Huckle Ecology

Ecological Impact Assessment

Land at Clip Hedge Farm, Little Bentley, Essex

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Report prepared by Dr J. Huckle for Huckle Ecology Ltd

Executive Summary

- Huckle Ecology was commissioned in April 2017 to undertake an Ecological Appraisal in relation to a proposed outline planning application for a new office building and warehouse with landscaped grounds to be constructed on land at Clip Hedge Farm, Little Bentley, Essex.
- The proposed Site comprises a plot of land to the east of Harwich Road, in Little Bentley. The Site occupies a plot with an area of approximately 1.5 ha and is comprised of a single field, previously used for arable production but fallow at present. The surrounding area is predominantly arable farmland with scattered residential dwellings.
- A desk study was undertaken in April 2017 to identify features of ecological value that could potentially be affected by the proposed development. Records of statutory and non-statutory designated sites within 1 km were requested from the Essex Field Club (EFC) and the Essex Wildlife Trust, along with records of protected species or species of conservation concern (SoCC).
- An extended Phase 1 habitat survey was undertaken on April 11th 2017, to provide an evaluation of the habitats present within the Site, and to assess the potential of the site to support ecologically important features, including habitats or species that benefit from statutory protection and/or are of nature conservation concern.
- The desk study and data search have confirmed that the Site does not benefit from any statutory or non-statutory nature conservation designation and that there are no designated sites within a 2 km search area from the Site. The closest SSSI is located approximately 5.6km from the site and closest CWS, Little Bentleyhall Wood is approximately 450m from the Site at its closest point.
- The EFC data search returned records of species that benefit from legal protection or are of conservation concern from within a 2 km radius from the site, including records of mammals (including bats), reptiles, amphibians, birds, flowering plants and invertebrates. The information from the desk study, combined with the findings of the extended phase 1 habitat survey has provided an assessment of the likely value of the habitats present within the site to support ecologically important species.
- The habitats present within the majority of the Site are of negligible ecological value, comprising a former arable field that has been left fallow for several years, and which now supports improved grassland characteristic of abandoned arable farmland. The sward was dominated by grass species with locally abundant herbaceous species and tall ruderal species that are typically associated with colonisation of fallow fields. The site boundaries comprise linear features of relatively recent origin with young coniferous trees (Leylandii) present along the north, east and south boundaries.
- The habitats of most value are associated with the hedgerow along the northern boundary of the site, which provides potential habitat for breeding birds and small

mammals, and provides habitat connectivity to hedgerows to the north of the site, as well as to the gardens adjacent to the north of the Site.

- The proposed development site does not contain habitats likely to support any species that are likely to be significantly affected by the proposed development and which would require further survey to determine whether they were present or absent. Therefore, no further ecological surveys for species or species groups have been considered necessary to inform a planning application.
- Ecological enhancements have been incorporated into the design of the proposed development which will provide significant net gains for biodiversity at the site level, and will include the replacement of Leylandii tree boundaries with native hedgerows and trees, creation of wildflower meadow areas, the creation of a new wildlife pond in the north east corner of the site, and the construction of a hibernaculum that will provide potential habitat for amphibians, reptiles and small mammals.
- Potential effects on bats, amphibians, reptiles and breeding birds could potentially occur during construction, and appropriate mitigation measures have been proposed that would ensure that any adverse effects on these taxonomic groups would be avoided as far as practically possible. Furthermore, the proposed ecological enhancements will deliver benefits for these taxonomic groups.
- Consequently, if the recommendations detailed in this report are followed, it is concluded that the proposed development would be compliant with statutory legislation regarding biodiversity and nature conservation and planning policy including recommendations set out in the NPPF and in local planning policies.

1 Introduction

1.1 Terms of Reference

1.1.1 Huckle Ecology was commissioned in April 2017 by Mr J. Pattle on behalf of Mr Neil Napthine to undertake an Ecological Appraisal in relation to a proposed outline planning application for a new office building and warehouse to be constructed on land at Clip Hedge Farm, Little Bentley, Essex, hereafter referred to as 'the Site'.

1.2 Site Description

1.2.1 The proposed Site comprises a plot of land to the east of Harwich Road, in Little Bentley. The site is approximately rectangular in shape and lies to the south of a residential property, Clip Hedge Farm, with arable farmland to the east, south and west of the Site.

1.2.2 The Site is approximately centred on National Grid Reference TM 10561 24989 (see Site

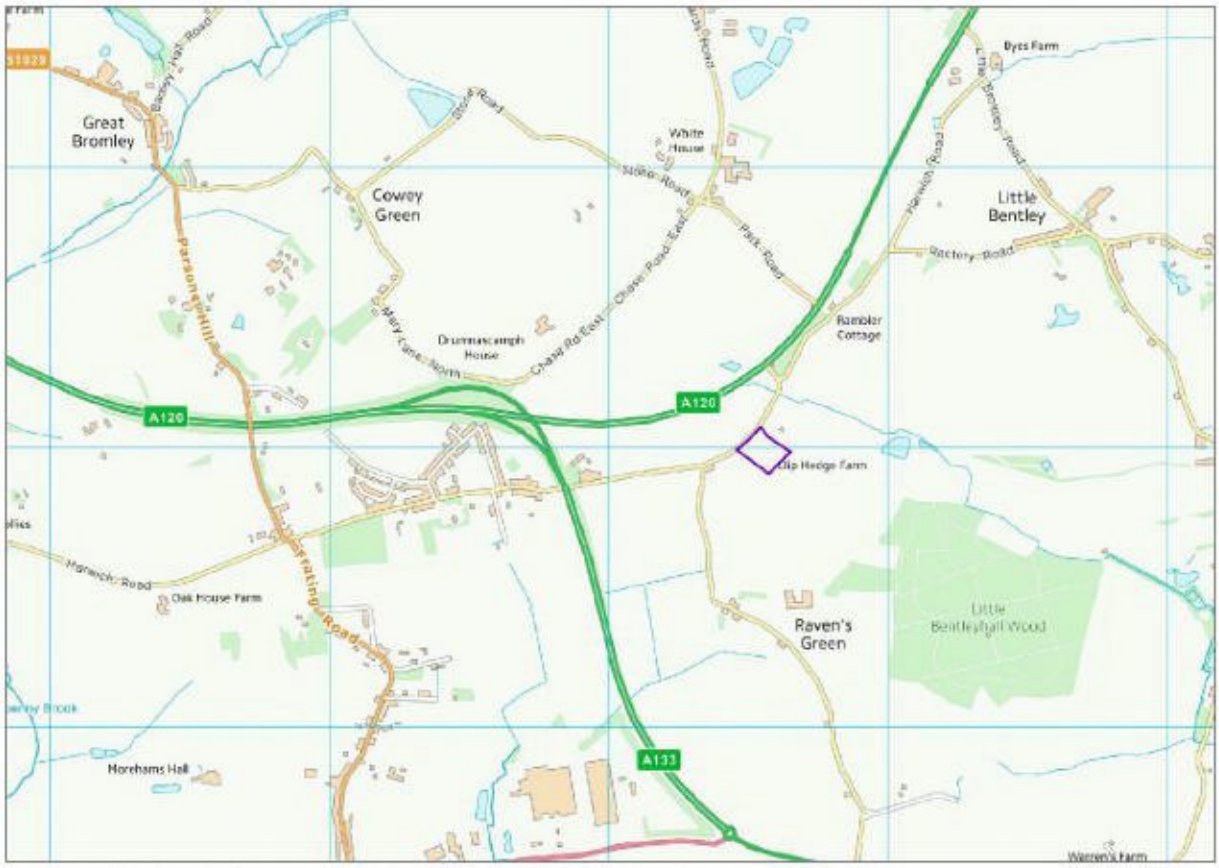
location plan in Figure 1 below).

1.2.3 The Site occupies a plot with an area of approximately 1.5 ha and is comprised of a single field, previously used for arable production but fallow at present. An agricultural building with a small area of concrete hardstanding was previously present on the northern section of the site, but this was cleared and the ground levelled several years ago.

1.2.4 The surrounding area is predominantly arable farmland with scattered residential dwellings.

1.2.5 The proposed development comprises an outline planning application for the construction of a new office building and warehouse building with landscaped grounds.

Figure 1 Site Location



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1.3 Aim of this Report

1.3.1 This report presents an assessment of the likely ecological impacts of the proposed development and includes the findings of a Preliminary Ecological Appraisal (PEA)[1], along

[1] A Preliminary Ecological Appraisal (PEA) presents the results of initial ecological surveys associated with a proposed development and is used to identify ecological constraints associated with a particular site, identify further ecological surveys that may be required to inform an ecological impact assessment, and inform the design phase of a project. Where it can be concluded that the project would have no significant effects, no mitigation is required or no further surveys are required, a PEA report can be included with a planning application (CIEEM, 2015)

with mitigation and enhancement proposals which have been incorporated into the design of the scheme.

