

One Horton Heath: Green Infrastructure

Ecological Appraisal Report

Final

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Report prepared for:

Eastleigh Borough Council

Main contributors:

Lexi Dowson Wallace BSc (Hons) MSc ACIEEM

Senior Ecologist

Matthew Johns BSc MSc CEnv MCIEEM FGS MIFM

Director

Reviewed by

Liz Johns BSc (Hons) MSc CEnv MCIEEM MRSB

Director

Green Tree House, 11 St Margaret's St, Bradford on Avon, Wiltshire, BA15 1DA
T: 01225 723652 | E: info@johnsassociates.co.uk | W: www.johnsassociates.co.uk

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TABLE OF CONTENTS

1 INTRODUCTION 5

1.1 Background.....5

1.2 Summary of Proposals5

1.3 Purpose of this Report5

1.4 Legislation and Planning Policy6

1.5 Site Description and Location.....6

2 METHODOLOGY 8

2.1 Desk Study8

2.1.1 Data Search8

2.2 UK Habitat Classification (UKHab) Survey8

2.3 Biodiversity Net Gain10

2.4 Protected Species11

3 RESULTS 14

3.1 Desk Study14

3.1.1 Statutory Designated Sites14

3.1.2 Non-statutory Designated Sites15

3.1.3 Invasive Non-native Flora15

3.1.4 Invasive Non-native Fauna16

3.1.5 Protected Species Data Records16

3.1.6 Relevant Granted European Protected Species (EPS) Licences16

3.2 UKHab Survey.....17

3.2.1 Cropland – Cereal Crops c1c.....17

3.2.2 Modified Grassland g4.....17

3.2.3 Other Neutral Grassland g3c.....17

3.2.4 Wood Pasture and Parkland (Secondary Code 20)18

3.2.5 Wetland – Fen, marsh and swamp f218

3.2.6 Lakes – Eutrophic standing water r1a18

3.2.7 Heathland and Scrub – Mixed Scrub h3h18

3.2.8 Heathland and Scrub – Hawthorn Scrub h3f19

3.2.9 Woodland – Other lowland mixed deciduous woodland W1f719

3.2.10 Other Woodland; Broadleaved – w1g719

3.2.11 Hedgerows19

3.3 Protected Species25

3.3.1 Badgers.....25

3.3.2 Bats.....25

3.3.3 Breeding Birds25

3.3.4 Dormice26

3.3.5 GCN and Other Amphibians26

3.3.6 Otters and Water Voles26

3.3.7 Reptiles27

3.3.8 Hedgehogs.....27

3.4 Biodiversity Net Gain (Baseline).....27

3.4.1 Habitats.....27

3.4.2 Hedgerows28

4 PROPOSED INTEGRATED AND ADDITIONAL ECOLOGICAL MEASURES 29

4.1 Ecological Measures29

4.1.1	Watercourses including River Itchen SAC	29
4.1.2	Fish (Including Atlantic Salmon)	31
4.1.3	SINCs and Habitats.....	32
4.1.4	Invasive Non-native Species	33
4.1.5	Badgers.....	33
4.1.6	Bats.....	34
4.1.7	Birds	34
4.1.8	Dormice	35
4.1.9	Amphibians (including GCN) and Reptiles	35
4.1.10	Otters.....	36
4.2	Biodiversity Net Gain (Post-development)	37
4.2.1	Habitats.....	37
4.2.2	Hedgerow Habitats.....	38
4.2.3	Offsetting.....	39
4.2.4	Headline Results	39
5	ASSESSMENT OF LIKELY RESIDUAL EFFECTS	43
5.1	Habitats.....	43
5.1.1	Northern GI	43
5.1.2	Central GI	44
5.1.3	Southern GI	44
5.1.4	Summary.....	45
5.2	Badgers	52
5.3	Bats.....	52
5.4	Breeding Birds.....	52
5.5	Dormice.....	52
5.6	GCN and Other Amphibians.....	52
5.7	Otter and Water Vole.....	52
5.8	Reptiles.....	52
6	CONCLUSIONS	53
	APPENDIX A – LEGISLATION AND PLANNING POLICY	54

1 INTRODUCTION

1.1 BACKGROUND

Eastleigh Borough Council has commissioned Johns Associates Ltd to conduct an Ecological Appraisal that draws on a range of biodiversity survey and design details, to support the assessment and reporting of the potential effects from the planning application for construction of the Green Infrastructure (GI) areas.

This report has drawn on historic and contemporary ecological data from desk studies and field surveys. The information used included an extended UKHab Survey of the site and Phase 2 ecological surveys for badger *Meles meles*, bats, birds, dormouse *Muscardinus avellanarius*, great crested newt (GCN) *Triturus cristatus*, otter *Lutra lutra*, water vole *Arvicola amphibius* and reptiles. A Biodiversity Net Gain (BNG) assessment of the current and proposed habitats has been calculated using the Statutory Biodiversity Metric to provide a standardised assessment of the change in habitats resulting from the Proposed Development.

