

GEOSPHERE ENVIRONMENTAL

REPORT NUMBER: 5418,DS/PEA/TC,KL/16-07-21/V1

SITE: Brome Grange Hotel, Norwich Road, Brome, IP23
8AP

DATE: 16/07/2021



DOCUMENT CONTROL SHEET

Report Number: 5418,DS/PEA/TC,KL/16-07-21/V1
Client: c/o TAB Architecture
Project Name: Brome Grange Hotel, Norwich Road, Brome, IP23 8AP
Project Number: 5418,DS
Report Type: Preliminary Ecological Appraisal
Status: Final
Date of Issue: 16 July 2021

Issued By:

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VERSION RECORD

Version	Date	Document Revision Details	Prepared By	Admin
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Executive Summary

<p>Report Description</p>	<p>This Preliminary Ecological Appraisal report has been prepared by Geosphere Environmental Limited for C/O TAB Architecture and relates to the proposed mixed use development of the site at Brome Grange Hotel, Norwich Road, Brome, IP23 8AP.</p> <p>The purpose of this report is to identify potential ecological constraints to development, particularly in relation to potential legally protected species onsite, confirm the need for further survey work to confirm all baseline ecological conditions, if necessary, and highlight opportunities for ecological enhancement.</p>
<p>Summary of Main Findings</p>	<p>The site comprises buildings and hardstanding, dense scrub, defunct hedgerow, semi-improved grassland, tall ruderal and scattered trees.</p> <p>The findings of the extended Phase 1 Habitat Survey confirm that the habitats onsite have the potential to support reptiles, foraging and roosting bats, nesting birds and badgers.</p> <p>The site is not considered suitable for Great Crested Newts, Hazel Dormouse, Water Vole or Otter.</p>
<p>Ecological Constraints</p>	<p>The constraints to development will be the removal of habitats considered suitable for protected species, including trees and adjacent scrub suitable for foraging bats and breeding birds, and grassland suitable for reptiles and hedgehog. Building B1 is also suitable for roosting bats.</p>
<p>Avoidance measures & Timings of Works to reduce impact</p>	<p>Birds: Given the onsite presence of potential bird nesting habitat, any clearance of vegetation that supports suitable nesting features, should be timed to avoid the bird breeding season (March-August inclusive). If this is not possible, these habitats can only be removed following confirmation by a suitably qualified Ecologist that they are not in active use by nesting birds.</p> <p>Hedgehog and Badger: Prior to any construction works the site should be checked by an Ecologist to ensure that badgers have not inhabited the site since the original survey visit. Excavations during development or ground investigation works should be covered overnight to prevent entrapment of Hedgehogs.</p> <p>Hedgehog friendly fencing should be incorporated into the final design to allow Hedgehogs to continue to commute and forage in the local area. A 15cm diameter hole should be placed at the base of each fence, allowing all gardens and greenspace to be accessible to Hedgehog.</p>
<p>Further Survey Work Required</p>	<p>The following are recommended at the appropriate time of year, to establish an ecological baseline:</p> <p>Reptiles: A Presence/Absence survey is recommended in order to confirm whether reptiles will be impacted by the proposed clearance works needed to facilitate development. This can be undertaken between April and September (weather dependant) and can take several weeks to complete.</p> <p>Bat Foraging: It is unlikely that existing foraging habitat (trees and scrub) will be retained and protected from increased light overspill. Transect and Remote Monitoring surveys should be carried out to determine the use of the site and the site boundaries by bats</p>

	<p>(i.e., whether any rare species or a large number of bats forage onsite). A minimum of three surveys will be required. Guidance recommends to carry out one survey per season (Spring, Summer and Autumn).</p> <p>Bat Roosting: Building 1 has low bat roost potential, however, this is to remain in the final development. If this build requires refurb works or if there is a proposed increase in lighting, additional survey effort will be required in the form of an internal inspection (to confirm the low potential status) and Activity Survey, to be undertaken between May and August.</p>
<p>Biodiversity Enhancement Opportunities</p>	<p>The following has been recommended for consideration within the final development scheme:</p> <p>Planting of native plant species beneficial to wildlife should be incorporated into the final design. This will provide additional habitat for invertebrates, which will in turn provide a food source for reptiles, birds, bats, and Hedgehog.</p> <p>Log piles could be placed in connectivity to the boundary vegetation onsite, enhancing the habitats for both reptiles and invertebrates, post-development.</p>
<p>Conclusions</p>	<p>The recommendations within Section 7 of this report should be adhered to, to reduce the impact on protected species.</p>

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1. INTRODUCTION

This Preliminary Ecological Appraisal report has been prepared by Geosphere Environmental Limited for C/O TAB Architecture and relates to the proposed mixed use development of the site at Brome Grange Hotel, Norwich Road, Brome, IP23 8AP. Any limitations and conditions pertaining to the report are stated within Appendix 1, with a full list of technical references provided within Appendix 2.

The report relates to the proposed development of the 1.11-hectare (ha) site for mixed use as shown in Drawing ref. 5418,DS/003/Rev0 included within Appendix 3. The site is located at National Grid Reference 613400, 276580.

The development boundary is shown on Figure 1 below:



Figure 1 – The proposed development boundary is outlined in pink

1.1 Aims

This report provides baseline data for the assessment of the ecological features of the site and identifies any potential constraints with regards to protected species. It also outlines recommendations for further surveys if necessary.

2. LEGISLATIVE AND POLICY CONTEXT

2.1 Current UK Legislation

The main legislation that applies to ecological issues within England and Wales is as follows:

The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 transposes 'The Conservation of Habitat and Species Regulations 2017', regarding the conservation of natural habitats and of wild fauna and flora (formally the EC Habitats Directive). Under the regulations, public bodies have a duty in exercising their functions to provide for the protection of 'Habitats Sites' and 'European Protected Species' (EPS).

The Wildlife and Countryside Act 1981, (WCA) (as amended) provides detail on a range of protection and offences relating to wild birds, other animals, and plants. The level of protection depends upon which Schedule of the Act the species is listed on. Licences are available for specific purposes to permit actions that would otherwise constitute an offence in relation to species.

The Natural Environment and Rural Communities, (NERC), Act 2006 imposes an obligation on all public bodies, including local authorities, to consider whether their activities can contribute to the protection of wildlife. Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England and states that: "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."

Species-specific legislation is detailed within Appendix 4.

2.2 Planning Policy

The recommendations of this report are in line with the key principles of the Ministry of Housing, Communities and Local Government (MHCLG) (2019) National Planning Policy Framework (NPPF) (ref. R.1) and Government Circular 05/06: Biodiversity and Geological Conservation (ref. R.2).

Local planning policies relating to ecology are invariably based upon the conservation of species protected under the above legislation, including species and habitats of principal importance listed under Section 41 of the NERC Act 2006 and the protection of designated sites.

All of these features are considered within the scope of this Preliminary Ecological Appraisal and therefore any recommendations made herein are likely to be in line with this policy.

3. METHODOLOGY

3.1 TECHNICAL APPROACH

The PEA has been undertaken following guidelines provided by CIEEM's Guidelines for Preliminary Ecological Appraisal, (ref. R.3), and BS 42020: 2013 Biodiversity standards, (ref. R.4) to provide an indication of the ecological value of the site and the potential for the site to be used by protected species.

Scientific names and common names of plant species identified are as they appear in Stace, (ref. R.5).

The conclusions and recommendations for further works are in accordance with current legislation and guidance.

3.2 Ecological Desk Study

A data search was conducted of freely available biological records. The sources of information included:

The Multi-Agency Geographic Information for the Countryside (MAGIC) online database (ref. R.6) was consulted to obtain geographic information on key statutory designated nature conservation sites of relevance to the site;

Suffolk Biodiversity Information System (SBIS) was contacted to provide details of legally protected species and non- statutory designated conservation sites within 2km of the site. Only records of protected species from within the last ten years are considered within this report;

Ordnance Survey maps were used to identify ponds/ditches within 500m of the site, to assess the potential for Great Crested Newt (GCN) within the immediate vicinity of the site.

All relevant desk study data obtained is attached in Appendix 5, except for detailed lists of species given the sensitive nature of the information.

3.3 Preliminary Ecological Appraisal

The surveys used to inform the Preliminary Ecological Appraisal comprise of a Phase 1 Habitat and Protected Species Scoping Survey, more often referred to as an extended Phase 1 Habitat Survey.

An extended Phase 1 Habitat Survey of the site was undertaken on 30 June 2021 by Tom Cox, Ecological and Arboricultural Consultant. The weather conditions at the time of the survey were warm and dry with an approximate temperature of 13°C.

The Phase 1 Habitat Survey involved a walkover of the site in which the habitats are classified according to JNCC Phase 1 Habitat Survey guidelines, (ref. R.7). Habitats on and adjacent to the site were mapped and Target Notes added for any interesting or notable biodiversity features.

The frequency and cover of each species identified, as they are distributed in each habitat, is estimated using the DAFOR scale, (ref. R.8), as follows:

Dominant - >75% cover;

Abundant – 51-75% cover;

Frequent – 26-50% cover;

Occasional – 11-25% cover;

Rare – 1-10% cover;

Locally dominant (LD), abundant (LA) and frequent (LF) is also used where the distribution is patchy.

The site was assessed for its suitability to support protected species and other species of conservation importance, which could pose a planning constraint. All signs and areas of habitat considered suitable for protected species or those of conservation interest, were recorded and photographed. These include burrows, droppings, footprints / paths, hairs, refuges and particular habitat types, such as ponds, known to be used by certain class of fauna. Any mammal paths found were noted down and followed, where possible. Sites are taken in the context of their surroundings and so include the immediate environs outside of site boundaries, where appropriate.