1.3.2 Therefore, this Ecological Impact Assessment report is designed to provide planning decision makers with the information relating to ecology and nature conservation required to determine the planning application. The report broadly follows methods recommended by the Chartered Institute of Ecology and Environment Management (CIEEM) including guidelines for Preliminary Ecological Appraisal (CIEEM, 2013) and Ecological Impact Assessment (CIEEM, 2016).

1.3.3 The report includes several sections:

- A summary of legislation and planning policy regarding ecology and biodiversity;
- A section setting out the methodological approach adopted in the assessment, including a desk study of relevant data and field surveys undertaken for the assessment;
- A description of the baseline ecological conditions for the Site, including:
- Details of relevant designated sites;
- A description of the habitats present within the site and in areas immediately adjacent to it; and
- An assessment of the potential use of the site by protected species and species of conservation concern.
- A brief description of the proposed development
- An assessment of the potential effects of the proposed scheme on the ecological features identified as being potential constraints and recommendations for appropriate mitigations measures.
- Potential ecological enhancements recommended, over and above any require mitigation measures, to deliver benefits for biodiversity as an integral part of the proposed scheme.

2 Legislation and planning policy

2.1 Introduction

2.1.1 Following the result of the UK Referendum vote to leave the European Union, the detail of the wildlife protection conferred by European legislation is likely to change. However, at the time of writing, and until the UK actually leaves the EU, all EU Directives and Regulations remain valid. This section of the report provides a brief guide to legislation and planning policy and it is recommended that the full text of policy and legislation is consulted.

2.2 National Planning Policy

2.2.1 The National Planning Policy Framework (NPPF) (DCLG, 2012) was published by the government in March 2012 and provided guidance for local authorities, focusing on helping to produce planning policies that are clear and easy to understand. The NPPF replaced existing planning policy guidance, including that relating to biodiversity, Planning Policy Statement 9 (PPS9): Biological and Geological Conservation. However, the Government Circular 06/05: Biodiversity and Geological Conservation – Statutory Obligations and their impact within the Planning System (ODPM, 2006), which accompanied PPS9, remains valid at the time of writing.

2.2.2 Section 11 of the NPPF specifies the requirements for conserving and enhancing the natural environment, much of which reaffirms the protection previously afforded by PPS9 to designated sites, priority habitats and species and ancient woodland. The NPPF places a greater emphasis on ecological networks and states that the planning system should provide net gains in biodiversity where possible. Paragraph 118 provides the following advice in relation to the consideration of biodiversity in the determination of planning applications:

> *"When determining planning applications, local planning authorities should aim to conserve and enhance biodiversity by applying the following principles:*
>
> - *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;*
> - *proposed development on land within or outside a Site of Special Scientific Interest likely to have an adverse effect on a Site of Special Scientific Interest (either individually or in combination with other developments) should not normally be permitted. Where an adverse effect on the site's notified special interest features is likely, an exception should only be made where the benefits of the development, at this site, clearly outweigh both the impacts that it is likely to have 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;*
> - *development proposals where the primary objective is to conserve or enhance biodiversity should be permitted;*
> - *opportunities to incorporate biodiversity in and around developments should be encouraged;*
> - *planning permission should be refused for development resulting in the loss or deterioration of irreplaceable habitats, including ancient woodland and the loss of aged or veteran trees found outside ancient woodland, unless the need for, and benefits of, the development in that location clearly outweigh the loss; and*
> - *the following wildlife sites should be given the same protection as European sites:*
> - *potential Special Protection Areas and possible Special Areas of Conservation;*
> - *listed or proposed Ramsar sites; and*
> - *sites identified, or required, as compensatory measures for adverse effects on European sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites."*

2.2.3 In the context of the implementation of the NPPF, guidance in relation to biodiversity provided by Circular 06/05 remains valid and is supplemented by the UK Government's Planning and Development Guidance (UK Government, 2016). Nature conservation legislation relating to protected species is unchanged and is outlined below.

2.3 UK Post-2010 Biodiversity Framework

2.3.1 The 'UK Post-2010 Biodiversity Framework' (JNCC & DEFRA, 2012), published in July 2012, sets out a framework of priorities for UK-level work for the Convention on Biological Diversity, to which the UK is a signatory. Covering the period 2011-2020, this framework replaces the original UK Biodiversity Action Plan (UK BAP, 2004) system and now the work is focussed on the separate countries (England, Scotland, Northern Ireland and Wales).

2.3.2 The overall aim remains to protect a number of rare species and habitats, and reverse the declines of more widespread but declining species and habitats, and so currently many of the species and habitats in the UK BAP still form the basis of the biodiversity work carried out in the devolved countries.

2.3.3 In addition to the species in the UK BAP, BAPs have been devolved to local levels (LBAPs). Under the NERC Act, the English government and public bodies, including planning authorities, have a duty to have due regard to the purpose of conserving biodiversity, so it remains good practice for BAP and LBAP species and habitats to be taken into consideration in the planning of a development scheme. Many UK and local BAP species are also listed on the NERC S.41 list of "species of principal importance" (SPIs).

2.4 Legislation

2.4.1 All public authorities have a requirement to pay due regard to the conservation and enhancement of habitats and species through Section 40 of the Natural Environment and Rural Communities Act 2006 (NERC), which states, "Every public authority must, in exercising its functions, have regard, so far as is consistent with the proper exercise of those functions, to the purpose of conserving biodiversity". To this end, Section 41 of the NERC Act provides for the establishment of a list of habitat and species that are considered to be of "principal importance for the conservation of biological diversity in England". This list can be viewed on the DEFRA website at www.defra.gov.uk .

2.4.2 National legislation for the special protection of selected species is provided in the Wildlife and Countryside Act 1981, as amended (WCA). Under Section 1(1) and 1(2), all British bird species, their nests and eggs (excluding some pest and game species) are protected from intentional killing, injury or damage. Under Sections 1(4) and 1(5), special penalties are applied to bird species included in Schedule 1 of the Act and protection is extended for these species to disturbance to birds whilst building, in or near a nest and disturbance to dependant young. Schedule 5 provides special protection to selected animal species other than birds, through Section 9(4) of the Act, against damage to "any structure or place which any [wild animal included in the schedule] uses for shelter and protection" and against disturbance whilst in such places. Section 14 of the WCA prohibits the release of non-native species into the wild, including plants and animal species that are potentially invasive.

2.4.3 The Protection of Badgers Act 1992, as amended, provides protection to badgers and their setts and is primarily concerned with animal welfare and makes it an offence to kill or harm a badger or to interfere with a sett.

2.4.4 A number of animals, known as European protected species (EPS), are provided full protection through inclusion in Schedule 2 of The Conservation of Habitats and Species Regulations 2010, as amended. The Regulations provide protection against deliberate disturbance to those animals wherever they are present, and provides tests against which the permission for a development that may have an effect on a Schedule 2 protected species must be assessed before permission can be given.

2.4.5 In addition to species protection, the Wildlife and Countryside Act 1981 (as amended) and Habitats Regulations also set out requirements/procedures for the notification, designation and protection of a range of statutory site designations in order to preserve important nature conservation resources.

3 Methodology

3.1 Desk Study

3.1.1 A desk study was undertaken in April 2017 to review existing information regarding designated sites, habitats or species that benefit from statutory protection and/or are of nature conservation concern.

3.1.2 The scope of the desk study was to identify features of ecological value that could potentially be affected by the proposed development; for this reason, the scope of the area around the Site to be included within the desk study search has been set at 2 km for non-designated sites and records of species of conservation concern, with the search area extended to 5 km for statutory designated sites. This scope is sufficient to provide an indication of the nature conservation interest in the surrounding area and appropriate for the size of the Site and the nature of the proposed development.

3.1.3 Review of existing biological records can be of assistance in establishing the extent to which species that could represent a material consideration in planning terms are likely to be present in suitable habitats locally. The Essex Field Club (EFC) was contacted to provide the data they held within a 2 km distance of the centre of the proposed Site; a Datasearch Report was retrieved collating records provided by the EFC and this is provided in full at Appendix D in accordance with the terms and conditions of the EFC. Information on non-statutory sites (Local Wildlife Sites) was obtained from the Essex Wildlife Trust (EWT). Information on statutory sites was obtained from the UK Government internet site MAGIC (http://www.magic.gov.uk/).

3.2 Extended Phase 1 Habitat Survey

3.2.1 An extended Phase 1 habitat survey, as described in the Guidelines for Baseline Ecological Assessment (IEA, 1995) was undertaken on April 11th 2017.

3.2.2 Phase 1 habitat survey is a standardised method of recording habitat types and characteristic vegetation, as set out in the Handbook for Phase I Habitat Survey – a technique for Environmental Audit (JNCC, 2010). This survey method is extended through the additional recording of specific features indicating the presence, or likely presence, of protected species or other species of nature conservation significance. This survey method is an established and accepted approach for developing an ecological baseline for a site and is an integral part of both a Preliminary Impact Assessment (CIEEM, 2013) and a more comprehensive Ecological Impact Assessment (CIEEM, 2016)

3.2.3 Habitats are mapped and 'target notes' are made to describe characteristic habitats, features of ecological interest, or any other features which require ecologically sensitive design or mitigation.