1.2 SUMMARY OF PROPOSALS

The proposed development has been designed in full accordance with the Development Plan and Outline Planning Application (OPA) O/20/89498, which has a resolution to grant consent subject to S106 negotiations relating to education. The application is for full planning consent due to the time for these negotiations to complete. Submitting details of the Green Infrastructure Landscaping (GI) as a full planning application will deliver the GI in accordance with, and as part of the OPA, but enable commencement more quickly than waiting for the resolution of the OPA S106 and the determination of an application for reserved Matters Approval of details of the GI.

The 'Proposed Development' associated with this application is for the construction of three Green Infrastructure areas including open space landscaping, bridleways, footpaths, SuDS, play areas and ecological and biodiversity enhancements at One Horton Heath (OHH) (hereafter referred to collectively as the "Site") as a full planning application.

The Site is split into three distinct areas, namely the Northern GI, the Central GI and the Southern GI. Figure 1 shows the three areas within the context of OHH.

1.3 PURPOSE OF THIS REPORT

The key objectives of this Report are to:

- Provide an ecological baseline for the Site.
- Identify the likely key ecological constraints and opportunities associated with the proposed development.
- Set out mitigation or compensation measures.
- Set out ecological enhancement measures at the site through consultation and agreement with statutory bodies.
- Assess the likely effects from the scheme on biodiversity, taking into account the mitigation/compensation and enhancement measures proposed.

1.4 LEGISLATION AND PLANNING POLICY

Appendix A provides the full legislation, national planning policy and local planning policy that applies to the habitats and species associated with the Proposed Development.

1.5 SITE DESCRIPTION AND LOCATION

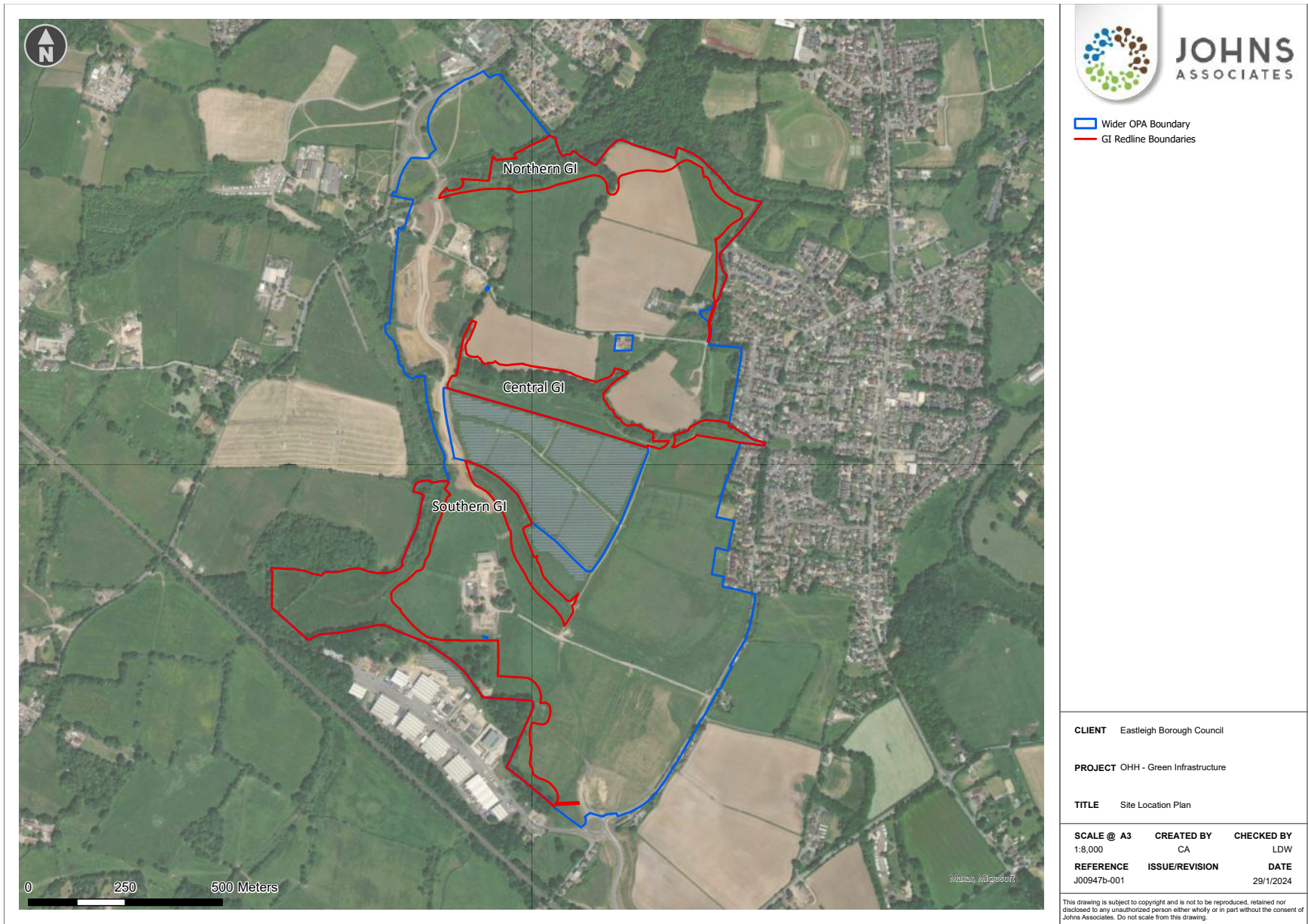
The Northern GI area comprises several habitats including the margins of other lowland mixed deciduous woodland (Quobleigh Woods), together with cropland, modified grassland and unmanaged marshy other neutral grassland. Field and site boundaries comprise various species-rich hedgerows, and lines of trees. The woodland, other neutral grassland and linear features are of value for bats, great crested newts and other amphibians, reptiles, and hedgehogs. The hedgerows, lines of trees and woodland provide habitat for breeding birds.