All established trees that could be accessed onsite were inspected and assessed in terms of their suitability (negligible, low, moderate or high) to support roosting bats, in line with the Bat Conservation Trust (BCT) survey guidelines (ref. R.9).

All ponds within 500m of the site were also assessed for their suitability for Great Crested Newt (*Triturus cristatus*) if the ponds were publicly accessible or if access had been granted prior to the survey. This includes a Habitat Suitability Index (HSI) assessment (ref. R.10) which assesses the pond based upon a number of factors including the size, water quality, permanence, shading, presence of fish, the number of nearby ponds and macrophyte cover. A score between 0 and 1 is given; where 0 represents poor suitability and 1 represents excellent suitability.

3.4 Ecological Impact Assessment

The Ecological Evaluation and Impact Assessment detailed below is based upon CIEEM Guidelines for Ecological Impact Assessment in the United Kingdom, (ref. R.11).

CIEEM Guidelines state that the value or potential value of an ecological resource or feature should be determined within a defined geographical context from an international to site scale as follows:

On an International scale, e.g., Ramsar, SAC or SPA site;

On a UK scale, for example a SSSI or a National Nature Reserve, (NNR);

On a National scale, e.g., a reserve of importance to England/Northern Ireland/Scotland/Wales;

On a Regional scale, e.g., a local site with important regional habitats or UKBAP species;

On a County scale, e.g., a local site with a habitat that is characteristic of the County or rare on a County scale, or with LBAP species;

On a District scale, e.g., a site with wildlife corridors likely to improve the biodiversity of the area;

Local or Parish, e.g., areas of green space in a predominantly urban environment;

On a Site scale, e.g., habitats with value within the zone of influence only.

The potential for protected species to use the habitats onsite contributes significantly towards the potential value of the habitats onsite.

4. DESK STUDY RESULTS

4.1 Nature Conservation Sites

There are no designated sites within the site boundary.

4.1.1 Non-Statutory Sites

Biological records have confirmed the presence of three non-statutory designations within the 2km search radius. The closest of which is Broome Field County Wildlife Site (CWS) located 460m south west of the site. This 3.31-hectare (ha) area comprises species-rich grassland site (Priority habitat) and contains a range of soil types from dry gravels to wet clay, supporting a diverse plant community including six species of Orchid.

4.1.2 Statutory Sites

One statutory designated nature conservation site is located within 2km of the site. Gypsy Camp Meadows is designated a Site of Special Scientific Interest (SSSI), located 2km north west of the site. This 2.08-hectare (ha) site comprises Neutral Grassland. This SSSI is separated from the site by agricultural fields.

4.1.3 Habitats Sites

The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 provides an additional level of protection for sites of international value, specifically Special Protection Area (SPA), Special Area of Conservation (SAC) and Ramsar. As such, a wider 20km search was undertaken for internationally protected sites. Three internationally protected sites were returned within this search, the closest of which is Waveney and Little Ouse Valley Fens (SAC) located 8.5km to the west of the site. The area is classified for offering Calcareous fens and Calcareous meadows habitat, supporting Desmoulin's whorl snail (*Vertigo moulinsiana*).

Other internationally protected sites returned within this wider search, included:

Redgrave and Lopham Fen (Ramsar), located 8.5km west of the site;

Breckland (SPA), located 15.8km west of the site.

4.2 Protected Species Records

There are records of protected and notable species listed within 2km of the site returned from Suffolk Biodiversity Information Service. Absence of records should not be taken as confirmation that a species is absent from the search area.

Table 1 provides a summary below:

Table 1 – Selected Protected Species Records				
Common Name	Scientific Name	Biological Records Within 2km	Date of Most Recent Record	Protective Status *
Amphibian				
Great Crested Newt	<i>Triturus cristatus</i>	Yes	2018	HabsDir, WCA Sch 5 + 6, Priority species
Reptile				
Common Lizard	<i>Zootoca vivipara</i>	No	N/A	WCA Sch 5, Priority species
Slow Worm	<i>Anguis fragilis</i>	No	N/A	WCA Sch 5, Priority species
Adder	<i>Vipera berus</i>	No	N/A	WCA Sch 5, Priority species
Grass Snake	<i>Natrix helvetica</i>	Yes	2015	WCA Sch 5, Priority species
Mammal				
Badger	<i>Meles meles</i>	No	N/A	PBA.
Otter	<i>Lutra lutra</i>	No	N/A	HabsDir, WCA Sch 5 + 6, Priority species
Water Vole	<i>Arvicola amphibius</i>	No	N/A	HabsDir, WCA Sch 5 + 6, Priority species
Hedgehog	<i>Erinaceus europaeus</i>	Yes	2019	WCA Sch 6, Priority species
Barbastelle Bat	<i>Barbastella barbastellus</i>	Yes	2019	HabsDir, WCA Sch 5 + 6, Priority species
Brandt's Bat	<i>Myotis brandtii</i>	No	N/A	HabsDir, WCA Sch 5 + 6
Whiskered Bat	<i>Myotis mystacinus</i>	Yes	2019	HabsDir, WCA Sch 5 + 6
Natterer's Bat	<i>Myotis nattereri</i>	Yes	2019	HabsDir, WCA Sch 5 + 6
Serotine Bat	<i>Eptesicus serotinus</i>	Yes	2019	HabsDir, WCA Sch 5 + 6
Noctule Bat	<i>Nyctalus noctula</i>	Yes	2019	HabsDir, WCA Sch 5 + 6, Priority species
Leisler's bat	<i>Nyctalus leisleri</i>	No	N/A	HabsDir, WCA Sch 5 + 6
Soprano Pipistrelle	<i>Pipistrellus pygmaeus</i>	No	N/A	HabsDir, WCA Sch 5 + 6, Priority species

Table 1 – Selected Protected Species Records

Common Name	Scientific Name	Biological Records Within 2km	Date of Most Recent Record	Protective Status *
Common Pipistrelle	Pipistrellus pipistrellus	Yes	2019	HabsDir, WCA Sch 5 + 6.
Nathusius's pipistrelle	Pipistrellus nathusii	No	N/A	HabsDir, WCA Sch 5 + 6.
Brown Long-eared Bat	Plecotus auritus	Yes	2019	HabsDir, WCA Sch 5 + 6, Priority species
Daubenton's bat	Myotis daubentonii	Yes	2019	HabsDir, WCA Sch 5 + 6.
Hazel Dormouse	Muscardinus avellanarius	No	N/A	HabsDir, WCA Sch 5 + 6, Priority species

Plants

Records of 37 flowering plants were returned within the biological records. 2 of these species were UKBAP species Tubular Water-dropwort (*Oenanthe fistulosa*) and Spreading Hedge-parsley (*Torilis arvensis*).

Invertebrates

No records of invertebrates were returned within the biological records.

Birds

Records of 60 birds were returned within the biological records. 11 of these species were Schedule 1 species, including Barn Owl (*Tyto alba*), Fieldfare (*Turdus pilaris*) and Redwing (*Turdus iliacus*). There were also 18 UKBAP species returned.

Notes:

*WCA Sch 1 - Wildlife and Countryside Act (1981) Schedule 1. WCA Sch 5 - Wildlife and Countryside Act (1981) Schedule 5 (Killing, injuring and sale of certain species), WCA Sch 6 - Wildlife and Countryside Act (1981) Schedule 6 (Animals which may not be killed or taken by certain methods), WCA Sch 8 - Wildlife and Countryside Act (1981) Schedule 8 (Plants which are protected), Priority species- species listed within UK Biodiversity Action Plan Species, and Natural Environment and Rural Communities Act (2006) Section 41. Species and Habitats of Principal Importance. PBA - Protection of Badgers Act (1992). HabsDir- Conservation of Habitats and Species Directive (2010) Annex II, Annex IV. BoCC Red / Amber - Birds of Conservation Concern - Red or Amber listed.

4.3 Habitat Suitability Index Assessments

16 ponds are located within 500m of the site, referenced Ponds 1 to 16 therein and shown on Drawing ref. 5418,EC/004/Rev0, in Appendix 3. An HSI assessment has been undertaken where access was possible.

5. FIELD SURVEY RESULTS

The results of the Phase 1 Habitat Survey and Protected Species Scoping Survey are detailed below and annotated on Drawing ref. 5418,DS/002/Rev0, attached in Appendix 3. Descriptions of the Target Notes (TN) and relevant photographs are included in Appendix 6.

5.1 Site-Specific Limitations

Due to the time of year that the survey was undertaken, some plant species are not identifiable. However, this does not affect classification of habitats present.

5.2 Phase 1 Habitat Survey

The following habitat types were recorded within the survey area:

- Buildings and hardstanding;
- Dense scrub;
- Semi-improved grassland;
- Defunct species-poor hedgerow;
- Tall ruderal;
- Scattered trees;
- Rubble piles.

5.2.1 Habitat Within the Development Zone

A hardstanding car park is located to the south west of the site (TN1) along with a single storey building referred to herein as B1 (TN2).

The majority of the site comprised of recently mowed Semi-improved grassland (TN3) which comprised of dominant occurrences of Perennial Rye-grass (*Lolium perenne*), frequent occurrences of Red Clover (*Trifolium pratense*) and Yorkshire Fog (*Holcus lanatus*) and occasional occurrences of Creeping Thistle (*Cirsium arvense*), Common Nettle (*Urtica dioica*) and Annual Meadow grass (*Poa annua*).

A defunct species-poor hedgerow ran along the western boundary of the site (TN4). This comprised of Hawthorn (*Crataegus monogyna*) and Common Hazel (*Corylus avellana*).