3.2.4 Whilst not a full protected species or botanical survey, the extended Phase I method enables a suitably experienced ecologist to obtain sufficient understanding of the ecology of a site that it is possible either:

- to confirm the conservation significance of the site and assess the potential for impacts on habitats/species likely to represent a material consideration in planning terms; or
- to ascertain that further surveys of some aspect(s) of the site's ecology will be required before such confirmation can be made.

3.2.5 The survey was undertaken by an experienced surveyor (Dr Jon Huckle has over 20 years professional experience of undertaking Phase 1 habitat and other ecological surveys), in good weather conditions and at a time of year (mid-April) that is generally suitable for mapping the habitats present within the survey area. The survey was undertaken to cover the area within the Site itself, and extended in scope to include all habitats adjacent to the Site, as shown on Figure 2.

Limitations to the Survey

3.2.6 In any ecological survey, it is important to establish any limitations to the survey that may affect the conclusions that may be drawn from the survey results. The Site was surveyed in fine dry weather, and in optimal conditions for undertaking ecological surveys.

3.2.7 Although access to the site was unrestricted, some of the habitats in adjacent areas could only be observed from the site itself, or from publicly accessible roads or land. While this is a minor limitation relating to these areas, such as the pond and gardens associated with the residential property (Clip Hedge Farm) to the north of the Site, it did not affect the ability to map the habitats sufficiently for this assessment.

4 Baseline Ecological Conditions

4.1 Designated Sites

Statutory Designated Sites

4.1.1 Review of the UK Government internet site MAGIC, along with data received from the SBIS confirmed that the Site does not benefit from any statutory nature conservation designation, and that there are no statutory designated sites present within a 2 km radius of the Site, and that there are none within a 5 km radius of the Site.

4.1.2 The closest statutory designated site is the Wivenhoe Gravel Pit SSSI which is located approximately 5.6km WSW of the Site at its closest point.

4.1.3 The Site lies well outside the 2km SSSI Impact Risk Zones identified by Natural England (Natural England, 2016), and is not functionally linked in an ecological or hydrological manner to the SSSI. Therefore, it is concluded that the proposed development does not pose a risk to the nearby SSSI and would not result in a likely significant adverse effect on the SSSI or other designated Sites.

Non-statutory Designated Sites

4.1.4 Review of the UK government internet site www.magic.gov.uk and data received from the SBIS confirmed that the Site does not benefit from any form of non-statutory nature conservation designation.

4.1.5 Local or County Wildlife Sites (CWS) are recognised by national planning policy as having a fundamental role to play in meeting overall national biodiversity targets. LWS are not protected by legislation but their importance is recognised by local authorities when considering planning applications. Under current planning policy there is a presumption against granting permission for development that would have an adverse impact on a LWS. Data received from the Essex Wildlife Trust website (Essex Wildlife Trust, 2017) confirmed the presence of two LWSs within a 2 km radius of the Site, but with only one located within 1km of the Site. A summary of each CWS located within a 2 km radius of the Site is provided in Table 1 below.

Table 1 Local Wildlife Sites located within 2km of the proposed Site

CWS Number and Name	Location	Description
TE52 Little Bentleyhall Wood	Approx. 450m SE of the Site at its closest point	A large area of ancient woodland that includes additional planting of conifers in the northwestern area.
TE50 Bentley Brook	Approx. 1.9 km SW of the Site at its closest point	A linear corridor that flows southwards for several km and comprises a mosaic of different habitats inlcuding wet woodland,

CWS Number and Name	Location	Description
		lowland meadows and lowland grassland.

Summary

4.1.6 The desk study and data search have confirmed that the Site does not benefit from any statutory or non-statutory nature conservation designation and that there are no designated sites within a 2 km search area from the Site. The closest SSSI is located approximately 5.6km from the site and closest CWS, Little Bentleyhall Wood is approximately 450m from the Site at its closest point.

4.2 Habitats

4.2.1 The findings of the extended Phase I habitat survey are presented in Figure 2 and detailed below, with target notes of features of ecological interest taken during the surveys detailed in Appendix A, together with descriptions of each hedgerow located within or adjacent to the Site.

4.2.2 In this section habitats recorded within the Site boundary are discussed first, followed by a summary of the habitats within the wider Survey Area, in order to provide context and inform on the potential of the habitats present to support protected species.

Habitats Recorded Within the Site

4.2.3 As noted above the Site is predominantly comprised of a single field with field boundaries around the perimeter of the application boundary. The field was found to support two areas, with a smaller area to the north of the site, which was previously the site of an agricultural building or warehouse with an area of concrete hardstanding in front.

4.2.4 The remainder of the field comprised improved grassland, typical of previously farmed land that has been fallow for several years.

Improved grassland – Habitats within field

4.2.5 The majority of the Site (Target Notes TN3 and TN4) comprised a former agricultural field, that appeared to have been fallow for several years. The field had not been managed at all for at least one year due to the presence of naturally seeded scrub seedlings, particularly along field boundaries – scrub species present include white willow *Salix alba*, Hawthorn *Crataegus monogyna*,, blackthorn *Prunus spinosa*, and bramble *Rubus fruticosus* agg. and dog rose *Rosa canina* seedlings.

4.2.6 The grass sward present was characteristic of a fallow field with previous arable management, and dominated by cocksfoot, Yorkshire fog and common bent *Agrostis capillaris* with

abundant herbaceous and tall ruderal species including hogweed, spear thistle, ribwort plantain, prickly sow-thistle *Sonchus asper*, common dandelion, Cow parsley, and wild carrot *Daucus carota*.

4.2.7 Although lacking recent management, the grassland was generally free of tussocks, and thus was considered to provide relatively limited habitat for small mammals and reptiles.

4.2.8 The improved grassland habitat is characteristic of a relatively species-poor sward that has developed within a fallow field. The habitat is of negligible ecological value, although may provide foraging habitat for birds and small mammals.

Poor Semi-improved grassland – previously developed land

4.2.9 The site of a former agricultural building and associated hardstanding in the northern half of the Site had been cleared and levelled; this area had been colonised by grassland species, and supported a species-poor grassland, although the reduced nutrient status of the soil has resulted in a more diverse and less grass-dominated habitat (TN5).

4.2.10 Following the clearance and levelling of the area, the ground level was slightly lower than the remainder of field. The ground was compacted and with some rubble present within the soil, and dominated by grass species with abundant tall herbaceous and occasional scattered scrub, including bramble, Buddleia *Buddleia davidii* and currant *Ribes* sp.

4.2.11 The grass sward was dominated by False oat-grass, cocksfoot, creeping bent and Yorkshire fog with frequent herbaceous species including common dandelion ribwort plantain, ragwort *Senecio jacobaea*, daisy, creeping cinquefoil *Potentilla reptans*, and occasional primrose *Primula vulgaris* and teasel *Dipsacus fullonum* and rare cowslip *Primula veris*.

4.2.12 This habitat was small in extent and considered to be of ecological value in the context of the Site itself. The habitat is likely to provide habitat to birds, invertebrates and small mammals but is not of sufficient size to be of greater ecological value.

Hedgerows

4.2.13 Hedgerows were present along the field boundaries around the south, west and north of the Site, as described in detail in Appendix A.

4.2.14 The hedgerow along the eastern and southern boundaries of the Site (H3 and H4) comprised relatively recently planted lines of Leyland cypress, between approximately 4 and 8 m in height. Leyland cypress had also been planted along the northern hedgerow (H2), although this boundary had been supplemented by broadleaved species, including blackthorn, field maple *Acer campestre*, hawthorn, Hornbeam *Carpinus betulus* and pedunculate oak *Quercus robur*.

4.2.15 In the north east corner of the site, a semi-mature to mature pedunculate oak was present in the hedge line and blackthorn scrub was regenerating along the field side of the hedgerow. Additional scrub was present in the north west corner, adjacent to the hedgerow.

4.2.16 The western hedgerow (H1) comprised a recently planted hawthorn hedge, alongside a wooden fence.

4.2.17 The hedgerows were all or relatively recent origin and species-poor and none qualify as 'important' hedgerows as defined by the Hedgerow Regulations 1997. The Leylandii field boundaries are of negligible ecological value (although may provide habitat for breeding birds), while the hedgerows along the northern and western boundaries are considered to be of ecological value at the level of the site only, as they are likely to provide habitat for species including invertebrate, birds and small mammals and provide important habitat connectivity within the surrounding area.

Piles of Debris – Timber and Spoil

4.2.18 In the eastern section of the Site, there were two piles of debris, as described in TN4. These piles comprised old timber and construction materials and a pile of shingle and flints respectively. While there are of negligible intrinsic ecological value, they may provide habitat for small mammals and reptiles. However, the piles are relatively small and intrinsically transient in nature, and it is unknown how long they have been present, or whether they will be a permanent habitat feature within the site.

Habitats Recorded adjacent to the Site

4.2.19 The area surveyed adjacent to the Site comprised habitats associated with two main land uses, which are summarised here.