Foxwood stream runs east to west through the centre of the Central GI area and is surrounded by unmanaged other broadleaved woodland. To the north of the woodland is a section of a cropland field as well as an area of mixed scrub and marshy other neutral grassland. To the south is species-poor modified grassland with some hawthorn scrub. The Site also contains species-rich hedgerows and lines of trees. Dormice have been found to be present within a small part of the woodland, which is also of value to bats, amphibians, reptiles, and hedgehog along with the grassland, scrub and linear features.

The Southern GI area is split into two areas, both of which comprise largely other neutral grassland with hedgerows and lines of trees. Other broadleaved woodland and modified grassland are also present in the southernmost portion of the Site, along with an area of wood pasture & parkland habitat. The woodland, other neutral grassland and linear features are of value for bats, great crested newts and other amphibians, reptiles, and hedgehogs. The hedgerows, lines of trees and woodland provide habitat for breeding birds.

Figure 1 illustrates the planning application boundaries associated the Proposed Development (the Site).

Figure 1: Site Location within OPA Boundary



2 METHODOLOGY

2.1 DESK STUDY

The desk study collates relevant existing information relating to the Site and its surrounding area. The data is used to assist with developing the scope and design of any further surveys (if required) and to enable a full assessment of the ecological constraints and opportunities at the Site. The following sources have been used as appropriate:

- Multi Agency Geographic Information for the Countryside (MAGIC) website. Records and citations to a 2 km buffer for national designated sites, a 10 km buffer for international designated sites, 10 km for sites designated for bats (www.gov.uk, www.designatedsites.naturalengland.org.uk), priority habitats and EPS licences for notable species to 2 km, including a 500 m buffer radius for great crested newt (GCN) *Triturus cristatus* and GCN ponds (www.magic.co.uk). Search made on 2 August 2023.
- Records and citations for designated sites¹;
- Google Maps²; and
- Ordnance Survey maps³ to identify any ponds within 500 m of the Site, along with the presence of any significant barriers to the migration of great crested newt from these ponds to the Site itself.

The following strategic documents for Eastleigh were also reviewed with reference to the habitats and species present, or likely to be present, within or adjacent to the site:

- Rushbrook, B (2018) Southern Damselfly Survey and Habitat Assessment Study, Eastleigh Borough.
- Eastleigh Borough Council (2018) Eastleigh Borough Local Plan 2016-2036. Great Crested Newt Study.
- The Highwood Group and Drew Smith Group (2017) Strategic Eastleigh Site Bat Trapping and Radio-tracking Baseline Report and Evaluation.
- Eastleigh Borough Council (2012) Biodiversity Action Plan for Eastleigh Borough 2012 – 2022.

2.1.1 Data Search

A detailed review of biodiversity records from the Hampshire Biodiversity Information Centre (HBIC) was carried out for the main outline planning permission O/20/89498 in March 2020.

Existing non-statutory designated site information and records of notable and protected species were obtained from within the wider site boundary and a 2km buffer. This ecological information was sourced from the Hampshire Biodiversity Information Centre (HBIC) in October 2018 and update in March 2020.

2.2 UK HABITAT CLASSIFICATION (UKHAB) SURVEY

The on-Site habitats were originally surveyed by Johns Associates using the Phase 1 Habitat Survey method (JNCC, 2010) in 2022, but were re-surveyed in March 2023 and updated through a further walkover survey in July 2023. This information allowed the re-classification to UK Habitat Classification (UKHab) (2020) guidelines⁴, which provides a more detailed interpretation of baseline habitat survey data than previous habitat classifications systems, such as Phase 1 Habitat

¹ www.gov.uk, www.designatedsites.naturalengland.org.uk

² www.maps.google.com

³ www.ordnancesurvey.co.uk

⁴ UK Habitat Classification (UKHab) (2020) guidelines

Assessments.

The professional edition of UKHab "UK Habitat Classification – Professional Edition⁵" (UKHab-P) was used which includes Priority Habitat Types, all Annex 1 Habitats and the habitats listed in EUNIS. The classification of primary habitats is hierarchical with five levels, which include terrestrial/freshwater/marine, ecosystem types, broad habitats, priority habitats and Annex 1 habitats.