Tall ruderals surrounded the majority of the semi improved grassland onsite (TN5). This comprised of dominant occurrences of Common Nettle, and Creeping Thistle with frequent occurrences of Cleavers (*Galium aparine*), occasional occurrences of Prickly Lettuce (*Lactuca serriola*), False Oat-grass

(*Arrhenatherum elatius*) and Curled Dock (*Rumex crispus*) and rare occurrences of Red Campion (*Silene dioica*) and Common Poppy (*Papaver rhoeas*).

Scattered trees bordered much of the northern aspect of the site (TN6), this comprised of Apple (*Malus* sp), Hawthorn, Fir (*Abies* sp), Holly (*Ilex aquifolium*), Leyland Cypress (*Cupressus x leylandii*) and Lime (*Tilia* sp).

Dense scrub existed along the northern boundary of the site (TN7). This was dominated by Blackthorn (*Prunus spinosa*).

A rubble pile was found within the tall ruderal (TN8).

5.2.2 Outside the Development Zone

To the north of the site is arable farmland, to the east is the A140 road beyond which are industrial units. To the south is the Best Western Brome Grange hotel buildings beyond which is further arable farmland and to the west is a block of woodland and arable farmland.

6. SPECIES APPRAISAL

6.1 Plants

No records of rare plants were returned within biological records and no evidence of any rare plants was noted during the site survey.

All of the plant species recorded at the site are common and widespread native or naturalised species or else ornamental, non-native species, including a minority of invasive species.

It should be noted that additional plant species may be present at the site at other times of the year. That said, given the nature of the identified habitats (i.e., themselves common and widespread) within and immediately adjacent to the proposed works areas, no notable plant species are expected within the affected areas. The site’s proposed re-development is therefore expected to be unconstrained by notable flora.

6.2 Invertebrates

The largest areas of onsite habitats of highest theoretical value to invertebrates (tall ruderals and semi-improved grassland) will likely be lost within the proposed development. Whilst these habitats could be of use to invertebrates, the fairly low species diversity means that these areas are unlikely to be utilised by a diverse assemblage of rare or nationally important invertebrates.

6.3 Great Crested Newts

There are 16 ponds within 500m of the site. These ponds are referred to as Ponds 1 to 16 on Drawing ref. 5418,EC/004/Rev0 within Appendix 3. Ponds 1 and 2 were dry and Ponds 3 to 16 were not accessible.

Table 2 – HSI Scores of Ponds

Pond	Distance From Site	Connected or Separated from Site	Pond Size (m ²)	HSI Score	Pond Suitability for Great Crested Newts
1	77m west	Pond is now dry and no longer there.	N/A	N/A	Discounted
2	101m west	Pond is now dry and no longer there.	N/A	N/A	Discounted
3	156m south	Separated from site by a car park and an arable field. Pond was inaccessible.	597	N/A	Discounted

Table 2 – HSI Scores of Ponds

Pond	Distance From Site	Connected or Separated from Site	Pond Size (m ²)	HSI Score	Pond Suitability for Great Crested Newts
4	232m south	Separated from site by roads and residential.	193	N/A	Discounted
5	401m south west	Separated from site by roads, arable and residential.	355	N/A	Discounted
6	450m west	Separated from site by roads and arable fields.	208	N/A	Discounted
7	415m west	Separated from site by roads, residential and arable.	244	N/A	Discounted
8	378m west	Separated from site by residential, roads and arable.	90	N/A	Discounted
9	441m west	Separated from site by residential, roads and arable.	294	N/A	Discounted
10	339m north	Separated from site by arable farm land.	311	N/A	Discounted
11	153m east	Separated from site by roads.	175	N/A	Discounted
12	187m east	Separated from site by roads.	807	N/A	Discounted
13	316m east	Separated from site by roads.	328	N/A	Discounted
14	372m east	Separated from site by roads.	173	N/A	Discounted
15	445m east	Separated from site by roads	76	N/A	Discounted
16	451m south east	Separated from site by roads	273	N/A	Discounted

6.4 Bats

6.4.1 Buildings

Building (B1) located partially within the red line boundary, has several loose roof tiles and is considered to be of low bat roost potential. Photographs of this building are included within Appendix 7.

6.4.2 Trees

The trees onsite lacked the size or features to support roosting bat.

6.4.3 Foraging

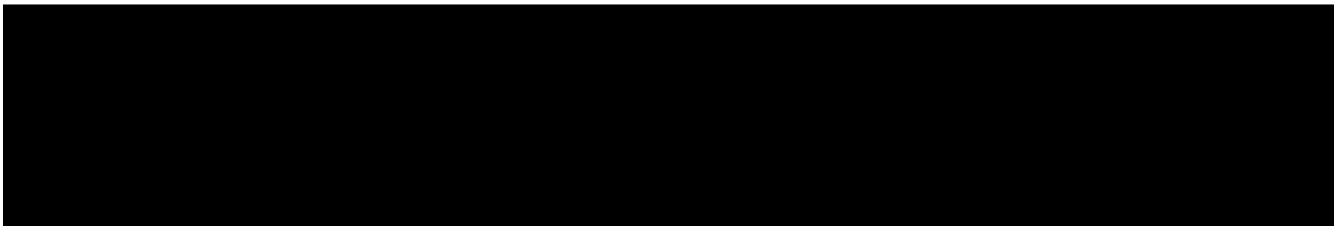
Scattered trees, hedgerow and scrub offers suitable commuting routes and foraging habitat for bats. The connectivity of the site with surrounding suitable habitats is not optimal given the large amount of arable land, with fragmented hedgerows and residential areas. The nearby woodland block, offsite to the west, may present roosting and foraging opportunities for bats.

6.5 Reptiles

The semi improved grassland and tall ruderals provide foraging opportunities for reptiles, the scrub edge will provide basking opportunities and the scrub itself provides opportunities for hibernating reptiles.

6.6 Birds

The scattered trees and scrub provide suitable nesting habitat for common and widespread species. These habitats and the semi-improved grassland and tall ruderal also provide suitable foraging habitat for birds.



6.8 Dormouse

No records of Hazel Dormouse were returned in the Desk Study. Dormouse require a large area of connected habitat for a population to survive. The site is situated in an area separated from any habitat corridors to areas of suitable habitat. The habitats within the site boundary are potentially suitable for Hazel Dormouse, however are not of a sufficient quality to support a population of Hazel Dormouse in isolation. As such it is unlikely that the site supports a population of Hazel Dormouse.

6.9 Riparian Mammal

No watercourses were present near the site, as such the site was not suitable for Water Vole or Otter.

The ditch which runs of site along the western boundary was dry and vegetated with dense scrub. It is therefore considered unsuitable for Water Vole.

6.10 Hedgehog

The site provides suitable foraging habitat for hedgehog in the grassland, and suitable nesting and hibernating habitat in the scrub, and tall ruderals.

6.11 Other Fauna

The habitats onsite are not considered suitable for other protected species.

7. EVALUATION, CONSTRAINTS AND RECOMMENDATIONS

7.1 Proposed Development

The proposed development comprises several residential units with associated gardens. There are also 4 additional hotel buildings with associated parking proposed, as shown on Drawing ref. 5418,DS/003/Rev0 in Appendix 3.

7.2 Nature Conservation Sites

The Desk Study identified one nature conservation site with statutory designation, and three non- statutory designated nature conservation sites within a 2km radius of the site. Three internationally protected sites, Waveney and Little Ouse Valley Fens (SAC), Redgrave and Lopham Fen (Ramsar) and Breckland (SPA), were noted within 20km.

The development site does not contain any habitats which could support the important species associated with either the statutory or non-statutory sites, and there is no potential habitat connectivity between the site and the statutory sites.

It is considered unlikely, given the distance from the survey area and localised nature of the proposed development works, that the Nature Conservation sites listed above will be directly affected by any construction activity on the surveyed area. It is considered unlikely that residential development is of sufficient size to have any indirect impacts on the designated sites. The site lies outside of the Zone of Influence for recreational disturbance from increased residential development.

7.3 Habitat Constraints

The proposed development should aim to deliver a Biodiversity Net Gain, by including more habitat area, and better-quality habitat within the proposals, than are currently present onsite. Metric calculations will likely be a requirement of planning, in order to show how that net gain can be achieved.

The ecological constraints regarding general habitats onsite are detailed within Table 3 overleaf, along with associated recommendations for avoidance and/or mitigation to reduce likely impact:

Table 3 – Habitat Constraints and Recommended Actions

Habitat	Value/Importance	Impact without Appropriate Mitigation	Recommended Actions (Avoidance Measures or Recommendations to Reduce Impact)
Trees/hedgerow.	Hedgerows and trees have intrinsic ecological value.	Unmitigated removal would have an impact of site significance.	<p>Trees should be retained where possible. Any trees or hedgerow that are removed during development should be replaced within the landscaping of the final development using similar species. Protection measures should be implemented according to BS 5837: 2012 'trees in relation to design, demolition and construction' (ref. R.12).</p> <p>Retain and/or enhance where possible. The loss of any sections of hedgerow should be compensated for by planting new hedgerows onsite to maintain habitat corridors across the site.</p>

7.4 Legally Protected and Notable Species

The ecological evaluation and impact assessment for protected species is detailed Table 4 below:

Table 4 – Protected Species - Ecological Constraints and Recommended Actions					
Ecological Constraint/ Receptor	Biological Records Within 2km	Value of Supporting Feature	Impact without Appropriate Mitigation in Place	Recommended Actions (Avoidance/mitigation/compensation Measures and Recommendations for Further Works)	Timing Restrictions
Bats: roosting- Buildings B1 – Low Roost Potential.	Yes	Some tiles were noted as missing, as such the building has been deemed of low potential.	Site to district significance.	<p>A Preliminary Roost Assessment (PRA) comprising a full internal inspection of the buildings located onsite should be undertaken to confirm the likelihood of the buildings to support roosting bats. Based upon the results of the PRA Survey, Activity Surveys may be required should the property require refurbishment, or works likely to cause excessive vibration/disturbance are required within close proximity, or increased lighting of identified features within the final development design.</p> <p>A low potential build would only require a single Emergence Survey to be undertaken during May to August. However, it should be noted that the roost potential could increase depending on the results of an internal inspection.</p>	<p>PRAs of buildings can be undertaken anytime.</p> <p>Activity Surveys for low potential builds are restricted to May to August inclusive.</p>
				<p>Alternatively, avoidance measures should be designed into the scheme to avoid negative impact. This should include: Retention and protection of the buildings with roost potential. This should include an appropriate buffer to avoid impacts from vibration and noise during construction; A sensitive lighting scheme should be designed in coordination between a qualified lighting engineer and a suitably qualified Ecologist, according to current best practice guidelines (ref. R.13). This should ensure that potential roosting and connective commuting habitat (either retained or created within the development) remains unlit to allow continued and future use by bats (if present).</p>	N/A
Bats: Foraging- Trees, grassland and offsite scrub.	Yes	<p>The foraging habitat onsite is considered to be of low value and a large amount of this habitat will be lost.</p> <p>Boundary vegetation offers suitable commuting routes for bats, and as there is currently no bat data for the site it is unknown how the proposed lighting associated with the development would affect these routes.</p>	Site to district significance.	<p>Transect and Remote Monitoring surveys should be carried out to determine the use of the site and the site boundaries by bats (i.e., whether any rare species or a large number of bats forage onsite). A minimum of 3. No surveys will be required.</p>	<p>Three surveys, one per season: Spring, Summer and Autumn</p>
				<p>Alternatively, avoidance measures should be designed into the scheme to avoid negative impact. This should include: Retention and protection of trees; A sensitive lighting scheme should be designed in coordination between a qualified lighting engineer and a suitably qualified Ecologist, according to current best practice guidelines (ref. R.13). This should ensure that foraging or commuting habitat (either retained or created within the development) remains as unlit as possible to allow continued and future use by bats.</p>	N/A
Breeding Birds – scrub and scattered trees.	Yes	Habitats offer value to breeding birds for common passerine birds and are considered important on a site scale.	Site scale.	<p>To ensure that no offences occur under the WCA, it is recommended that any vegetation clearance work is undertaken outside of the bird nesting season. If it is not possible to undertake clearance works outside of the breeding bird season, a suitably qualified ecologist should be employed to determine if nesting birds are using the site prior to works commencing, to avoid negative impact on protected species. Any active nests that are found would need to be provided with a minimum of a 10m buffer which would have to be left until the young had fledged, (typically up to four weeks from eggs being laid for the garden and woodland species likely to be present). Clearance works within the area can recommence only once the nest is no longer in use.</p>	<p>Clearance during September to February only unless supervised by an Ecologist.</p>
Reptiles - grassland onsite is suitable for foraging reptiles.	Yes	If present, the habitats would be considered to be of site to district importance for reptiles.	Site to district significance.	<p>Avoidance measures are not possible as it is likely most of the grassland will be impacted by development. As such, a presence/absence survey should be undertaken targeting areas of suitable habitat. Following this, an appropriate mitigation strategy for reptiles will need to be produced should reptiles be confirmed using the site.</p>	<p>Baseline survey between March and September inclusive (weather dependent).</p>

Table 4 – Protected Species - Ecological Constraints and Recommended Actions

Ecological Constraint/ Receptor	Biological Records Within 2km	Value of Supporting Feature	Impact without Appropriate Mitigation in Place	Recommended Actions (Avoidance/mitigation/compensation Measures and Recommendations for Further Works)	Timing Restrictions
Hedgehog – grassland and offsite scrub.	Yes	Habitats onsite offer commuting and foraging habitats suitable for Hedgehog.	Site scale.	Avoidance: Excavations during development or ground investigation works should be covered overnight to prevent entrapment of Hedgehogs. Hedgehog friendly fencing should be incorporated into the final design to allow Hedgehogs to continue to commute and forage in the local area. A 15cm diameter hole should be placed at the base of each fence, allowing all gardens and greenspace to be accessible to Hedgehog.	N/A
Invertebrates – grassland, trees, ruderals.	No	The habitats onsite are considered important on a site scale for common species.	Site.	Inclusion of residential gardens and landscape planting should ensure that common species of invertebrate still use the site post development.	N/A

8. GENERAL ENHANCEMENTS AND OPPORTUNITIES

The following general enhancements have been recommended to be included within the final development Scheme:

Planting of native plant species beneficial to wildlife should be incorporated into the final design. This will provide additional habitat for invertebrates, which will in turn provide a food source for reptiles, birds, bats, and Hedgehog.

Log piles could be placed in connectivity to the boundary vegetation onsite, enhancing the habitats for both reptiles and invertebrates, post-development

Examples of potential enhancement features are included as Appendix 8. Example plant lists are included as Appendix 9.

9. CONCLUSIONS

The proposed development will not adversely affect statutory or non- statutory designated nature conservation sites.

None of the habitats that occur within the survey area were considered to have high ecological importance on an international, national, regional or county scale. The habitats onsite are of site significance only.

The findings of the extended Phase 1 Habitat Survey confirm that the habitats onsite have the potential to support reptiles, foraging and roosting bats, nesting birds and Badger. The recommendations within Section 7 of this report should be adhered to, to reduce the impact on protected species.

If avoidance measures are not possible, additional surveys for reptiles, foraging bats and roosting bats will be required to confirm baseline use of the site by protected species. If present, a detailed Mitigation Strategy will be required to be provided to the Local Planning Authority prior to the determination of a planning application. Recommendations for mitigation should be in-line with CIEEM guidance (ref. R.11) for Ecological Impact Assessment.

Opportunities exist for the provision of ecological enhancements in the form of the construction of log piles and the incorporation of locally-sourced native plant species, or those of known wildlife benefit, into the landscape strategy.

APPENDICES

Appendix 1 – Report Limitations and Conditions

General Limitations and Exceptions

This report was prepared solely for our Client for the stated purposes only and is not intended to be relied on by any other party or for any other use. No extended duty of care to any third party is implied or offered.

Geosphere Environmental Ltd does not purport to provide specialist legal advice.

The Executive Summary, Conclusions and Recommendations sections of the report provide an overview and guidance only and should not be specifically relied upon until considered in the context of the whole report.

Interpretations and recommendations contained within the report represent our professional opinions, which were arrived at in accordance with currently accepted industry practices at the time of reporting and based upon current legislation in force at that time.

Ecology Limitations and Exceptions

Any limitations associated with the report will be stated. The consequences of any limitations, findings and/or recommendations in the report are made clear in line with CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition, Chartered Institute of Ecology and Environmental Management, Winchester and BSI (2013) BS 42020:2013 Biodiversity – ‘Code of practice for planning and development’.

This report is prepared and written in the context of the proposals stated in the introduction to this report and should not be used in a differing context.

The wildlife and habitats present on any site are subject to change over time. Surveys of this kind can have limited validity, with the possibility of behaviour patterns and territory boundaries varying over time, due to the dynamics of adjacent populations.

New information, improved practices and legislation may necessitate an alteration to the report in whole or in part after its submission. Therefore, with any change in circumstances or after the expiry of one year from the date of the report, the report should be referred to us for re-assessment and, if necessary, re-appraisal.

It should be noted that whilst every effort has been made to provide a comprehensive description of the site, no investigation can ensure the complete characterisation of the natural environment.

The scoping survey does not assess the presence or absence of a species, but is used to assess the potential for habitat to support them. Additional surveys may be recommended if, on the basis of the preliminary assessment or during subsequent surveys, it is considered reasonably likely that protected species may be present.

This survey does not constitute an invasive species survey and should not be treated as such.

Owing to seasonal variances and prevailing weather, conditions may sometimes be sub-optimal for surveying and this may delay or disrupt planned survey programmes. If applicable, full details are given in the report.

Geosphere Environmental Ltd may not be aware of information that could be held by other organisations or individuals, and it is always possible for features of nature conservation interest to be unrecorded during surveys.

Scientific survey data will be shared with local biological records centre in accordance with the CIEEM professional code of conduct.