Arable farmland - arable field

4.2.20 To the south and east of the Site, a large arable field was present which extended from Harwich Road, around the site and south-eastwards for several hundred metres. At the time of the survey, this field had been recently deep ploughed and was in preparation for sowing.

4.2.21 On the opposite side of Harwich Road from the site, a large arable field supported a crop of oilseed rape at the time of survey.

Amenity Grassland and Gardens

4.2.22 To the north of the Site, mature gardens were associated with a residential property (Clip Hedge Farm. This property was not accessible for direct survey but observations from publicly accessible land and the Site itself indicated that the gardens were comprised predominantly of mown lawns (amenity grassland) with scattered semi-mature and mature ornamental shrubs. To the north of the gardens, there were several grazed horse paddocks.

Improved grassland – Roadside verges

4.2.23 On either side of Harwich Road, the roadside verges comprised relatively wide strips of improved grassland headlands (TN1 and TN2).

Pond

4.2.24 A pond was present within the adjacent garden to the north of the Site, located approx. 20m from the site at its closest point. It was not possible to access the pond to survey the habitat directly and only limited visibility was possible through boundary hedgerows.

4.2.25 The pond appeared to be oval in shape, approx. 30m long and 10 in width, and shaded along NE and south sides, with willow species ash and a mature pedunculate oak *Quercus robur* present around the pond edges. Although the pond vegetation was not surveyed directly, locally dominant stands of reedmace *Typha* sp. were apparent as well as locally abundant common reed *Phragmites australis*. A wooden duck house and staging areas indicated that the pond supported wildfowl.

4.2.26 This pond was assessed for its suitability to provide potential habitat for great crested newts; the Habitat Suitability Index (HSI) (ARGUK, 2010) of the pond was calculated, the detailed results of which are attached at Appendix C. The HSI incorporates ten suitability indices (SI), which are factors known to affect the suitability of a pond as a breeding habitat for great crested newt, and combines them to provide an overall score that is used for evaluating the general suitability of a pond or ponds for the species.

Summary of Habitats

4.2.27 The habitats present within the majority of the Site are of negligible ecological value, comprising a former arable field that has been left fallow for several years, and which now supports improved grassland characteristic of abandoned arable farmland. The sward was dominated by grass species with locally abundant herbaceous species and tall ruderal species that are typically associated with colonisation of fallow fields.

4.2.28 In the north of the field, there was an area characterised as poor semi-improved grassland, which had previously been the site of an agricultural building and hardstanding, and which had been cleared and levelled several years ago.

4.2.29 The grassland habitats present within the Site are considered to be of relatively recent origin, and support relatively low habitat diversity or complexity, with the species assemblage characterised by common and widespread plant species. Therefore, the habitats within the site are of low intrinsic biodiversity value and provide very limited potential as habitat for species of conservation concern.

4.2.30 The linear habitats around the site boundary are also of relatively recent origin. The Leylandii trees that form the eastern and southern site boundaries are of negligible ecological value. The hedgerows along the northern and western boundaries, are also of recent origin, and are

of negligible intrinsic value in terms of their botanical interest. However, these habitats provide habitat connectivity within the local landscape and are likely to provide habitat for species such as invertebrates, birds and small mammals. These habitats (H1 and H2) are considered to be of value at the site level and potentially may support species that benefit from legal protection or are of conservation concern (as discussed in the following section).

4.3 Potential for Ecologically Important Species

4.3.1 The UK Government has provided advice for local authorities to consider when reviewing planning applications (UK Government, 2016), which highlights that an extended phase 1 survey (as provided in this report) is useful for assessing whether further species-specific surveys are required.

4.3.2 This guidance recommends that planning proposals should take steps to avoid affecting protected species, such as be timing works to avoid sensitive times of year, or siting works far enough away from protected species or habitats to avoid any harm. The need for further surveys should be proportionate to the likelihood of protected species being present, and to the risk of them being adversely affected by the development.

4.3.3 This section of the report considers each of these species groups in relation to the existing records returned from the data search and the potential for the habitats recorded during the field survey to support them. The data search of records held by the Essex Field Club returned numerous records of protected species and species of conservation concern from within the 2km search area and from distances further from the Site, as well as records extending back to the 1990s. The full data search is provided as an Appendix to this report and full details are included therein; records since 2004 (representing the most recent 10 year period) and within the 2km search area are summarised here to provide a proportionate context in which to consider the Site.

Bats

4.3.4 The data search undertaken in 2017 returned records of three species of bat since 2004 within 2km including the following:

- Common pipistrelle bat *Pipistrellus pipistrellus*– 5 records from 2006 and 2007, with all records between 1.1 and 2.0 km from the Site
- Soprano pipistrelle bat *Pipistrellus pygmaeus*– 1 record from 2007 from 1.1km from the Site.
- Brown long-eared bat *Plecotus auritus* – 1 record from 2011, from approx 2 km from the Site.

4.3.5 No evidence of bat activity was recorded during the extended Phase I habitat survey in 2017, and very limited foraging and potential roost habitat was identified within the Site. The hedgerows around the site boundaries provide potential foraging habitats for bats, with the more mature and diverse hedgerow along the northern site boundary being most likely to support prey densities likely to attract foraging bats.

4.3.6 The oak tree present in the north east corner of the site, and located close to the site boundary was not surveyed for bat potential roost features in detail but was considered likely to provide low potential for potential roosts; this tree was semi-mature to mature (but not over mature) and were trees of sufficient size to contain PRFs but with none seen from ground level (Collins, 2016).

4.3.7 The field itself would provide sub-optimal foraging potential, with the predominantly grass-dominated sward unlikely to support high invertebrate densities that would provide prey for foraging bats.

4.3.8 As the proposed development would retain the hedgerow and trees along the western boundary of the sites and the majority of the site supports habitats of minimal foraging potential for bats, no further surveys are recommended at this stage.

- No further surveys for bats are required to inform a planning application. In the event that the oak tree in the north east corner of the site is proposed to be removed, a bat roost assessment of the tree should be undertaken.

Otters and water voles

4.3.9 There were no records of otter *Lutra lutra* or water vole *Arvicola amphibius* from within the 2 km search area since 2004.

4.3.10 There are no water bodies present within the Site and the habitats present do not provide potential for either species to disperse from aquatic habitats in the surrounding area. Although there is a pond located in the garden to the north of the Site, this pond is not connected to other water bodies and unlikely to support water voles; the pond is also sufficiently distant from the site, for any water voles to be unaffected by the proposed development even if they were present.

4.3.11 Therefore, it is concluded that neither otter or water vole would be adversely affected by the proposed development. As a result, no significant impacts in respect of these species are predicted as a result of the development and no further surveys are recommended at this stage.

- No further surveys for otters or water voles are required to inform a planning application

Badger

4.3.12 The data search returned nine records of badger *Meles meles*, within 2km of the Site dating from 2004 onwards. These records included 1 record from 0.9km from the site in 2009, with all other records being between 1 and 2 km from the Site.

4.3.13 No field signs of badgers, such as badger paths, tracks, latrines, setts or hair were recorded during the field survey of the site.

4.3.14 The habitats present include some areas of grassland that could be used by foraging badgers

including the grassland within the field as well as the roadside verges along Harwich Road. However, it is concluded that the proposed development is unlikely to affect local populations of badgers and no further survey is considered necessary.

- No further surveys for badger are required to inform a planning application, and no mitigation for badgers is considered necessary

Hazel Dormouse

4.3.15 The data search returned a single record of hazel dormouse from a location within Little Bentleyhall Wood from 2011, and located approx. 800m from the Site.

4.3.16 The Site does not support habitat for this species and the hedgerows are generally considered unsuitable for dormouse, given the lack of suitable hedgerow species, the relative youth of the hedgerows and the lack of habitat connectivity to suitable woodland. Therefore, it is concluded that the proposed development is unlikely to affect local populations of hazel dormouse and no further survey is considered necessary.

- No further surveys for dormouse are required to inform a planning application, and no mitigation is considered necessary

Other terrestrial mammals

4.3.17 The data search returned two records of West European hedgehog *Erinaceus europaeus*, from within 2km and since 2004, with one record from 2004 from 0.7km from the site and one from 2011 from 1.3 km from the site.

4.3.18 The data search returned three historical records of brown hare *Lepus europaeus*, dating from the 1990s, and three records of stoat *Mustela erminea* with one of these from 2006.

4.3.19 The data search did not return records of any other terrestrial mammals of conservation importance, other than a record of Chinese muntjac deer Muntiacus reevesi, a non-native species listed on Schedule 9 of the Wildlife and Countryside Act 1981 (as amended).

Amphibians

4.3.20 The data search returned one records of amphibians from within the 2 km search area:

- One record of a common frog *Rana temporaria* from 1.6km from the Site in 2005.

4.3.21 It is considered that this number is a relatively low number of records for amphibians and is likely to reflect a lack of survey effort and/or recording of these species in the area.

4.3.22 While the hedgerows located along the north and west site boundaries provide potential terrestrial habitats for amphibians, there were no water bodies recorded within the site that would provide suitable aquatic breeding habitat for amphibians.