Habitat types were assigned a primary code to a hierarchical level of at least three, and secondary codes were used to further clarify the habitat and record additional information linked to the primary habitat such as habitat management. The full range of secondary codes following UKHab-P were used, which are grouped under the following headings of which the first three listed are considered mandatory sections:

- Habitat Mosaics (10 - 18)
- Habitat Complexes (19 – 32)
- Origin (33 – 49)
- Management (51 – 85)
- Land Use (86 – 116)
- Environmental Qualifier (117 – 138)
- Species Feature (139 – 166)
- Hydrological Regime (167 – 199)
- Green Infrastructure (200 – 1232) - The Green Infrastructure section is numbered from 200 upwards. As this section is hierarchical, the first level of the GI hierarchy goes up in hundreds (200, 300 etc.), the second in tens (210,220 etc.) and the third in ones (211, 212 etc).

Where appropriate, maps are supplemented with target notes which provide specific information on habitats present that are too limited in extent to map at the scale at which data is presented, or the presence of species and habitats of ecological interest.

An annotated habitat map together with descriptions of the recorded habitat types was produced, which was subsequently digitized using a geographical information system (ArcGIS). The survey also included identification of any non-native invasive plant species. Flora taxonomy follows the nomenclature detailed in New Flora of the British Isles (4th Edition) (Stace C. , 2019). Flora⁶, where appropriate, are given a descriptive score of abundance using the DAFOR scale, as follows:

- D – Dominant
- A – Abundant
- F – Frequent
- O – Occasional
- R – Rare

⁵ Butcher, B., Carey, P., Edmonds, R., Norton, L. and Treweek, J. (2020). The UK Habitat Classification User Manual Version 1.1 at <http://www.ukhab.org/>

⁶ New Flora of the British Isles, Edition 4, Clive A. Stace, 2019. CM's Corportion Floristics

- L – Locally (to be used as a prefix for any of the above)
- V – Very (to be used as a prefix for any of the above)

2.2.1.1 ArcGIS Symbology

At the time of production, a complete symbology for all habitats in the UK Habitat Classification Professional Edition (UKHab-P) was not available. The UK Habitat Classification Basic Edition (UKHab-B) symbology has therefore been used, and where necessary to add in habitats not included in UKHab-B we have designed our own hatching system within the Level 2 colours for those habitats – following the guidance provided in the UK Habitat Classification Basic Edition: Suggested Symbology for Maps document (UKHab, 2020).

2.2.1.2 Minimum Mapping Units

UKHab guidance indicated that UKHab has 3 Minimal Mapping Units (MMU's):

- 25m² and 5m length for urban and small-scale development projects, fine scale mapping of designated sites
- 400m² and 20m length for landscape scale surveys
- 2500m² for larger unenclosed upland habitats.

Large scale, simple habitats or feasibility surveys should use a larger MMU. For this project, given the size of the site and the scale of the map the smallest recommended MMU has been applied. This will allow all habitats to be clearly visible on the map whilst enabling enough fine detail to remain to clearly show all habitats present.

Where appropriate, maps are supplemented with target notes which provide specific information on habitats present that are smaller than the MMU, or the presence of species and habitats of ecological interest.

2.3 BIODIVERSITY NET GAIN

The Statutory Biodiversity Metric provides a nationally measurable structured calculation methodology to account for biodiversity losses and gains resulting from development or land management change. The Metric uses habitat, the places in which species live, as a proxy to describe biodiversity. These habitats are converted into measurable 'biodiversity units'. These biodiversity units are the 'currency' of the metric. Individually, they are referred to as 'habitat units' for area-based habitats, 'hedgerow units' for linear habitats, and 'river units' for watercourses.

Biodiversity units are calculated using the size of a parcel of habitat and its quality. The metric uses habitat area as its core measurement, except for linear habitats where habitat length is used. To assess the quality of a habitat the metric scores habitats of different types, such as woodland or grassland, according to their relative biodiversity value. Habitats that are scarce or declining typically score highly relative to habitats that are more common and widespread. The metric also takes account of the condition of a habitat. The metric accounts for the location of the habitat relative to other similar habitats to measure its connectedness in the landscape. Being 'better' and 'more joined-up' are important facets of habitats that can contribute to halting and reversing biodiversity declines. Lastly, the metric also accounts for whether or not the habitat is sited in an area identified locally, typically in a relevant policy of plan, as being of significance for nature.

Where new habitat is created, or existing habitat is enhanced the difficulty and associated risks of doing so are taken into account by the metric. If habitat is created to compensate for losses elsewhere, then the metric also takes account of its proximity to the impact site. The metric incentivises delivery that is on or close to the impact site.

The Statutory Biodiversity Metric score has been calculated for the existing habitats at the Site and for the habitats

proposed within the masterplan. The site was split into distinct habitat parcels and linear habitats based on the UKHab system, which were then mapped and measured using the ArcGIS mapping tool.

The area or length of each habitat type (henceforth known as ‘habitats’ for area-based habitats, ‘hedgerows’ for linear habitats, and ‘rivers’ for watercourses) was entered into the Calculation Tool along with the condition and strategic significance (informed by the desk study) in order to obtain the baseline (i.e. existing) value of each in biodiversity units. This process was repeated for the post-development habitats to be retained, enhanced and/or newly created.

BNG is an approach to development that seeks to halt the current loss of biodiversity through development and through the planning system; restore ecological networks through early masterplanning and increase the natural habitat resource and ecological features. This has been included within the Environment Act 2021, and a mandatory requirement for development to enhance the ecological value of a site by a minimum of 10% will come into force in February 2024.