Appendix 2 – References

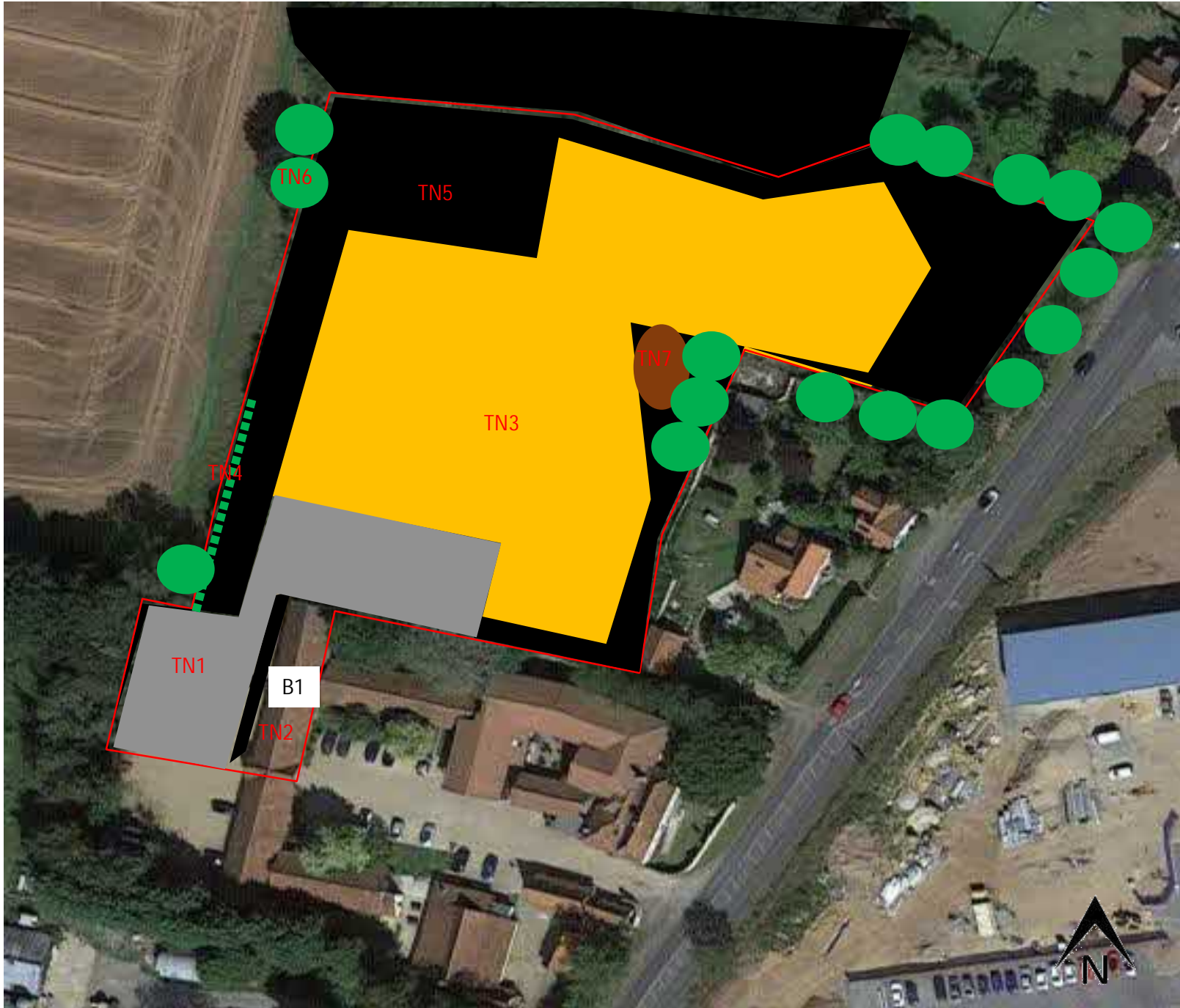
- R.1. Ministry of Housing, Communities and Local Government (MHCLG) (2019) National Planning Policy Framework (NPPF).
- R.2. ODPM (2005) Government Circular: Biodiversity and Geological Conservation – statutory obligations and their impact within the planning system.
- R.3. CIEEM (December 2018) Guidelines for Ecological Impact Assessment in the UK and Ireland: Terrestrial, Freshwater, Coastal and Marine. Chartered Institute of Ecology and Environmental Management, Winchester.
- R.4. BSI (2013) BS 42020:2013 Biodiversity – Code of practice for planning and development. BSI Standards Limited 2013.
- R.5. Stace, C. A. (2010). New Flora of the British Isles (third edition), Cambridge University Press.
- R.6. Magic 13 July 2021 Site Check Report. www.magic.gov.uk.
- R.7. JNCC, (2010). 'Handbook for Phase I Habitat Survey: A technique for environmental audit' (reprint). Joint Nature Conservation Committee, Peterborough.
- R.8. Goldsmith, B. (1991). Monitoring for Conservation and Ecology, Chapman & Hall.
- R.9. BCT (2016). 'Bat Surveys – Good Practice Guidelines' Bat Conservation Trust, London, 3rd Edition.
- R.10. Oldham R.S., Keeble J., Swan M.J.S. & Jeffcote M. (2000). Evaluating the suitability of habitat for the Great Crested Newt (*Triturus cristatus*). Herpetological Journal 10 (4), 143-155.
- R.11. CIEEM, (2017). Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester.
- R.12. BS 5837: (2012), 'Trees in Relation to Design, Demolition and Construction'.
- R.13. Institution of Lighting Professionals (2018) Bats and artificial lighting in the UK, Bats and the Built Environment series – Guidance Note 08/18
- R.14. Natural England (2010). Farm Environment Plan (FEP) Manual.

Appendix 3 – Drawings

Phase 1 Habitat Survey Plan – Drawing ref. 5418,DS/002/Rev0

Proposed Development Plan – Drawing ref. 5418,DS/003/Rev0

Pond Location Plan – Drawing ref. 5418,DS/004/Rev0



LEGEND

- Site boundary
- - - Defunct hedge
- Scattered Trees
- Semi Improved Grass
- Tall Ruderal
- Dense Scrub
- Rubble Pile
- Hardstanding
- TN Target Note
- B Building

SOURCE

Envirocheck

PROJECT

Brome Grange Hotel, Norwich Road, Brome, IP23 8AP

TITLE

Phase 1 Habitat Plan

DRAWING NUMBER

5418_DS/002/Rev0

SCALE

NTS

DATE

09/07/2021

DRAWN BY

TC

CHECKED BY

KML

LEGEND

 Site boundary



SOURCE

Information provided by Client

PROJECT

Brome Grange Hotel, Norwich Road, Brome, IP23 8AP

TITLE

Development Plan

DRAWING NUMBER

5418_DS/003/Rev0

SCALE

nts

DRAWN BY

KML

DATE




09/07/2021

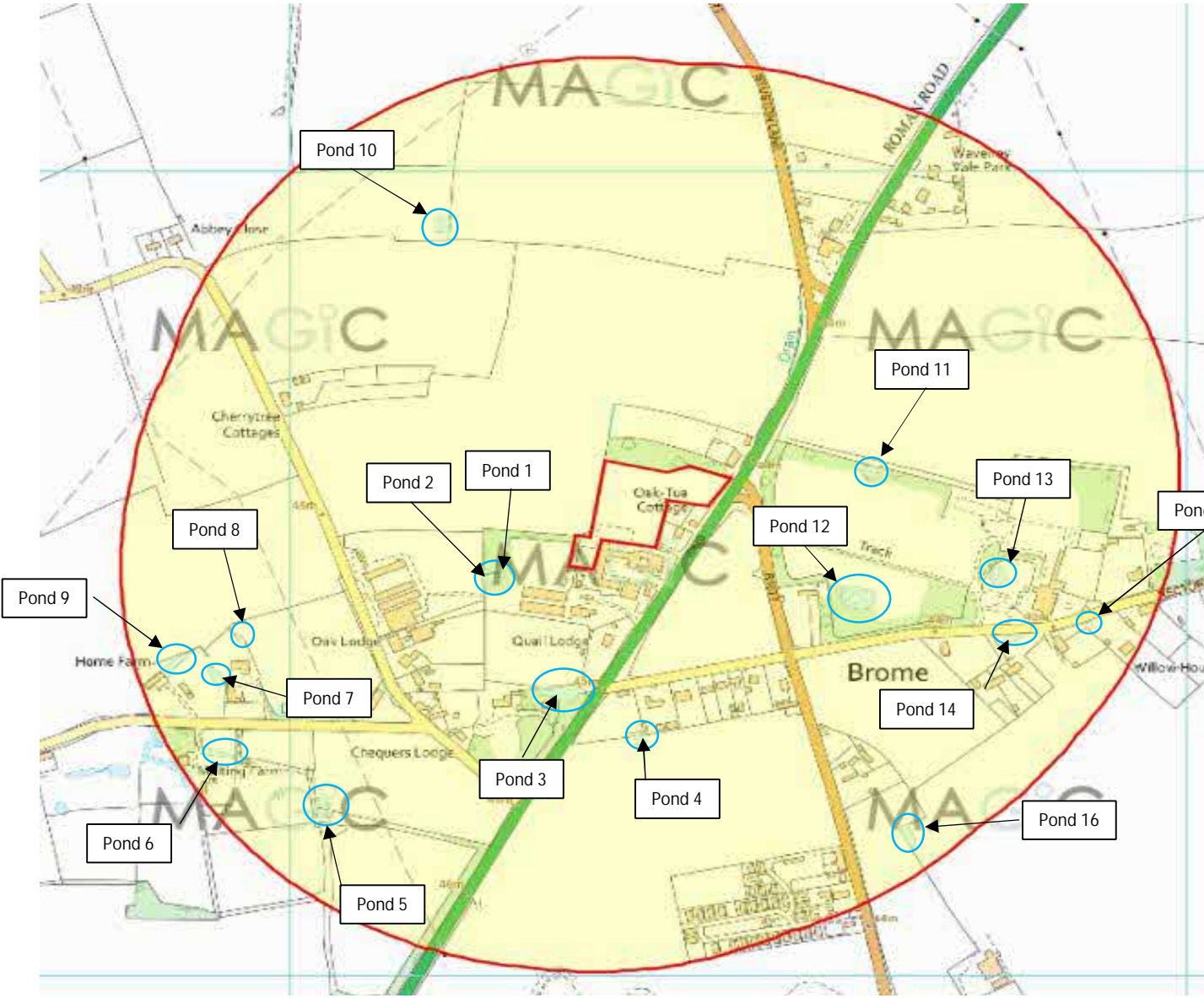
CHECKED BY

TC



LEGEND

-  Red line boundary of site
-  500m Buffer
-  Pond locations



PROJECT

Brome Grange Hotel, Norwich Road, Brome, IP23 8AP

TITLE

Pond Location Plan

DRAWING NUMBER

5418,DS/004/Rev0

SCALE

As marked

DATE

13/07/2021

DRAWN BY

TC

CHECKED BY

KL

Appendix 4 – Species Specific Legislation

Badger

The Protection of Badgers Act 1992 exists for welfare reasons, to protect badgers from cruelty. Under the act it is a criminal offence to wilfully kill, injure, take, possess or cruelly ill-treat a badger, or to attempt to do so, or to intentionally or recklessly interfere with a sett.