4.3.23 The garden to the north of the site included a pond, located approx 20m to the north of the

Site, which could not be accessed for direct survey but which was assessed from nearby field boundaries as much as possible.

Great crested newt

4.3.24 The desk study did not return any records for great crested newt from within the 2 km search area.

4.3.25 Although requiring aquatic habitats to breed (usually ponds), great crested newts disperse into terrestrial habitats for much of the year; typically, woodland, hedgerows, scrub and rough, tussocky grassland are considered optimal terrestrial habitats. Generally, the terrestrial range of great crested newts can extend to include habitats up to 500m from a breeding pond (English Nature, 2001) and in some instances even as far as 1km. However, if suitable terrestrial habitat is present great crested newts are more likely to stay within 100m of their breeding pond (Cresswell, 2004). Additionally, barriers to regulate migration and dispersal of great crested newts include roads with high traffic volume, built-up areas, large or fast-flowing rivers, and large expanses of intensively farmed land.

4.3.26 The Great Crested Newt Mitigation Guidelines (English Nature, 2001) explains that ponds up to 500m of a proposed development may need to be surveyed, but that for developments over 250m from a pond resulting in permanent or temporary habitat loss, the decision on whether surveys would be appropriate requires careful consideration (Natural England, 2015).

4.3.27 However, if suitable terrestrial habitat is present great crested newts are more likely to stay within 100m of their breeding pond (Cresswell, 2004). Additionally, barriers to regulate migration and dispersal of great crested newts include roads with high traffic volume, built-up areas, large or fast-flowing rivers, and large expanses of intensively farmed land. Although newts may cross bare ground they prefer cover offered by features such as hedgerows and scrub or rough grassland, which reduces the risk of predation (or mortality).

4.3.28 Recommendation for surveys needs to reflect that survey data are essential for any mitigation licence application and sufficient data are required to demonstrate the level of impact on the population and the appropriateness of mitigation; the general advice is that that surveys should be devised appropriate to the level of potential impact (Natural England, 2015).

4.3.29 Although it was not possible to access the pond to the north of the Site directly, a provisional assessment of the pond for its suitability to support great crested newt has been made using the Habitat Suitability Index method (HSI) (ARGUK, 2010), the detailed results of which are attached at Appendix E. The HSI incorporates ten suitability indices (SI), which are factors known to affect the suitability of a pond as a breeding habitat for great crested newt, and combines them to provide an overall score that is used for evaluating the general suitability of a pond or ponds for the species.

4.3.30 While the results of such as assessment should be treated with caution, they can assist in determining whether great crested newt are likley to be present. For the pond to the north, it has been assumed that wildfowl and fish are present but have a minor effect only, and that

aquatic vegetation covers approx 25% of the pond.

4.3.31 The HSI assessment indicated that the pond to the north east of the Site boundary (P1) had a HSI score of 0.55 which is categorised as being of **below average** suitability (Appendix E) for great crested newt.

4.3.32 The habitats within the site itself are predominantly comprised of improved grassland which have been derived from former arable land with very limited habitat suitability for great crested newt terrestrial habitat. In particular, the grassland generally lacked tussocks and was relatively uniform in terms of habitat structure, with a level ground surface and relatively even vegetation microstructure.

4.3.33 Consequently, in relation to the proposed development, while it is recognised that the proposed Site is within 100m of Pond P1, the following factors are relevant when considering the need for further surveys:

- The Site supports sub-optimal terrestrial habitat only with the majority of the Site comprised of grassland of relatively recent origin with relatively few potential refuges or hibernation sites present;
- The proposed development footprint would affect generally unsuitable terrestrial habitat for great crested newt between approximately 30m and 150m from the nearest pond (P1). As the (precautionary) HSI score for this pond was below average, there is a very low likelihood that great crested newt may be present within the pond.
- The proposed development would result in the replacement of a sub-optimal terrestrial habitat for amphibians with habitats that provide opportunities for enhancement of amphibian terrestrial habitat, particularly in areas along the northern and eastern boundary of the Site.

4.3.34 In summary, it is considered that due to the general unsuitability of the habitats present within the proposed development footprint and the near certainty that the development would not adversely the local populations of great crested newts, even if present, that a full survey of pond P1 for amphibians using standard methods (English Nature, 2001), would be disproportionate.

4.3.35 However, it is recommended that precautionary reasonable avoidance measures be adopted in relation to the site construction to ensure that effects on amphibians are avoided as far as practically possible; appropriate RAMS for this site are described in detail in Section 5.4 below.

- No further surveys for amphibians, including great crested newt, are required to inform the planning application

Reptiles

4.3.36 The data search returned three records of one species of reptile, grass snake *Natrix natrix* with all records being from more than 2km away and dating from 1995 to 2001.

4.3.37 The improved grassland habitat present within the majority of the site do not provide suitable

habitat for reptiles. Although the hedgerows around the boundaries of the site provide low potential for reptiles these are of very limited extent and are unlikely to be adversely affected by the proposed scheme. The two piles of debris provide very small pockets of potential habitat, but due to the small size of these piles, the isolated nature from other potential reptile habitat and their relatively recent origin it is considered that there is a very low likelihood that these piles support reptiles.

4.3.38 Consequently, because of the limited habitat likely to be affected by the proposed development, and the lack of likely direct habitat loss of potential key reptile habitat, specific detailed reptile surveys are not recommended. Reasonable Avoidance Measures as part of a wider mitigation package would be recommended to ensure that any development proceeds without resulting in harm to individuals of any reptile species.

- No further surveys for reptiles are required to inform the planning application, but reasonable avoidance measures should be adopted to demonstrate good practice during construction.

Breeding Birds

4.3.39 The EFC data search returned 52 records of 31 species of birds from a 2 km radius of the site (see full details in Appendix D). Many of these records, however, were records registered at a 1km resolution and thus may represent a larger search area.

4.3.40 Bird species of conservation concern associated with agricultural or residential areas that have been recorded in the 2 km search area include:

- Barn owl *Tyto alba* – 2 records from 2015 from 0.7 km from the Site;
- Common Cuckoo *Cuculus canorus* – 1 record from 2013 from >2km from the Site;
- Common House Martin Delichin urbicus – 2 records from 2013- 14 from 2>2km from the Site;
- Common Starling *Sturnus vulgaris* – 1 record from 2013 from >2km from the Site;
- Corn bunting Emberiza calandra – 3 records from 2013-14 from >2km from the Site;
- House sparrow *Passer domesticus* – 2 records from 2013 from >2km from the Site;
- Northern Lapwing *Vanellus vanellus* – 3 records from 2013 from >2km from the Site;
- Red kite Milvus milvus – 2 records from 2013-15 from >2km from the Site;
- Skylark *Alauda arvensis* – 1 record from 2013 from >2km from the Site ;
- Yellow wagtail Motacilla flava – 2 records from 2014 from >2km from the Site.

4.3.41 The habitats present within the Site itself, as well as across the wider survey area, provide potential habitat for breeding birds. The majority of potential nesting habitat associated with the site is likely to be associated with the hedgerows and trees present around the site boundaries. While the improved grassland field may provide habitat for ground nesting species, this field is a relatively small field that is unlikely to support a significant local population of farmland bird species.

4.3.42 As it is considered unlikely that there would be adverse ecological impacts on local bird

populations or on the local bird assemblage, no further surveys are considered necessary to inform the planning application.

4.3.43 However, as breeding birds are statutorily protected, to avoid impacts on breeding birds and committing an offence, removal of any woody vegetation (such as hedgerows) should be undertaken outside of the breeding bird season (March – July inclusive). Should this not be possible then all areas identified for clearance must be checked for nests by an ecologist prior to clearance. If any nests are identified, then this area should be clearly delineated and no works allowed until after chicks have fledged and the nest has been abandoned.

- No further bird surveys are required to inform a planning application

Invertebrates

4.3.44 The SBIS data returned 16 records from 13 different species, including:

- 11 species of moth (Lepidoptera), dating from 2005, 2012 and 2013, with all records located 2.2 km from the Site; and
- 2 species of butterfly (Lepidoptera) since 2004, including one record of small heath *Coenonympha pamphilus* from 2015 from 1km from the Site, and one record of white admiral *Limenitis camilla* from 2011 from 0.9 km from the Site;

4.3.45 The grassland and hedgerow habitats present within the Site are relatively widespread habitats and are likely to be of very limited value to invertebrates and further surveys are not considered necessary for any proposed development.

Flora

4.3.46 The EFC data search returned records of 15 species of flowering plants from the 2 km search area dating from 2004, and all records being at least 1km from the Site.

4.3.47 The grassland habitats are relatively widespread habitats and considered to be of low botanical value and no further surveys of vegetation are considered necessary.

Summary of Potential for Species

4.3.48 The EFC data search returned records of protected species and species of conservation concern within a 2 km radius from the site. The information from the desk study, combined with the findings of the extended phase 1 habitat survey has provided an assessment of the likely value of the habitats present within the site to support ecologically important species.