Three separate Biodiversity Net Gain reports have been prepared for this application by Johns Associates, one for each GI area (J00947 OHH Northern GI BNG Assessment Report; J00947 OHH Central GI BNG Assessment Report; J00947 OHH Southern GI BNG Assessment Report by Johns Associates Ltd).

2.4 PROTECTED SPECIES

The UKHab survey and subsequent July 2023 walkover survey was ‘extended’ to re-assess the suitability of habitats to support legally protected and/or notable species, including (but not limited to) badger, birds, bats, dormouse, GCN and other amphibians, otter, water vole and reptiles. This assessment included recording visible signs of species presence and/or habitat features that may indicate likely presence.

This survey was completed in accordance with the Guidelines for Preliminary Ecological Appraisal (CIEEM, 2013)⁷ and BS 42020:2013 Biodiversity - Code of practice for planning and development⁸.

An extensive range of detailed (Phase 2) faunal surveys have been completed across the entire One Horton Heath Site, including the locations associated with the Proposed Development including up to 2022. Update walkover inspections have been undertaken by Johns Associates in 2022 and 2023 (most recently in July 2023) to confirm that the ecological baseline documented in the Environmental Statement associated with planning permission O/20/89498 remains correct, and there are no grounds for requiring additional investigations.

Table 1 overleaf highlights the surveys undertaken to date which are relevant to the Site, and conclusions made about their ongoing validity.

⁷ CIEEM (2017) Guidelines for Preliminary Ecological Appraisal, 2nd edition. Chartered Institute of Ecology and Environmental Management, Winchester

⁸ The British Standards Institution (2013) BSI Standards Publication BS 42020:2013 Biodiversity – Code of Practice for Planning and Development

Table 1 OHH Ecology Survey Review

Species/ Group/ Survey Type	Dates of Surveys	Update Surveys Required?	Rationale
Extended Phase 1 Habitat survey/ UKHab survey	July/August 2018 August 2019 July/August 2020 October 2020 (part) July 2023	No	An updated walkover survey has been conducted of the wider OHH site, including the Secondary Infrastructure Road and GI areas, in Sept 2022 and July 2023 (Update Survey 1). This has established whether there are any significant differences in baseline habitats since previous surveys and provide comments on current land management practices. It has also provided updated information on fields signs or potential for protected species such as badgers and otters.
River Habitats and Fish Habitats	July 2020	No	No changes to site layout or management. Update Survey 1 has assessed any changes and concluded that previous results remain valid for 2023.
Biodiversity Net Gain (BNG) habitat condition assessments/ MoRPh5 river condition assessments	July 2023 August 2023 January 2024	Yes	MoRPh5 river condition assessment survey is currently being extended at the time of writing (January 2024).
Badger surveys	November 2018 September 2019 September 2020 September 2022 July 2023	No	Badgers are notorious for moving into areas relatively quickly. Whilst there was no activity up to 2020, there has been badger sett activity in the extreme SE noted in 2022. on the site on the new road embankments. The Update Survey 1, has surveyed for any new badger activity across the site and concluded that previous results remain valid for 2023.
Bat Activity Surveys (transects and automated detector surveys, radio tracking, trapping)	Transects July to October 2018, April to June 2019, May 2020 Radio tracking summer 2020 Trapping Aug 2018, Aug 2020	No	No changes to site layout or management. Update Survey 1 has assessed any changes and concluded that previous results remain valid for 2023.
Bat crossing point surveys	June to September 2019 and June to September 2020	No	No changes to site layout or management. Update Survey 1 has assessed any changes and concluded that previous results remain valid for 2023.
Roosting bat surveys: trees	Tree emergence surveys August/ September 2020 Tree climbing inspections of moderate or high potential trees Oct 2020 Ground based assessment updated Dec 2021 Quobleigh crossing alders inspected and resurveyed spring 2022.	No	No changes to site layout or management. Update Survey 1 has assessed any changes and concluded that previous results remain valid for 2023 and are not relevant to this application.

Species/ Group/ Survey Type	Dates of Surveys	Update Surveys Required?	Rationale
Bird surveys	April to June 2020 (breeding bird surveys) April to July 2020 (barn owl surveys)	No	No changes to site layout or management. Update Survey 1 has assessed any changes and concluded that previous results remain valid for 2023.
Dormouse surveys	July to November 2018 August to November 2020 and in 2022.	No	A dormouse licence has been granted for the Link Road severance of Foxholes Wood. This included consideration of other parts of the connected woodland including the application site. The Natural England licensing process concluded that only the Link Road location needed to be subject to dormouse EPS licensing. Data remains valid for 2023. Dormouse has never been found to be present in the vicinity/habitat associated with the Secondary Infrastructure Road and associated GI working area.
GCN	Habitat Suitability Index (HSI) May 2019 Presence/absence and population class May-June 2019 Presence/absence May-June 2021 Presence/absence May-June 2022	No	No changes to the wider site layout or management. The updated 2023 site visits have assessed any changes and concluded that previous results remain valid for 2023 and are not relevant to this application.
Otter and water vole surveys	September/October 2018 July 2020	No	No changes to site layout or management. Update Survey 1 has assessed any changes and concluded that previous results remain valid for 2023
Reptile surveys	September 2018 September 2020	No	No changes to site layout or management. Update Survey 1 has assessed any changes and concluded that previous results remain valid for 2023.