Bats

All bat species are protected under the Wildlife and Countryside Act 1981 (as amended) and the Conservation of Habitats and Species Regulations 2010. It is illegal to kill or injure bats, cause disturbance at their resting places or to block access to, damage or destroy their roost sites.

Great Crested Newts

Great Crested Newts are protected under the Wildlife and Countryside Act 1981 (as amended) Section 5 and the Conservation of Habitats and Species Regulations 2010. It is illegal to intentionally or deliberately kill, injure or capture Great Crested Newts or intentionally, deliberately or recklessly damage or destroy their breeding and resting places or obstruct access to their place of shelter or protection.

Hazel Dormouse

Hazel Dormice are protected under the Wildlife and Countryside Act 1981 (as amended) Schedule 5 and the Conservation of Habitats and Species Regulations 2010. It is illegal to intentionally or deliberately kill, injure or capture a Dormouse or intentionally, deliberately or recklessly disturb a Dormouse, or damage its breeding or resting place or obstruct its place of shelter or protection.

Otters and Water Voles

Otters are protected under the Wildlife and Countryside Act 1981 (as amended) Schedule 5 and the Conservation of Habitats and Species Regulations 2010. It is illegal to take, injure, kill or sell an otter, it is also an offence to damage, destroy or obstruct access to a resting place or disturb or harm an Otter at any time.

Water Voles are protected under the Wildlife and Countryside Act 1981 (as amended) Schedule 5. It is illegal to deliberately kill, injure, capture or disturb them or to destroy, damage or obstruct access to any places used for shelter or protection

White-clawed Crayfish

White-clawed Crayfish (*Austropotamobius pallipes*) are protected under the Wildlife and Countryside Act 1981 (as amended) Schedule 5, Sections 9(1) & 9 (5). It is an offence to intentionally take White-clawed

Crayfish from the wild or to sell them. It is also a qualifying Annex II species for some Special Areas of Conservation under the Habitats Directive.

Birds

Wild birds are protected under the Wildlife and Countryside Act 1981 (as amended). It is illegal to take or harm them, their nests (whilst in use or being built) or their eggs.

Additionally, for some species listed under Schedule 1 of the Act, it is an offence to intentionally or recklessly disturb the adults while they are in and around their nest or intentionally or recklessly disturb their dependent young.

Reptiles

Common reptiles include Slow-worm, Adder, Grass Snake and Common Lizard. These are protected under the Wildlife and Countryside Act 1981 (as amended) Schedule 5, Sections 9 (1) & 9 (5) only. It is illegal to kill or injure them.

It is not illegal to capture, disturb or to damage their habitats. However, the reptiles themselves are protected so any works to damage their habitat could risk causing harm to reptiles and hence could be illegal.

Rare reptiles which include Sand Lizard and Smooth Snake are restricted to a few locations in Britain and are fully protected under the Wildlife and Countryside Act 1981 (as amended) Schedule 5, Section 9 and the Conservation of Habitats and Species Regulations 2010. It is illegal to kill, injure or intentionally disturb them whilst occupying a 'place used for shelter or protection' and destruction of these places.

Appendix 5 – Desk Study Data

7/12/2021

Site Check Report Report generated on Mon Jul 12 2021
You selected the location: Centroid Grid Ref: TM13407659
The following features have been found in your search area:

Ramsar Sites (England) - points

Name REDGRAVE & SOUTH LOPHAM FENS
Reference UK11056
Hectares 127.03

Ramsar Sites (England)

Name REDGRAVE & SOUTH LOPHAM FENS
Reference UK11056
Hectares 127.03

Special Areas of Conservation (England) - points

Name WAVENEY & LITTLE OUSE VALLEY FENS
Reference UK0012882
Hectares 193.76
Hyperlink <http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?euocode=UK0012882>

Special Areas of Conservation (England)

Name WAVENEY & LITTLE OUSE VALLEY FENS
Reference UK0012882
Hectares 193.76
Hyperlink <http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?euocode=UK0012882>

Name NORFOLK VALLEY FENS
Reference UK0012892
Hectares 616.31
Hyperlink <http://jncc.defra.gov.uk/protectedsites/sacselection/sac.asp?euocode=UK0012892>

Special Protection Areas (England)

Name BRECKLAND
Reference UK9009201
Hectares 39432.56

Special Protection Areas (England) - points

No Features found



Legend

- Ramsar Sites (England)
- Special Areas of Conservation (England)
- Special Protection Areas (England)

Projection = OSGB36
 xmin = 565700
 ymin = 256500
 xmax = 654100
 ymax = 301100

Map produced by MAGIC on 12 July, 2021.
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7/12/2021

Site Check Report Report generated on Mon Jul 12 2021

You selected the location: Centroid Grid Ref: TM13407659

The following features have been found in your search area:

Sites of Special Scientific Interest (England)

Name	Gypsy Camp Meadows, Thrandeston SSSI
Reference	1001987
Natural England Contact	Conservation Delivery and Projects Team
Natural England Phone Number	0845 600 3078
Hectares	2.41
Citation	1001862
Hyperlink	http://designatedsites.naturalengland.org.uk/SiteDetail.aspx?SiteCode=s1001862

Areas of Outstanding Natural Beauty (England)

No Features found

Local Nature Reserves (England) - points

No Features found

Local Nature Reserves (England)

No Features found

National Nature Reserves (England) - points

No Features found

National Nature Reserves (England)

No Features found

Ramsar Sites (England) - points

No Features found

Ramsar Sites (England)

No Features found

Sites of Special Scientific Interest (England) - points

No Features found

Special Areas of Conservation (England) - points

No Features found

Special Areas of Conservation (England)

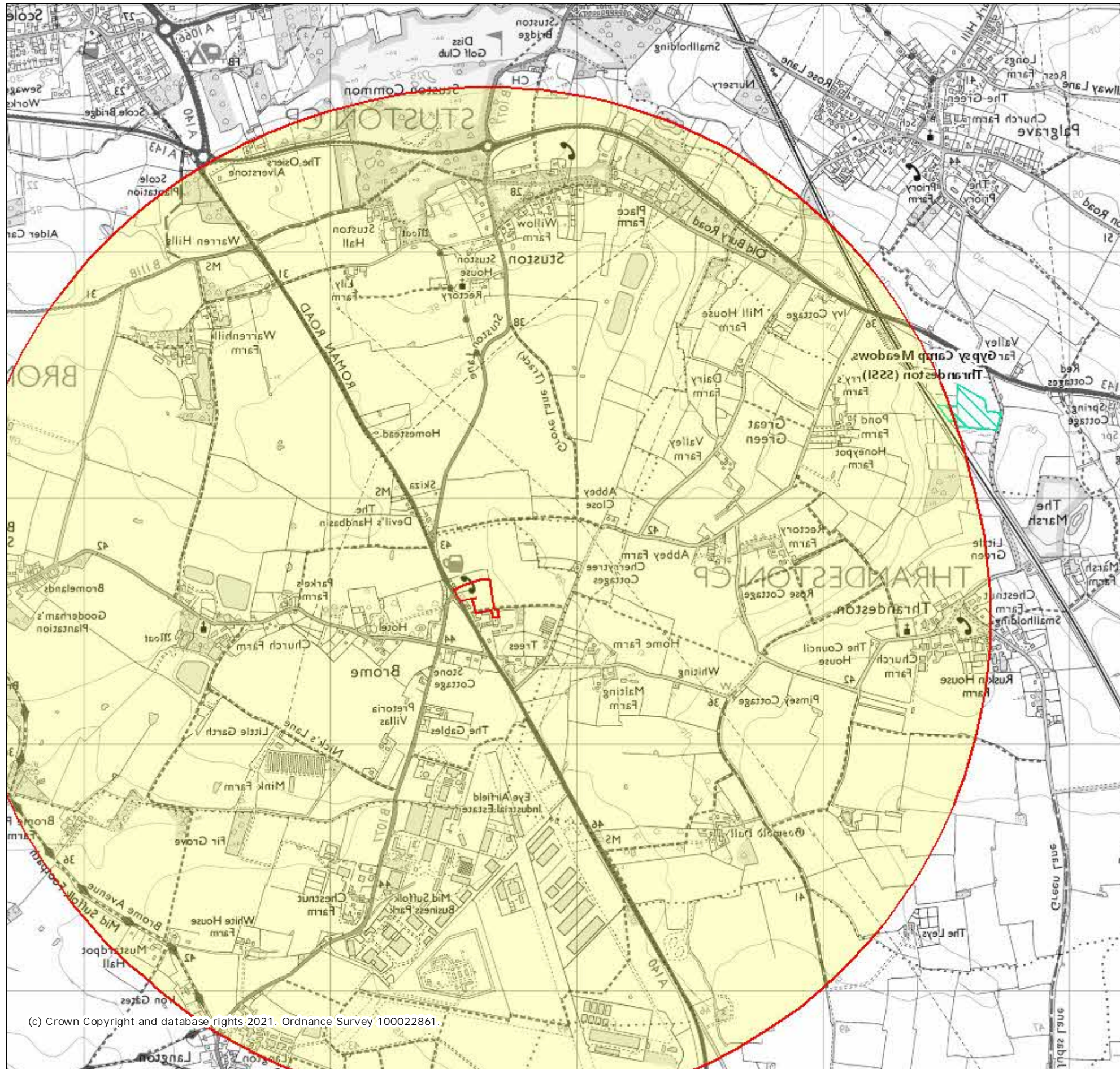
No Features found

Special Protection Areas (England) - points

No Features found

Special Protection Areas (England)

No Features found



Legend

-  Areas of Outstanding Natural Beauty (England)
-  Local Nature Reserves (England)
-  National Nature Reserves (England)
-  Ramsar Sites (England)
-  Sites of Special Scientific Interest (England)
-  Special Areas of Conservation (England)
-  Special Protection Areas (England)

Projection = OSGB36
 xmin = 608100
 ymin = 274500
 xmax = 617900
 ymax = 279200



Map produced by MAGIC on 12 July, 2021.
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Appendix 6 – Target Notes

Target Note 1



Target Note 2



Target Note 3



Target Note 4



NOTE

Target Note 1
Hardstanding car park to the south of the site.