4.3.49 The habitats within the Site predominantly comprise fallow agricultural land that supports improved grassland within a single field which is of negligible nature conservation value, and unlikely to provide valuable habitat for protected species or species of conservation concern. The habitats of most value are associated with the hedgerow along the northern boundary of the site, which provides potential habitat for breeding birds and small mammals, and

provides habitat connectivity to hedgerows to the north of the site, as well as to the gardens adjacent to the north of the Site.

4.3.50 The proposed development site does not contain habitats likely to support any species that are likely to be significantly affected by the proposed development and which would require further survey to determine whether they were present or absent. Therefore, no further ecological surveys for species or species groups are considered necessary.

5 Potential Effects of the Proposed Development

Description of the Development

5.1.1 The proposed planning application is for a new office building and warehouse development that would involve the construction of two main buildings with a parking area, service road and with landscaping and green space areas surrounding the site infrastructure; a site layout (courtesy of Poole and Pattle Chartered Architects) is provided in Figure 3 below.

5.1.2 The design of the proposed development has incorporated precautionary measures designed to prevent adverse impacts on valuable ecological features where this is practically possible. In addition, the proposed development will incorporate the removal of linear features of negligible ecological value (lines of Leylandii cypress along the west and south site boundaries) to be removed and replaced with habitats designed to provide significant ecological enhancements that will provide net gain for the biodiversity of the Site.

5.1.3 The proposed development has adopted 'mitigation by design' as an integral component of the scheme; this approach includes a mitigation hierarchy which forms a key framework that is embodied in best practice for ecological impact assessment (CIEEM, 2016) and the Biodiversity Code of Practice for planning and development (British Standards Institute, 2013).

5.1.4 This mitigation hierarchy involves a sequential process involving the following steps:

- Avoidance – of adverse effects through good design
- Mitigation – to reduce and minimise adverse impacts
- Compensation – to offset adverse effects, viewed as a last resort where avoidance and reduction of effects cannot be achieved; and
- Enhancement – opportunities to provide beneficial effects as an integral component of the proposal.

5.1.5 The indicative design of the proposed outline planning application has incorporated a precautionary approach in line with the mitigation hierarchy detailed above. This approach has ensured that the development is located in habitats of negligible ecological value and that more important habitats such as linear hedgerows, mature trees and woodland have been avoided as far as possible. The design has also acknowledged the potential presence of protected species that may be present within the Site. It is considered that this approach

provides a robust mechanism for considering the constraints associated with protected species, while also recommending appropriate mitigation and enhancement measures that are applicable to the Site to demonstrate compliance with the NPPF as outlined in Section 2.1 above.

Construction Ecological Management Plan

5.1.6 To demonstrate best practice during construction it is recommended that prior to the commencement of works that a Construction Ecological Management Plan (CEMP) be provided to contractors, detailing best practice measures that will prevent or minimise the risk of harming habitats and species, or other ecological receptors that could be sensitive to construction activities. This CEMP would incorporate measures designed to ensure that the habitats to be retained within the proposed development are not adversely affected during construction of the proposed development. The measures would include:

- Clear demarcation of construction areas and permitted access routes, using standard temporary site fencing and markers.
- Clear marking of tree root protection zones relevant to trees within the Site or adjacent to the Site.
- Identifying that construction activities are undertaken in accordance with best practice advice to prevent pollution including measures to avoid run-off and prevention of pollution of adjacent areas and water courses.
- Tool box talks and issuing of factsheets to contractors to provide information regarding protected species and local ecological constraints.

5.2 Potential Effects on Designated Sites

5.2.1 As detailed in Section 4.1 above, the Site is not designated as a statutory or non-statutory designated site, and there are no such sites in the surrounding area that could potentially be affected by the proposed development. It is therefore certain that there would be no adverse effects on any designated site identified as being present during the desk study. This conclusion is based on the following reasons:

- All sites are sufficiently distant from the site to ensure that there would not be any effects during the construction or post-construction phases of development;
- The site does not contain any habitats for which the sites have been designated and thus the Site is not considered to provide supporting habitat or be functionally linked to any designated sites; and
- The proposed development would not result in a significant increase in recreational pressure on designated sites in the local area.

5.3 Potential Effects on Habitats

Habitat Loss

5.3.1 The proposed scheme would involve the loss of an area of approximately 1.5 ha of a former arable field which has been assessed as being of value at the Site level only, with negligible to low ecological importance in terms of the habitats present and the potential for those species to support protected species.

5.3.2 In addition, the proposed development would incorporate the removal of Leylandii trees from the existing field boundaries, and replanting of linear boundaries with native species-rich hedgerows with broad leaved trees as standards.

5.3.3 The design of the outline application has incorporated the retention of the hedgerow along the western site boundary as much as possible, although short sections of the hedgerow would be removed to create two new access roads, one for the office building, and a second service road for the warehouse (see Figure 3 for details). These two access roads are estimated to result in the loss of a maximum of 20m of the western hedgerow in two 10m sections.

5.3.4 In summary, the proposed development would result in the loss of approximately 1.5 ha of improved and semi-improved grassland as well as linear boundaries of relatively recent origin that generally comprise planted Leylandii trees with additional sections of native planted hedgerow. The loss of these habitats is not considered likely to result in any significant effects in terms of the habitats.

Proposed Mitigation and Enhancement Measures

5.3.5 The implementation of the mitigation by design principles outline above will ensure that significant adverse impacts on habitats will be avoided, with habitat loss being restricted to habitats of negligible ecological value.

5.3.6 With the implementation of best practice measures such as those detailed above, it is considered that site construction would be unlikely to result in adverse significant effects on the ecology of the site and the surrounding area and consequently that potential impacts would be appropriately mitigated.

5.3.7 The final design of the proposed development provides significant opportunities to integrate ecological enhancements into the scheme. Design features that provide ecological enhancements and which are considered integral components of the proposed development include the following recommendations:

- Retention of existing hedgerow along Harwich Road where possible, with the hedgerow supplemented with planting of native broadleaved trees as standards at intervals along the Site boundary.

- Removal of Leylandii from the northern site boundary (adjacent to Clip Hedge Farm) and retention of broadleaved planted trees and shrubs where possible. The removed trees will be replaced with a native hedgerow with native broadleaved trees as standards along the whole length of the hedgerow.
- Removal of Leylandii trees from the eastern and southern boundaries of the Site. These linear features will be replaced with native hedgerow with native broadleaved trees as standards.
- Planting of native trees within the site as an integral component of the landscape design for the site as proposed on the indicative site plan presented in Figure 3.
- Creation of a wildlife pond in the north east corner of the site, to the north of the warehouse. This pond will link with a garden water channel and create a significant aquatic habitat that will provide habitat for aquatic plants, invertebrates and amphibians.
- Creation of wildflower meadow using an appropriate seed mix of local provenance around the pond and along the eastern site boundary, to the rear of the warehouse building.
- Creation of a woodland wildflower area over-planted with native broadleaved trees and shrubs in the south western corner of the site, adjacent to the service road.
- Creation of a hibernaculum with dimensions of approximately 10m x 4m using material sourced from the piles of debris present on the site; the hibernaculum would follow the design recommended in the Natural England guidance on great crested newt mitigation (English Nature, 2001) and would provide habitat enhancement for amphibians, and also potentially for small mammals and reptiles.

5.3.8 It is concluded that the implementation of these habitat creation measures would provide significant benefits compared to the existing baseline conditions present on the Site. The specification of the design of these habitat creation areas, the new hedgerows, and the design of the new pond would be finalised as part of the detail of the CEMP as described in section5.1.6 above.

5.4 Potential Effects on Species

Bats

5.4.1 Due to the general unsuitability of the habitats within the site for bats and the and the lack of any signs of bats being present, it is considered that there is no reasonable reason to recommend further bat surveys (such as activity transect surveys at dusk and dawn).

5.4.2 The potential for direct impacts on bat roosting or foraging habitats has been restricted by sensitive site design, and the direct loss of a small area of sub-optimal but potential bat foraging habitat within the Site itself is assessed as being of not significant in terms of the conservation status of the local bat populations.

5.4.3 Regardless of the non-significant nature of the potential impacts on bats outlined above, measures designed to minimise the potential effects of the scheme on bats and provide

potential habitat enhancements for local bat populations have been incorporated into the ecological enhancements outline above and which include:

Mitigation of Potential Effects on Bats

- Tool box talks and issuing of factsheets to contractors to provide information regarding the legal protection conferred on bats as detailed above.
- Reduction in potential effects associated with the loss of potential flight lines and commuting routes through the replacement of existing Leylandii trees with native hedgerows with standard trees planted on all four boundaries of the proposed development;
- Avoidance of any adverse effects of artificial lighting by ensuring that hedgerows and trees retained or planted around the site boundaries are not illuminated, with directional lighting pointing away from these features, illumination of the existing boundary features along the west and north of the site will be avoided. Light spill from the proposed development will be minimised by using downward pointing lights where possible in the proposed development.