No protected species licences are required for the construction/operational aspects of the Northern and Central GI areas. A robust Ecological Precautionary Method of Working will be followed. The Southern GI area requires a District Level GCN Licence for the construction of footpaths and other hardstanding/sealed surfaces.

3 RESULTS

3.1 DESK STUDY

Please refer to the Environmental Statement associated with planning permission O/20/89498 for the full results.

3.1.1 Statutory Designated Sites

There are five statutory designated sites of international importance within 10km of the Site. Further information is presented in the table below. A plan showing the locations of these statutory sites is contained in Appendix A.

Table 2: Statutory Sites of International Importance

Site Name	Reason for Designation	Location Relevant to Wider Site Boundary
Solent and Southampton Water Special Protection Area (SPA)	This site qualifies under Article 4.1 of the Birds Directive (79/409/EEC) by supporting breeding populations of European importance of the following species listed on Annex I of the Directive: common tern, little tern, Mediterranean gull, roseate tern, sandwich tern. This site also qualifies under Article 4.2 of the Directive (79/409/EEC) by supporting populations of European importance of the following migratory over-wintering species: black-tailed godwit, dark-bellied brent goose, ringed plover, teal. The area also qualifies under Article 4.2 of the Directive (79/409/EEC) by regularly supporting at least 20,000 waterfowl.	4.3 km south east
Solent and Southampton Water Ramsar Site	The site is designated under the following Ramsar criteria: Criterion 1: The site is one of the few major sheltered channels between a substantial island and mainland in European waters, exhibiting an unusual strong double tidal flow and has long periods of slack water at high and low tide. It includes many wetland habitats characteristic of the biogeographic region: saline lagoons, saltmarshes, estuaries, intertidal flats, shallow coastal waters, grazing marshes, reedbeds, coastal woodland and rocky boulder reefs Criterion 2: The site supports an important assemblage of rare plants and invertebrates. At least 33 British Red Data Book invertebrates and at least eight British Red Data Book plants are represented on site. Criterion 5: supports a species assemblage in the winter of international importance (assemblage of wintering waterfowl). Criterion 6: supports species populations of international importance (migratory ringed plover; and wintering black-tailed godwit, teal and dark-bellied brent geese).	3.9 km south east
River Itchen Special Area of Conservation (SAC)	Supports the following Annex I habitats that are a primary reason for designation: Water courses of plain to montane levels with the <i>Ranunculon fluitantis</i> and <i>Callitricho-Batrachion</i> vegetation. The Itchen is a classic example of a sub-type 1 chalk river. The river is dominated throughout by aquatic <i>Ranunculus</i> spp. The headwaters contain pond water-crowfoot <i>Ranunculus peltatus</i>, while two <i>Ranunculus</i> species occur further downstream: stream water-crowfoot <i>R. penicillatus</i> ssp. <i>pseudofluitans</i>, a species especially characteristic of calcium-rich rivers, and river water-crowfoot <i>R. fluitans</i>. Supports the following Annex II species which are a primary reason for selection of this site: Southern damselfly <i>Coenagrion mercuriale</i>. The River Itchen comprises one of the major population centres in the UK for this species. It also represents a population in a managed chalk-river flood plain, an unusual habitat for this species in the UK, rather than on heathland. Bullhead <i>Cottus gobio</i>. The Itchen is a classic chalk river that supports high densities of this species throughout much of its length. The river provides good water quality, extensive beds of submerged plants that act as a refuge for the species, and coarse sediments that are vital for	1.5km north west

Site Name	Reason for Designation	Location Relevant to Wider Site Boundary
	spawning and juvenile development. The site also supports the following Annex II species present as qualifying features but not as primary reasons for site selection: White-clawed crayfish <i>Austropotamobius pallipes</i> Brook lamprey <i>Lampetra planeri</i> Atlantic salmon <i>Salmo salar</i> Otter <i>Lutra lutra</i>	

There is one statutory designated site of national importance within the Zone of Influence (Zol) of the Site. Further information is presented below.

Table 3: Statutory sites of national importance

Site name	Reason for designation	Location relevant to the Site
River Itchen SSSI	This site is notified for classic chalk stream and river, fen meadow, flood pasture and swamp habitats, particularly formations of in-channel vegetation dominated by water crowfoot <i>Ranunculus</i> spp, riparian vegetation communities (including wet woodlands) and side channels, runnels and ditches associated with the main river and former water meadows. The site supports nationally important invertebrate assemblages; and is also notified for the assemblage of breeding birds including tufted duck <i>Aythya fuligula</i>, pochard <i>A. ferina</i> and shoveler <i>Anas clypeata</i>, the waders lapwing <i>Vanellus vanellus</i>, redshank <i>Tringa totanus</i> and snipe <i>Gallinago gallinago</i>, and wetland passerines including sedge warbler <i>Acrocephalus schoenobaenus</i>, reed warbler <i>A. scirpaceus</i> and Cetti's warbler <i>Cettia cettia</i>. See Table 1 above for other SSSI notification features.	1.5km north west

3.1.2 Non-statutory Designated Sites

There is one non-statutory designated site within the Zol of the Proposed Development. Further information is presented in the table below.

