negligible - Negligible habitat features on site likely to be used by roosting bats.

Low - A tree of sufficient size and age to contain PRFs but with none seen from the ground or features seen with only very limited roosting potential.

Moderate - A 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.

High - A 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.

Roost - A known or confirmed bat roost.

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

Soft-fell method

For some trees (see above), it is recommended that a precautionary 'soft-fell/prune' method is used in order to minimise the risk of harm to bats, as follows:

1. During felling/ pruning, trees or limbs must be lowered carefully to the ground using ropes.
2. If any cracks or fissures are observed, cross-cutting these features must be avoided.
3. Trees and limbs must left on the ground for 24 hours, to allow any bats to escape if present, although this is considered unlikely.

Appendix 5 – Great Crested Newt Habitat Suitability Index (HSI)

Great Crested Newt Habitat Suitability Index Report

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Ponds

(ID) Name/ description	Field Location	Pond area (m2)	Pond drying*	Water Quality*	Shade (% of bank)	Fowl	Fish	Pond in 1km2	Terrestrial Habitat	Macrophytes %	Grid Reference	*Distance from Site (m)	**HSI Score**	**Pond Suitability**
(1) Ditch	Optimal	129.57	Sometimes	Bad	100	Absent	Absent	0.1	Poor	0	TM0250329519	1	**0.35**	**Poor**
(2) Waterbody located within active quarry. Not assessed.		598.51									TM0258329315	165		
(3) Waterbody part of active quarry. Not assessed.		5488.77									TM0267629266	215		

*Factor estimated based on observations at time of survey and any other information available

Legend

- Site Boundary
- Water Body

NORTH

Title: Pond Plan		
Client: Elmhurst		
Project: Ardleigh Oaks, Ardleigh		
Date 14/11/2023	Drawn by JCF	Authorised BW
Drawing No 230961-EC-02	Rev -	Scale 1:6,000

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Appendix 6 - Wildlife Law and Planning Policy

Statutes and English Law

Reptiles

All species of native reptiles are protected against killing or injury under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). The sand lizard (*Lacerta agilis*) and smooth snake (*Coronella austriaca*) are further protected under The Conservation of Habitats and Species Regulations 2017 and The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 against capture or disturbance and the places they use for breeding, resting, shelter and protection are protected from being damaged or destroyed.

Great Crested Newts

The Great Crested Newt and its habitat are protected under the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2017 and The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. This legislation makes it an offence to deliberately kill, injure or capture a Great Crested Newt; deliberately disturb a Great Crested Newt; damage, destroy or obstruct access to a structure used for shelter or protection by a Great Crested Newt; or possess or transport a Great Crested Newt.

Bats

All species of bat and their breeding sites or resting places (roosts) are protected under Regulation 41 of The Conservation of Habitats and Species Regulations 2017 and The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and Section 9 of the Wildlife and Countryside Act 1981. It is an offence for anyone intentionally to kill, injure or handle a bat, to possess a bat (whether live or dead), disturb a roosting bat, or sell or offer a bat for sale without a licence. It is also an offence to damage, destroy or obstruct access to any place used by bats for shelter, whether they are present or not.

Otters

Otters and their resting places are protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2017 and The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019. This legislation makes it an offence to deliberately kill, injure or capture an otter; deliberately disturb an otter in their breeding or resting places; damage, destroy or obstruct access to their resting or breeding places.

Water Voles

Water voles are protected under the Wildlife and Countryside Act 1981 (as amended) from killing or taking by certain prohibited methods. Their breeding and resting places are fully protected from damage, destruction or obstruction; it is also an offence to disturb them in these places.

Hazel Dormice

Hazel dormice are protected under both The Conservation of Habitats and Species Regulations 2017 and The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and the Wildlife and Countryside Act 1981 (as amended). Dormice and their breeding sites and resting places are fully protected. Without a licence it is an offence for anyone to deliberately disturb, capture, injure or kill them. It is also an offence to damage or destroy their breeding or resting places, to disturb or obstruct access to any place used by them for shelter. It is also an offence to possess or sell a wild dormouse.

Mammals

The Wild Mammals (Protection) Act 1996 prevents crushing of mammal species (amongst other offences).

Birds

All wild birds are protected under the Wildlife and Countryside Act 1981 (as amended), which makes it an offence to kill, injure or take wild birds; take, damage or destroy the nest of wild birds while it is in use or being built; or take or destroy the eggs of wild birds.

Certain bird species are listed on Schedule 1 of The Wildlife and Countryside Act 1981 (as amended). Under this legislation they are afforded the same protection as all wild birds and are also protected against **disturbance** whilst building a nest, or on or near a nest containing eggs and or unfledged young.

White-clawed crayfish

White-clawed crayfish are protected under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended) protecting them from harm, disturbance and capture without an appropriate licence. It is illegal to buy or sell white-clawed crayfish whether alive or dead.

Invertebrates

Three UK invertebrate species are protected under The Conservation of Habitats and Species Regulations 2017 and The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 – large blue butterfly, fisher's estuarine moth, little ramshorn whirlpool snail. It is an offence for anyone to deliberately disturb, capture, injure or kill them. It is also an offence to damage or destroy their breeding or resting places, to disturb or obstruct access to any place used by them for shelter. It is also an offence to possess, or sell these species.