Target Note 2
A single building was located onsite.

Target Note 3
The majority of the site comprised of recently mowed semi-improved grass.

Target Note 4
A defunct species poor hedge ran along the western boundary of the site.

PROJECT

Brome Grange Hotel, Norwich Road, Brome, IP23 8AP

PROJECT NUMBER

5418,DS

TITLE

Ecological Target Notes Relating to Extended Phase 1 Habitat Survey

DATE

16/07/2021

PAGE NO.

1 of 2

Target Note 5



Target Note 6



Target Note 7



Target Note 8



NOTE

Target Note 5
Tall ruderals surrounded much of the site.

Target Note 6
There were several scattered trees along the northern and eastern boundaries of the site.

Target Note 7
The site was bordered to the north by dense blackthorn scrub.

Target Note 8
There was a large rubble pile to the east of the site within the ruderal.

PROJECT

Brome Grange Hotel, Norwich Road, Brome, IP23 8AP

PROJECT NUMBER

5418,DS

TITLE

Ecological Target Notes Relating to Extended Phase 1 Habitat Survey

DATE

16/07/2021

PAGE NO.

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Appendix 7 – Selected Photographs of Buildings

Photograph 1



Photograph 2



Photograph 3



Photograph 4



DESCRIPTION

Photograph 1-4

Selection of photographs showing loose tiles on B1 - considered low bat roost potential.

PROJECT

Brome Grange Hotel, Norwich Road,
Brome, IP23 8AP

PROJECT NUMBER

5418,DS

TITLE

Selected Photographs Relating To
Extended Phase 1 Habitat Survey

DATE

15/07/2021

PAGE NO.

1 of 1

Appendix 8 – Example log piles

LOG PYRAMID AND LOG PILE GUIDANCE

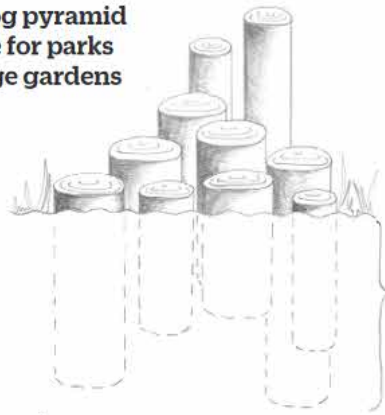
1. LOG PYRAMID

Establishing the Log Pyramid

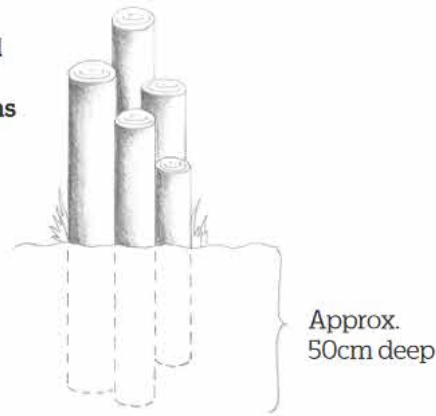
Where space is limited and log piles are deemed unsuitable, log pyramids can be created as shown below.

- Drill holes into some of the logs. Drill holes to various depths.
- Dig holes into the ground ranging from 48cm deep to 60cm deep to give the pyramid shape. The final construction should be as shown below:

Large log pyramid suitable for parks and large gardens



Log pyramid suitable for small gardens



Ground level
Approx. 50cm deep

Approx. 50cm deep

2. STUMPERY

Taken and adapted from Dengarden: [How to Make a DIY Stumpery in Your Garden - Dengarden - Home and Garden](https://www.dengarden.com/2016/07/16/how-to-make-a-diy-stumpery-in-your-garden/)



Stumpery creation involves replicating a forest floor using a mix of different sized wood stumps, logs and even driftwood. They are similar to a rockery, but made with parts of dead trees such as stumps and logs.

Dig a hole in the ground. 'Plant' your logs in it, orientated vertically, so that half the log is in the hole. Pack soil in the gaps of the hole to bury the bases of the logs. This will support species like Stag beetle that like damp submerged dead wood. Interplant with ferns and other shade loving plants and bulbs. Stumperies are strongly recommended if you live in Stag beetle hotspots such as the New Forest, Home Counties and East Suffolk

SOURCE

Log pyramid drawing copyright of <https://ptes.org/wp-content/uploads/2016/11/Build-a-log-pile-for-stag-beetles.pdf>

TITLE

Log Pyramid and Log Pile Guidance

DATE

16/07/2021

PAGE NO.

1 of 2

3. LOG PILES

Resourcing Logs

Any logs created during tree works on the site should be collected and added to the piles, or used to create additional piles. If there are not enough logs created during vegetation clearance, additional logs will need to be imported to the site. Logs should be locally sourced, "green" logs (untreated or dried).

Which Wood to Use

Logs at least 100mm diameter, and 1m long, with the bark still attached provide the best wood. Hard wood trees such as ash, oak and beech are particularly good. Birch logs can look particularly attractive.

Be careful of freshly cut willow and poplar logs, as these can easily re-sprout if left lying on the ground.

Establishing the Log Pile

Leaving woody cuttings from trees, shrubs and herbaceous plants in piles within a shrub bed is an ideal way of attracting invertebrate to site. The damp conditions behind peeling bark are very inviting for woodlice, spiders and beetles, while butterflies and ladybirds take up residence in the drier parts over winter. Log piles should be created by piling large logs into approximately 2m x 1m x 1m piles. Logs should be placed in a shallow pit, approximately 150mm deep. The soil/turf removed to create the pit, should be placed on top of the logs to provide a light cover of soil/turf.



It is best to not cut the wood into small pieces. Leave it in direct contact with the ground, in compact piles to maintain humidity. Larger diameter pieces are of most value, but even small twigs and branches should not be discounted.

REFERENCE

Log pyramid drawing copyright of <https://ptes.org/wp-content/uploads/2016/11/Build-a-log-pile-for-stag-beetles.pdf>

TITLE

Log Pyramid and Log Pile Guidance

DATE

16/07/2021

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Appendix 9 – Example Plant Lists

GENERAL PLANTS CONSIDERED BENEFICIAL TO WILDLIFE

The lists of plants below are taken from current Natural England guidance (ref. 1), a web-based data based managed on behalf of the RHS and the Wildlife Trusts (ref. 2) and professional judgement. When buying native plants, ensure they are from a reputable source, as many wildflowers are illegally taken from the wild.

Large Trees

Common Name	Latin Name	Common Name	Latin Name
Beech	<i>Fagus sylvatica</i>	Pedunculate Oak	<i>Quercus robur</i>
Wild Cherry	<i>Prunus avium</i>	White Willow	<i>Salix alba</i>
Bird Cherry	<i>Prunus padus</i>	Small-leaved Lime	<i>Tilia cordata</i>
Sessile Oak	<i>Quercus petraea</i>		

Medium/Small Trees

Common Name	Latin Name	Common Name	Latin Name
Field Maple	<i>Acer campestre</i>	Apples	<i>Malus spp.</i>
Alder	<i>Alnus glutinosa</i>	Pears	<i>Pyrus spp.</i>
Silver Birch	<i>Betula pendula</i>	Rowan	<i>Sorbus aucuparia</i>
Holly	<i>Ilex aquifolium</i>		

Other Shrubs for Nectar, Pollen or Fruits

Common Name	Latin Name	Common Name	Latin Name
Serviceberry	<i>Amelanchier canadensis</i>	Himalayan Honeysuckle	<i>Leycesteria formosa</i>
June Berry	<i>Amelanchier lamarckii</i>	Mahonia	<i>Mohonia spp.</i>
Californian lilac	<i>Ceanothus spp.</i>	Mock Orange	<i>Philadelphus spp.</i>
Japanese quince	<i>Chaenomeles japonica</i>	Firethorn	<i>Pyracantha spp.</i>
Creeping Cotoneaster	<i>Cotoneaster frigidus</i>	Lilac	<i>Syringa vulgaris</i>
Daphne	<i>Daphne mezereum</i>	Laurustinus	<i>Viburnum tinus</i>
Hebes	<i>Hebe spp.</i>	Bodant Viburnum	<i>Viburnum x bodnantense</i>
Lavenders	<i>Lavandula spp.</i>		

Drought-Tolerant Herbaceous Plants

Common Name	Latin Name	Common Name	Latin Name
Onion	<i>Allium christophii</i>	Giant dead-nettle	<i>Lamium orvala</i>
False dittany	<i>Ballota acetabulosa</i>	Lavender	<i>Lavandula augustifolia</i>
Calamint	<i>Calamintha nepeta</i>	Myrtle	<i>Myrtus communis</i>
Giant scabious	<i>Cephalaria gigantea</i>	Honey garlic	<i>Nectaroscordum siculum</i>
Honeywort	<i>Cerinth major and C. purpurascens</i>	Golden drops	<i>Onosma spp.</i>
Sun-roses	<i>Cistus spp.</i>	Marjoram	<i>Origanum vulgare</i>
Large-flowered Tickseed	<i>Coreopsis grandiflora</i>	Jerusalem sage	<i>Phlomis russeliana</i>
Crocus	<i>Crocus tommasinianus</i>	Rosemary	<i>Rosmarinus officinalis</i>
Cardoon	<i>Cynara cardunculus</i>	Winter savoury	<i>Satureja montana</i>

REFERENCE

1. Natural England (2007). Plants for Wildlife-friendly Gardens: NE29.
2. RHS and the Wildlife Trusts (2015). Gardening with Wildlife in Mind. <http://www.joyofplants.com/wildlife/>.