Table 4: Non-statutory designated sites

Site name	Reason for designation	Location relevant to the Site
Treeline Break SINC	Treeline Break is a narrow strip of ancient semi-natural woodland, situated in a small and quite deeply incised stream valley, on the north-western edge of the new solar farm, south of Allington Lane, Eastleigh. 18 ancient woodland indicators were recorded here.	200m south-east

3.1.3 Invasive Non-native Flora

Japanese knotweed *Reynoutria japonica*, Himalayan balsam *Impatiens glandulifera*, rhododendron *Rhododendron ponticum*, and laurel *Prunus laurocerasus* have all been recorded within Quobleigh Woods in the Northern GI. No invasive non-native species have been recorded within the Central and Southern GIs.

3.1.4 Invasive Non-native Fauna

2018 surveys of the watercourses recorded mink droppings within the Northern GI, and mink tracks within the Southern GI. No evidence of mink was recorded within the Central GI.

3.1.5 Protected Species Data Records

The desk study conducted for the 2020 Environmental Statement returned records of the following relevant faunal species and groups within 2km of the wider site:

- Badger
- Bats (several species)
- Birds (several species)
- Dormouse
- GCN
- Common toad *Bufo bufo*
- Otter
- Water vole
- Slow worm *Anguis fragilis*
- Grass snake *Natrix helvetica*
- Common lizard *Zootoca vivipara*
- Hedgehog *Erinaceus europaeus*.

Records of other species were also returned but have been scoped out of this assessment because of being extremely unlikely to be present on Site, having no suitable habitat within the Site boundary, or there being no requirement for compensation or mitigation relating to the species for this application. Please refer to the Environmental Statement associated with planning permission O/20/89498 for the full results.

3.1.6 Relevant Granted European Protected Species (EPS) Licences

A dormouse licence (EPSL 2022-62953-EPS-MIT) was granted in February 2023 and was associated with the construction of the main Link Road associated with One Horton Heath and a small dormouse population located within the woodland in the Central GI. The historic and recent dormouse survey data for this part and the whole of the OHH site was taken into account with respect to the extent of licensable works which concluded that only the location where the main Link Road intersects the woodland required EPS licensing. The works which impact the hedgerows associated with the Central GI, therefore, can be done under Method Statement.

A great crested newt licence (2020-44604-EPS-MIT-3) was granted for licensable activities associated with developments works consented under reference o/15/79354 North West Horton Heath – for the population associated with the off-Site pond to the north.

A great crested newt licence (2022-62944-EPS-MIT-1) was granted in March 2023 and is associated with the construction of the main OHH Link Road as it runs in proximity to a breeding pond associated with a small population of great crested newt at Chalcroft Farm (north of the Southern GI). The licence and associated method statement and supporting information concluded that the population is highly unlikely to extend beyond the road corridor to the east, utilising much more favourable habitat to the west and north of the pond at Chalcroft Farm. Previous terrestrial surveys

undertaken by Johns Associates, including under precautionary method statements for the relocation of part of the nearby solar farm, did not find any evidence of great crested newt.

Given that part of the Southern GI falls within the 250m radius of the Chalcroft Pond, a District Level Licence will be required for the construction of the footpaths and play areas within this zone.

3.2 UKHAB SURVEY

See Figures 2-4 below for maps of the Site showing baseline habitats.

3.2.1 Cropland – Cereal Crops c1c

Maize *Zea sp.* crops are grown in the central section of the Site (C1, C3). The fields had narrow margins which are retained un-ploughed, up to a width of 1m at the base of hedges.

3.2.2 Modified Grassland g4

The modified grassland within the Site (F1, F7, F8, F14, F19, F20, F23, F35, F39) was heavily cattle-grazed or regularly topped; and fertiliser or manure were regularly applied. The sward was dominated by common and competitive grass species, with a small diversity of forb species which are tolerant of nutrient-enriched and disturbed soils. Typical species within this community included perennial ryegrass *Lolium perenne*, creeping bent *Agrostis stolonifera* and Yorkshire fog *Holcus lanatus*. Forb species present at low frequency and abundance included curled dock *Rumex crispus*, creeping thistle *Cirsium arvense*, ribwort plantain *Plantago lanceolata* and white clover *Trifolium repens*.

Modified grassland in F12 and F13 was largely unmanaged at the time of survey, becoming particularly rank and tussocky in F13. The sward was dominated by common and competitive grass species, with a small diversity of forb species which are tolerant of nutrient-enriched and disturbed soils. Typical species within this community include perennial ryegrass *Lolium perenne*, creeping bent *Agrostis stolonifera* and Yorkshire fog *Holcus lanatus*. Forb species present at low frequency and abundance included curled dock *Rumex crispus*, creeping thistle *Cirsium arvense*, ribwort plantain *Plantago lanceolata* and white clover *Trifolium repens*.