Approximately 400 further invertebrate species are listed as 'Species of Principle Importance under Section 41 of the NERC Act (see below).

Invasive Plant Species

It is prohibited to plant or otherwise cause to grow in the wild any species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended). The Environmental Protection Act 1990 also classifies certain invasive plants as controlled waste which must be disposed of safely at an appropriately licensed landfill site (e.g. Japanese knotweed).

Under section 57 of the Anti-social Behaviour, Crime and Policing Act 2014, if an individual or an organisation fails to control an invasive plant species which is having a detrimental effect on the quality of life of those in the locality. A notice can be issued after a mandatory written warning has been served. Breach of this notice, without reasonable excuse, would be a criminal offence, subject to fixed penalty notice (a penalty of £100) or prosecution. On summary conviction an individual could be liable to a level 4 fine and an organisation (e.g. a company) could be liable to a fine not exceeding £20,000.

Planning Policy

In addition to the statutes described above, various planning policy imposes duties upon planning applicants to take account of protected species and habitats at sites of proposed development and in particular, protected species. The objective of this

policy is to prevent a net loss of species and habitats diversity identified as priorities for the U.K. as a consequence of development activity.

National Planning Policy Framework (NPPF)

The National Planning Policy Framework is clear that pursuing sustainable development includes moving from a net loss of biodiversity to achieving net gains for nature, and that a core principle for planning is that it should contribute to conserving and enhancing the natural environment and reducing pollution.

Planning policies should promote the preservation, restoration and re-creation of priority habitats, ecological networks and the protection and recovery of priority species populations. If significant harm 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.

Natural Environment and Rural Communities Act (NERC Act)

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.

Priority Habitats and Species

Priority habitats and species are defined (NPPF, 2021) as 'Species and Habitats of Principle Importance included in the England Biodiversity List published by the Secretary of State under Section 41 (S41) of the Natural Environment and Rural Communities Act 2006 (NERC Act)'. The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under the NERC Act, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

Fifty-six **habitats** of principal importance are included on the S41 list. These are all the habitats in England that were identified as requiring action in the UK Biodiversity Action Plan (UK BAP) and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework. They include terrestrial habitats such as upland hay meadows to lowland mixed deciduous woodland, and freshwater and marine habitats such as ponds and subtidal sands and gravels.

There are 943 **species** of principal importance included on the S41 list. These are the species found in England which were identified as requiring action and which continue to be regarded as conservation priorities under the UK Post-2010

Biodiversity Framework. In addition, the Hen Harrier has also been included on the list because without continued conservation action it is unlikely that the Hen Harrier population will increase from its current very low levels in England.

ODPM Circular 06/2005

This Government Circular entitled 'Biodiversity and Geological conservation – Statutory obligations and their impact within the planning system' (ODPM, 2005) provides administrative guidance on the application of the law relating to planning and nature conservation as it applies in England.

The potential effects of a development, on habitats or species listed as priorities under Section 41 of the NERC Act, and by Local Biodiversity Partnerships, together with policies in the England Biodiversity Strategy, are capable of being a material consideration in the preparation of regional spatial strategies and local development documents and the making of planning decisions.

The presence of a protected species is a material consideration when a planning authority is considering a development proposal that, if carried out, would be likely to result in harm to the species or its habitat. It is essential that the presence or otherwise of protected species, and the extent that they may be affected by the proposed development, is established before the planning permission is granted, otherwise all relevant material considerations may not have been addressed in making the decision. The need to ensure ecological surveys are carried out should therefore only be left to coverage under planning conditions in exceptional circumstances, with the result that the surveys are carried out after planning permission has been granted. However, bearing in mind the delay and cost that may be involved, developers should not be required to undertake surveys for protected species unless there is a reasonable likelihood of the species being present and affected by the development. Where this is the case, the survey should be completed and any necessary measures to protect the species should be in place, through conditions and/or planning obligations, before the permission is granted.

Statutory and Non-Statutory Sites

Name	Statutory/Non-statutory	Definition
SAC – Special Area of Conservation	Statutory	Strictly protected sites designated under the EC Habitats Directive, which will make a significant contribution to conserving habitats or species identified in Annexe I and II of the Directive (as amended).
SPA – Special Protection Area	Statutory	Strictly protected sites classified in accordance with Article 4 of the EC Birds Directive. They are classified for rare and vulnerable birds (as listed on Annex I of the Directive).
SSSI – Site of Special Scientific Interest	Statutory	SSSIs provide statutory protection for the best examples of the UK's flora, fauna, or geological or physiographical features.
NNR – National Nature Reserve	Statutory	NNRs contain examples of some of the most important natural and semi-natural terrestrial and coastal ecosystems in Great Britain. They are managed to conserve their habitats or to provide opportunities for scientific study.
LNR – Local Nature Reserve	Statutory	LNRs are declared and managed for nature conservation, and provide opportunities for research and education, or simply enjoying and having contact with nature.
Ramsar – Ramsar Site	Statutory	Ramsar sites are wetlands of international importance designated under the Ramsar Convention.
LWS – Local Wildlife Site	Non-statutory	Areas of land with significant wildlife value for the local area.
SINC – Site of Importance for Nature Conservation	Non-statutory	Areas of land with significant wildlife value for the local area.
CWS – County Wildlife Site	Non-statutory	Areas of land with significant wildlife value for the county.

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