Habitat enhancements Benefiting Local Bat Populations

- Planting of native hedgerow and tree species along the site boundary and within the site itself will enhance habitat connectivity and provide a net increase in foraging and commuting habitat for bats.
- Creation of a pond and wild-flower rich grassland will enhance foraging potential for bats in these areas.
- Buildings to be fitted with integrated built-in roosting bricks (such as the Schwegler 1WI Summer and Winter Bat Box or equivalent) to provide long-lasting opportunities for roosting bats that require minimal maintenance, as recommended in (Gunnell, 2013). It is recommended that a minimum of six such bat boxes be built into buildings, preferable on elevations with no illumination and directed towards suitable foraging habitat (for example on the north, east or south elevation of the warehouse building).;
- If the building design is not compatible with integrated bricks, it is recommended that two groups of three bat boxes (total of 6 boxes) are erected in suitable trees or on suitable poles located in the north east and south east corner of the site. The bat boxes should be of standard woodcrete construction such as the 'Schwegler 2F' or equivalent to maximise the durability of the bat boxes while minimising maintenance requirements. It is recommended that at least three are installed at each location, facing different directions to provide a greater diversity of roosting opportunities

5.4.4 Incorporation of these measures is considered to provide appropriate mitigation measures for any potential adverse effects associated with the proposed development and would also provide significant enhancements to for local bat populations across the development site. With the successful implementation of these measures it is considered certain that there would be no likely significant adverse effects on local bat populations.

Amphibians

5.4.5 As detailed above, the data search returned no records of amphibians from the site, with just one record of a common frog from within the 2km search area since 2004. Although it was not possible to access the pond to the north of the site to survey it for great crested newts an assessment of the suitability of the habitats present was undertaken on a precautionary basis. The HSI assessment of below average, combined with the presence of sub-optimal terrestrial habitat within the site and the wider environs means that it has been concluded that is unlikely that great crested newt would be present. However, a precautionary approach to mitigation has been adopted which will provide appropriate mitigation for amphibians and reptiles.

1.1 It is considered that appropriate reasonable avoidance and mitigation measures could be included within a non-licensed method statement (NLMS) to ensure that all activities associated with the construction stage of the proposed development (by any/all of the parties involved) are carried out in compliance with the legislation, and can be demonstrated to have been so. An agreed NLMS is particularly relevant to provide an audit trail in the unlikely event that great crested newts are subsequently found to be present on site.

1.2 The final details of the NLMS will be agreed post-consent and approved as part of a condition prior to works commencing. However as impacts to suitable amphibian terrestrial habitat are *de minimis*, the NLMS would specify those measures required to prevent disturbance or harm to amphibians throughout the works and identify habitat enhancement measures.

1.3 The NLMS would likely include the following measures:

- Clearly defined extent of the area covered by the NLMS using marker tape, and installation of Temporary Amphibian Fencing (TAF) as appropriate around the periphery of the proposed site adjacent to the pond to prevent movement of great crested newts into the construction area.
- Staged vegetation clearance within the construction area, including removal of any scrub and grassland vegetation and subsequent ongoing vegetation management to maintain a closely mown sward.
- Removal of conifer trees within 100m of the pond located to the north to be undertaken under supervision of a suitably qualified ecologist. All clearance of hedgerow, scrub or trees should involve a phased cut, with an initial cut to a height of approximately 15-30 cm, with a second cut to ground level occurring after a sufficient period of time to enable reptiles to leave the area;
- If the grassland within the site is left unmanaged prior to construction commencing, any tall or tussocky grass should be cut in phases, as above, with an initial cut to a height of 15cm, followed by a second to a height of ca. 5cm;
- Prior to construction, creation of a hibernaculum with typical dimensions of 10m x 4m in north east corner of site as described above and presented in Box 1 below. The hibernaculum would

utilise debris from the two piles of materials (old timber, flint and shingle) present on site. The dismantling and removal of tree stumps and any piles of debris, logs or other material that may act as amphibian or reptile refugia to be undertaken outside the amphibian and reptile hibernation period (typically from October to March)

- A suitably experienced Project Ecologist commissioned by the developer to provide Ecological clerk of works duties as required during the proposed construction phase, and to undertake site inductions and tool-box talks to contractor site staff regarding protected species.
- Good construction site management detailing measures to ensure that no excavations are left uncovered at night and/or include ramps within any excavations to allow animals to easily exit them, and maintain a watching brief over such excavations.
- Procedures providing actions to be taken if great crested newts, or other protected species, were found within the construction site. If great crested newts were found to be present, then works would be required to stop and the Project Ecologist and Natural England consulted.

5.4.6 The successful implementation of these measures would sufficiently reduce the risk of an offence occurring and are recommended to be incorporated into the Construction Environmental Management Plan detailed above and applied throughout the construction period.

Reptiles

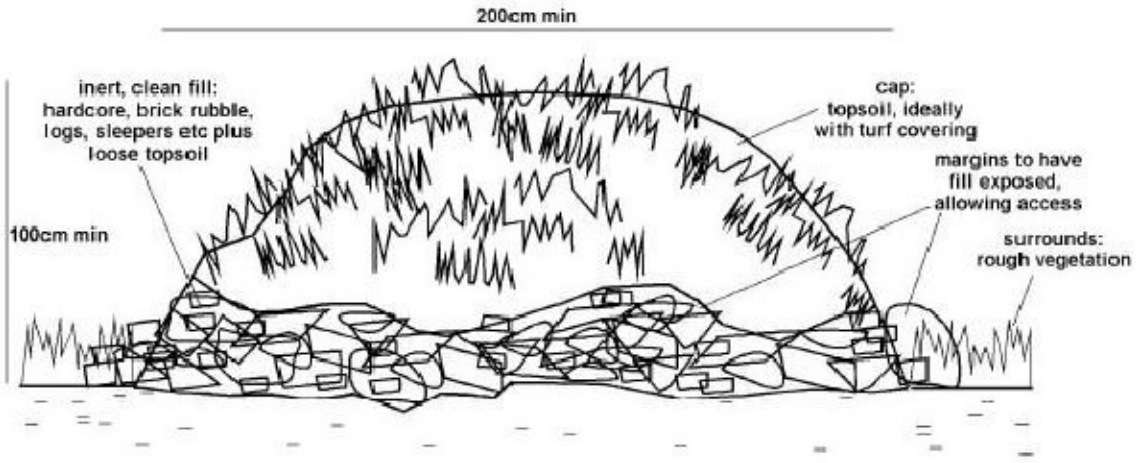
5.4.7 Although the risk of encountering reptiles is extremely small, it is important to note that the possibility of grass snake and slow worms cannot be eliminated entirely. If either of these species were present, there could be a risk of harm to individuals and thus there would be a risk of an offence being committed unless mitigation measures were incorporated to avoid such an offence occurring.

5.4.8 Therefore, the Reasonable Avoidance Measures discussed for great crested newt above would also ensure that all activities associated with the construction stage of the proposed development are carried out in compliance with the legislation in relation to reptiles, and can be demonstrated to have been so.

Box 1 General design for an amphibian hibernaculum as presented in Figure 3 of the Great crested newt Mitigation Guidelines (English Nature, 2001)

Figure 3: Suggested hibernaculum design

This design mimics artificial and natural conditions in which great crested newts have frequently been found over-wintering. Dimensions should not be below 2m length x 1m width x 1m height. The illustrated design would be suitable for locating on an impermeable substrate. On free-draining substrates, the design is largely similar but the bulk of the fill is sited in an excavated depression in the ground. Hibernacula should ideally be positioned across a site, both close to and distant from breeding ponds, always in suitable terrestrial habitat and above the flood-line.



Birds

5.4.9 To avoid impacts on breeding birds, removal of any scrub or woody vegetation (including hedgerows) should be undertaken outside of the breeding bird season (March – July inclusive). Should this not be possible then all areas identified for clearance must be checked for nests by an ecologist prior to clearance. If any nests are identified, then this area should be clearly delineated and no works allowed until after chicks have fledged and the nest has been abandoned.

Habitat Enhancements Benefiting Birds

5.4.10 To enhance the potential for breeding birds it is recommended that:

- a total of eight nest boxes be installed in semi-mature or mature trees in appropriate locations, sheltered from wind, rain and strong sunlight and approx. 1.5-5 m above ground level.

6 Conclusions

6.1.1 The proposed outline application would result in no significant adverse effects on ecological receptors.

6.1.2 Based on the evidence from the desk study and an extended Phase 1 habitat survey of the site and adjacent areas, it is concluded that the Site provides limited opportunities to support

protected species or species of conservation concern.

6.1.3 Ecological enhancements have been incorporated into the design of the proposed development which will provide significant net gains for biodiversity at the site level, and will inlcude the replacement of Leylandii tree boundaries with native hedgerows and trees, creation of wildflower meadow areas, the creation of a new wildlife pond in the north east corner of the site, and the construction of a hibernaculum that will provide potential habitat from amphibians, reptiles and small mammals.

6.1.4 Potential effects on bats, amphibians, reptiles and breeding birds could potentially occur during construction, and appropriate mitigation measures have been proposed that would ensure that any adverse effects on these taxonomic groups would be avoided as far as practically possible. Furthermore, the proposed ecological enhancements will deliver benefits for these taxonomic groups.