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Teasel	Dipsacus fullonum	Chile black scabious	Scabious atropurpurea
Coneflower	Echinacea purpurea	Stonecrops	Sedum acre, S. anglicum, S. forsterianum and S. album
Giant Echium	Echium pininana	Lamb's lung/ears	Stachys olympica and S. lanata
Sea-hollies	Eryngium spp.	Thyme	Thymus vulgaris
Escallonia	Escallonia spp.	Crimson clover	Trifolium incarnatum
Hebe	Hebe sp.	Tulip	Tulipa sp.
Rock-roses	Helianthemum spp.		



Native Wildflowers for Borders

Common Name	Latin Name	Common Name	Latin Name
Yarrow	Achillea millefolium	Toadflax	Linaria vulgaris
Agrimony	Agrimonia eupatoria	Yellow loosestrife	Lysimachia vulgaris
Corncockle	Agrostemma githago	Common mallow	Malva sylvestris
Chives	Allium schoenoprasum	Marjoram	Origanum vulgare
Harebell	Campanula rotundifolia	Common poppy	Papaver rhoeas
Cornflower	Centaurea cyanus	Cowslip	Primula veris
Greater knapweed	Centaurea scabiosa	Primrose	Primula vulgaris
Chicory	Chichorium intybus	White campion	Silene alba
Foxglove	Digitalis purpurea	Red campion	Silene dioica
Teasel	Dipsacus fullonum	Goldenrod	Solidago virgaurea
Sea hollies	Eryngium spp.	Devil's-bit scabious	Succisa pratensis
Lady's bedstraw	Galium verum	Tansy	Tanacetum vulgare
Meadow crane's-bill	Geranium pratense	Dandelion	Taraxacum officinale
Herb-robert	Geranium robertianum	Wild thyme	Thymus drucei
Dame's-violet	Hesperis matronalis	Great mullein	Verbascum thapsus
Field Scabious	Knautia arvensis	Germander speedwell	Veronica chamaedrys
Oxeye daisy	Leucanthemum vulgare	Spiked speedwell	Veronica spicata

Cultivated Plants for Borders

Common Name	Latin Name	Common Name	Latin Name
Alliums	Allium spp.	California poppy	Eschscholzia californica
Hollyhock	Althaea rosea	Snowdrop	Galanthus nivalis
Yellow alyssum	Alyssum saxatile	Sunflowers	Helianthus spp.
Grecian windflower	Anemone blanda	Christmas rose	Helleborus niger
Angelica	Angelica archangelica	Lenten rose	Helleborus orientalis
Snapdragon	Antirrhinum majus	Candytuft	Iberis sempervirens
Alpine rock-cress	Arabis alpina	Poached-egg plant	Limnanthes douglasii
Michaelmas daisies	Aster spp.	Hybrids sweet alyssum	Lobularia maritime
Lilacbush	Aubrieta deltoidea	Honesty	Lunaria rediviva or annua
Borage	Borago officinalis	Sweet bergamot	Monarda didyma
Pot marigold	Calendula officinalis	Grape hyacinth	Muscari botryoides
Red valerian	Centranthus ruber	Forget-me-not	Myosotis spp.
Wallflower	Cheiranthus cheiri	Tobacco plant	Nicotiana sylvestris
Corn marigold	Chrysanthemum segetum	Evening primrose	Oenothera biennis

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Cosmos	Cosmos bipinnatus	Phlox	Phlox paniculata
Spring crocus	Crocus chrysanthus	Black-eyed Susan	Rudbeckia fulgida
Sweet William	Dianthus barbatus	Scabious	Scabiosa spp.
Purple coneflower	Echinacea purpurea	Ice plant	Sedum spectabile
Globe thistle	Echinops ritro	French marigold	Tagetes spp.
Winter aconite	Eranthis hyemalis	Mulleins	Verbascum spp.
Fleabane	Erigeron spp.		

Plants for Shady Areas

Common Name	Latin Name	Common Name	Latin Name
Bugle	Ajuga reptans	Bluebell	Hyacinthoides non-scripta
Lords and Ladies/ Cuckoopint	Arum maculatum	Yellow archangel	Lamium galeobdolon
Lilly of the Valley	Convallaria majalis	Daffodils	Narcissus pseudonarcissus
Foxglove	Digitalis purpurea	Primrose	Primula vulgaris
Wood avens	Geum urbanum	Sweet Violet	Viola odorata

Plants for Wildflower Meadows/Intensive Green Roofs

Common Name	Latin Name	Common Name	Latin Name
Yarrow	Achillea millefolium	Poached-egg plant	Limnanthes douglasii
Corncockle	Agrostemma githago	Toadflaxes	Linaria spp.
Chives	Allium schoenoprasum	Flax	Linum usitatissimum
Yellow alyssum	Alyssum saxatile	Hybrids sweet alyssum	Lobularia maritima
Grecian windflower	Anemone blanda	Bird's-foot Trefoils	Lotus spp.
Snapdragon	Antirrhinum majus	Honesty	Lunaria rediviva
Alpine rock-cress	Arabis alpina	Yellow loosestrife	Lysimachia vulgaris
Michaelmas daisy	Aster spp.	Scentless Mayweed	Matricaria recutita
Red Orache	Atriplex hortensis	Black Medick	Medicago lupulina
Purpletop vervain	Berbenia bonariensis	Forget-me-not	Myosotis spp.
Fingered Sedge	Carex digitata	Tobacco plant	Nicotiana affinis
Glaucous Sedge	Carex flacca	Love-in-a-mist	Nigella damascena
Cornflower	Centaurea cyanus	Oreganos	Oreganum spp.
Common Knapweed	Centaurea nigra	Common poppy	Papaver rhoeas
Greater knapweed	Centaurea scabiosa	Poppies	Papaver spp.
Red valerian	Centranthus ruber	Tunicflower	Petrorhagia saxifraga
Wallflower	Erysimum cheiri	Phlox	Phlox paniculata
Chicory	Cichorium intybus	Meadow-grasses	Poa sp.
Rock-roses	Cistus spp.	Cowslip	Primula veris
Larkspur	Consolida spp.	Yellow Rattle	Rhinanthus minor
Tickseed	Coreopsis spp.	Black-eyed Susan	Rudbeckia hirta
Cosmos	Cosmos bipinnatus	Common Sorrel	Rumex acetosa
Heath-grass	Danthonia decumbens	Sheep's Sorrel	Rumex acetosella
Teasel	Dipsacus fullonum	Ice plant	Sedum spectabile
Fleabane	Erigeron spp.	Stonecrops	Sedum spp.
Stork's-bills	Erodium spp.	White campion	Silene alba

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Wallflowers	Erysimum spp.	Red campion	Silene dioica
California poppy	Eschscholzia californica	Goldenrod	Solidago virgaurea
Spiky Fescue	Festuca gautieri	Devil's-bit scabious	Succisa pratensis
Lady's bedstraw	Galium verum	French marigold	Tagetes spp.
Dove's-foot Crane's-bill	Geranium molle	Tansy	Tanacetum vulgare
Meadow crane's-bill	Geranium pratense	Dandelion	Taraxacum officinale
Herb-robert	Geranium robertianum	Wild thyme	Thymus drucei
Heliotrope	Heliotropium arborescens	Red Clover	Trifolium pratense
Horseshoe Vetch	Hippocrepis comosa	Great mullein	Verbascum thapsus
Candytuft	Iberis sempervirens	Germander speedwell	Veronica chamaedrys
Field Scabious	Knautia arvensis	Spiked speedwell	Veronica spicata
Oxeye daisy	Leucanthemum vulgare		



Marginal Plants/Marshy Areas

Common Name	Latin Name	Common Name	Latin Name
Water plantain	Alisma plantago-aquatica	Water mint	Menthe aquatica
Marsh marigold	Caltha palustris	Bogbean	Menyanthes trifoliata
Cuckooflower	Cardamine pratensis	Water forget-me-not	Myosotis scorpioides
Lesser pond sedge	Carex aucuparia	Amphibious bistort	Persicaria amphibia
Water avens	Geum rivale	Water Plantain	Alisma Plantago-aquatica
Water violet	Hottonia palustris	Lesser spearwort	Ranunculus flammula
Rushes	Juncus spp.	Marsh woundwort	Stachys palustris
Ragged robin	Lychnis flos-cuculi	Brooklime	Veronica beccabunga
Creeping Jenny	Lysimachia nummularia		

Submerged Plants

Common Name	Latin Name	Common Name	Latin Name
Water starwort	Callitriche	Curled pondweed	Potamogeton crispus
Hornwort	Ceratophyllum demersum	Other pondweeds	Potamogeton spp.
Spiked water milfoil	Myriophyllum spicatum	Willow moss	Fontinalis antipyretica
Common water-crowfoot	Ranunculus aquatilis	Water-violet	Hottonia palustris

Floating Plants

Common Name	Latin Name	Common Name	Latin Name
Frogbit	Hydrocharis morsus-ranae	Broad-leaved pondweed	Potamogeton natans
Fringed water-lily	Nymphoides peltata	Water crowfoot	Ranunculus aquatilis
Amphibious bistort	Persicaria amphibian	Yellow waterlily	Nuphar lutea

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