6.1.5 Consequently, if the recommendations detailed in this report are followed, it is concluded that the proposed development would be compliant with statutory legislation regarding biodiversity and nature conservation and planning policy including recommendations set out in the NPPF and in local planning policies.

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Appendix A – Target Notes from Extended Phase 1 Habitat survey

Table 2 Target Notes recorded during Phase 1 Habitat Survey

Target Note	Description
1	Headland along south east boundary of arable field, adjacent to Harwich Road. Strip of Improved grassland, ca. 10-12m wide, between large field (sown with oilseed rape at time of survey) and road. Dominated by a grassland sward with cocksfoot *Dactylis glomerata* Yorkshire fog *Holcus lanatus*, and False oat-grass *Arrhenatherum elatius* with a range of herbaceous species characteristic of improved roadside verges, including abundant cow parsley *Anthriscus sylvestris*, common nettle *Urtica dioica*, frequent hogweed *Heracleum spondylium*, ribwort plantain *Plantago lanceolata*, common mouse-ear *Cerastium fontanum*, common dandelion *Taraxacum officinalis* agg.,spear thistle *Cirsium vulgare*,and daisy Bellis perennis and occasional broad-leaved dock *Rumex obtusifolius*
2	Improved grassland verge between Site and Harwich Road. Strip of improved grassland, ca. 7m wide with a plant assemblage characteristic of reduced nutrient enrichment but retaining characteristics of improved grassland . The sward was dominated by grass species including Yorkshire fog, False oat-grass, creeping bent *Agrostis stolonifera*, meadow foxtail *Alopecurus pratensis*, and annual meadow grass *Poa annua*. Herbaceous species were relatively abundant and included locally abundant stands of yarrow *Achillea millefolium*, and common dandelion and frequent daisy, vetch species *Vicia* sp., creeping thistle *Cirsium arvense*, white clover *Trifolium repens*, common knapweed *Centaurea nigra*, ribwort plantain, and hogweed.
3	Southern half of fallow field within Site. Previously managed field, now fallow following cessation of arable cropping. Similar plant assemblage to that in field to previously developed area (TN5 below), with grass dominated sward including cocksfoot, common bent and False oat-grass, with locally dominant stands of Cow parsley, and occasional hogweed, bramble, yarrow, common knapweed, common dandelion and creeping thistle.
4	Improved grassland in north east corner of Site. Grassland dominating former field, fallow for several years, and unmanaged for at least one year due to presence of naturally seeded scrub seedlings, particularly along field boundaries – scrub species present include white willow Salix alba, Hawthorn *Crataegus monogyna*,, blackthorn *Prunus spinosa*, and bramble *Rubus fruticosus* agg. and dog rose *Rosa canina* seedlings. Grass sward is characteristic of fallow field with previous arable management, and dominated by cocksfoot, Yorkshire fog and common bent *Agrostis capillaris* with abundant herbaceous and tall ruderal species including hogweed, spear thistle, ribwort plantain, prickly sow-thistle *Sonchus asper*, common dandelion, Cow parsley, and wild carrot *Daucus carota*. Two partially vegetated piles of debris were present, one comprising a pile of debris and construction refuse, predominantly of pieces of timber and old debris presumed to have originated from a building previously present within the site. This pile was approx 10m x 5 m and 1.5 in height and partially colonised by tall ruderal plant species including common nettle, Cow parsley and occasional Alexanders *Smyrnium olusatrum*, broad-leaved dock, cocksfoot and cleavers *Galium aparine*. The second pile, to the south east of the wooden pile, was comprised of flint and shingle aggregate, and was approximately 8m in diameter and up to 2m high. Again, this pile was partially vegetated, with abundant cocksfoot, Cow parsley, broad-leaved dock, and occasional Alexanders and common mallow *Malva sylvestris*.

Target Note	Description
5	Poor semi-improved grassland in area of previously built on land. Historical aerial imagery indicate that a previous agricultural building/warehouse and concrete hardstanding were present up until around 2010. Area has been cleared and levelled and at slightly lower level than remainder of field. Ground is compacted and with some rubble present within the soil, and dominated by grass species with abundant tall herbaceous and occasional scattered scrub, including bramble, Buddleia *Buddleia davidii* and currant *Ribes* sp. The grass sward was dominated by False oat-grass, cocksfoot, creeping bent and Yorkshire fog with frequent common dandelion ribwort plantain, ragwort *Senecio jacobaea*, daisy, creeping cinquefoil *Potentilla reptans*, and occasional primrose Primula vulgaris and teasel *Dipsacus fullonum* and rare cowslip *Primula veris*.
Pond	Pond in garden to north of NE corner of site. Unable to access pond to survey habitat directly and limited visibily possible through boundary hedgerows. Pond appeared to be oval in shape, approx 30m long and 10 in width, and shaded along NE and south sides, with willow species ash and a mature pedunculate oak *Quercus robur* present on boundary with Site. Pond vegetaiton not surveyed, although locally dominant stands of reedmace *Typha* sp. were apparent as well as locally abundant common reed *Phragmites australis*.
H1	Intact species-poor hedge along the NW boundary of the Site, ca. 1.8 -2m high and 1m wide with wooden post and rail/picket fence present on the field side of the hedge. The hedge was of recent planting, with tree protectors still present, and almost exclusively comprised of hawthorn with occasional bramble rambling over the hedge.
H2	Intact species-poor hedge with trees of relatively recent origin between Site and Clip Hedge Farm to the north. Relatively recent planted Leyland cypress *Cupressus × leylandii* present along most of field boundary with broadleaved species planted along both sides, including blackthorn, field maple *Acer campestre*, hawthorn, Hornbeam *Carpinus betulus* and pedunculate oak *Quercus robur*. In the north east corner of the site, a semi-mature to mature pedunculate oak was present in the hedge line and blackthorn scrub was regenerating along the field side of the hedgerow. At the western end of the hedgerow, the hedge bends slightly towards the road with a small area of dense scrub present between the hedge and the access track. This scrub was dominated by blackthorn with frequent goat willow *Salix caprea* and cherry *Prunus* sp.
H3	Line of young Leyland cypress along eastern boundary of site; or relatively recent origin and unmanaged (untrimmed), with trees ca. 4-6m high.
H4	Line of young Leyland cypress similar to H3 along south boundary of site, with trees ca. 6-8m in height.

Appendix B – Site Photographs

Photo 1 View SW along roadside verge on opposite side of Harwich Rd (TN1)

Photo 2 View SW along roadside verge adjacent ot site (TN2) showing hedge H1.

Photo 3 View southeast towards piles of refuse/spoil with semi-improved grassland in foreground (TN5)

Photo 4 View southeast along southern boundary of site (TN3) showing lien of Leylandii and improved grassland

Photo 5 View northeast along eastern boundary of site with piles of refuse and spoil on right of photo

Photo 6 Pile of refuse comprising old timber and miscellaneous debris form previous use of site (TN4)

Appendix C – Habitat Suitability Index Assessment for Great Crested Newt

The habitat suitability of the ponds was calculated using the Habitat Suitability Index (HSI) (ARGUK, 2010), which incorporates ten suitability indices, which are factors known to affect great crested newt, and combines them to provide an overall score that is used for evaluating the general suitability of a pond or ponds for the species.

It is important to note that the HSI method provides a measure of habitat suitability for great crested newt and is not a substitute for newt surveys. In general, ponds with high HSI scores are more likely to support great crested newts than those with low scores. However, the system is not sufficiently precise to conclude that any particular pond with a high score will support newts, or that any pond with a low score will not do so (ARGUK, 2010).

The overall HSI score can be used to categorise ponds based on their suitability for great crested newt using the scale shown in the table below. This table also shows the proportion of 248 ponds with these suitability categories that were found to be occupied by great crested newt in south east England (ARGUK, 2010).

Table 3 HSI Categorisation used to assess suitability of ponds for great crested newt

Overall HSI score	Pond Suitability	Great crested newt pond occupancy - from (ARGUK, 2010)
< 0.5	Poor	3%
0.5-0.59	Below average	20%
0.6-0.69	Average	55%
0.7-0.79	Good	79%
>0.8	Excellent	93%

Thus for ponds categorised as average using the HSI method, the ARG surveys of 248 ponds showed that 55% were occupied by great crested newt.

Table 4 HSI Scores from Assessment of Ponds within 250m of the Old Keepers Barn

HSI Factors	Pond 1 – Adjacent to north east corner of site	
SI1 - Location	Zone A	1
SI2 – Pond Area	250m2	0.5
SI3 - Pond Drying	Never	0.9
SI4 – Water Quality	Poor	0.33
SI5 - Shade	80%	0.6
SI6 – Fowl	Minor	0.67
SI7 – Fish	Minor	0.33
SI8 – Ponds per km2	0.9	0.65
SI9 – Terrestrial Habitat	Poor	0.33
SI10 - Macrophytes	25%	0.55
HSI Score:		**0.55 – Below Average**

Appendix D - Essex Field Club Data Search Report