F9 and F2 were dominated by common and competitive grass species, with a small diversity of forb species which are tolerant of nutrient enriched and disturbed soils. Abundant grass species comprised perennial ryegrass *Lolium perenne*, creeping bent *Agrostis stolonifera* and Yorkshire fog *Holcus lanatus*. Forb species present included locally frequent hairy sedge *Carex hirta*, curled dock *Rumex crispus* and creeping thistle *Cirsium arvense*, and occasional ribwort plantain *Plantago lanceolata*, yarrow *Achillea millefolium*, common fleabane *Pulicaria dysenterica* and white clover *Trifolium repens*.

3.2.3 Other Neutral Grassland g3c

Unmanaged marshy grassland with high proportion of rushes (F17). This area of grassland was relatively species-rich, and with wet ground at the time of survey. Species present included marsh pennywort *Hydrocotyle vulgaris*, sharp-flowered rush *Juncus acutiflorus*, hemlock-water dropwort, greater bird's-foot trefoil *Lotus pedunculatus*, short-fruited willowherb *Epilobium obscurum*, bog stitchwort *Stellaria alsine*, marsh bedstraw *Galium palustre*, yellow flag iris *Iris pseudacorus*, common sorrel *Rumex acetosa*, marsh ragwort, water-mint, lesser spearwort *Ranunculus flammula*, ragged robin *Silene flos-cuculi*, meadowsweet *Filipendula ulmaria*, brooklime, square-stalked St John's-wort *Hypericum tetrapterum*, fool's water-cress *Apium nodiflorum*, water pepper *Persicaria hydropiper* and floating sweet-grass.

Land within F27 comprised a dry shallow ditch within species poor marshy grassland where management has been abandoned and the sward is becoming tall and rank with species such as hemlock-water dropwort *Oenanthe crocata* becoming dominant. The ditch was deemed likely to hold water at wetter times of year. Species recorded included

common sorrel *Rumex acetosa*, marsh bedstraw *Galium palustre*, creeping buttercup *Ranunculus repens*, soft rush *Juncus effusus*, Yorkshire fog and common nettle.

Fields within the Site where the topography of the ground is lower lying and subject to wetter ground conditions throughout much of the year (F3, F4, F5, F6, F40) typically comprised wet grassland with more than 25% cover of rushes. A network of dry and wet ditches were present that were associated with swathes of marshy grassland, where the topography of the ground is lower lying and subject to wetter ground conditions throughout much of the year. Typically, these areas supported abundant soft rush *Juncus effusus* with frequent common ragwort *Senecio jacobaea*, Yorkshire fog, tufted hair-grass *Deschampsia cespitosa*, creeping buttercup *Ranunculus repens*, broad-leaved dock *Rumex obtusifolius*, water pepper *Persicaria hydropiper*, creeping bent, common fleabane, short-fruited willowherb *Epilobium obscurum*, marsh foxtail *Alopecurus geniculatus* and marsh thistle *Cirsium palustre*.

F6 comprised an area of very rank marshy grassland, which had recently been cut and grazed. The ground surface potentially has an old ridge and furrow formation. Species present included soft rush, reed sweet-grass *Glyceria maxima*, reed canary-grass *Phalaris arundinacea*, water figwort *Scrophularia auriculata*, comfrey *Symphytum* sp., hemlock water-dropwort *Oenanthe crocata*, bittersweet *Solanum dulcamara*, broad-leaved dock, lesser pond-sedge *Carex acutiformis*, water pepper, tufted hair-grass, marsh ragwort *Jacobaea aquatica* and square-stalked St. John's wort *Hypericum tetrapterum*.

F10 was similar in composition to F9 and F2, but characterised by a greater species diversity, and having a better overall condition.

3.2.4 Wood Pasture and Parkland (Secondary Code 20)

A small area of mature parkland was located within F35 (WP1). The habitat comprised approximately 20 mature oak *Quercus robur* trees located within an area of improved grassland. This habitat should be classified under wood-pasture and Parkland BAP priority habitat. However, this parkland area was considered to be in overall poor condition due to grassland being intensively cattle-grazed, this had created a very poor and improved sward which is not recognisable as an associated NVC community for this habitat type. The heavy cattle grazing had prevented a scrub layer developing inhibiting the ability for new tree saplings to grow and develop, as a result only one age class of tree was present. There was fallen and standing deadwood evident in this area and the habitat is likely to have some value for saproxylic invertebrates, bats and hole-nesting birds.

3.2.5 Wetland – Fen, marsh and swamp f2

Swamp vegetation (FW1) with water flowing over from the adjacent stream diversion. Vegetation present included branched bur-reed *Sparganium erectum*, Himalayan balsam, meadowsweet, hemlock water-dropwort, water-mint, water plantain *Alisma plantago-aquatica*, yellow flag iris, nettle, clustered dock *Rumex conglomeratus* and brown sedge *Carex disticha*.

3.2.6 Lakes – Eutrophic standing water r1a

A large pond (P1) was located within Quobleigh Woods. No submerged or emergent vegetation was present, with turbid water being shaded at a cover of 40% by overhanging grey willow and alder *Alnus glutinosa*. Waterfowl were present within the pond. Marginal vegetation was present upon banksides of the ponds, which were relatively steep.

3.2.7 Heathland and Scrub – Mixed Scrub h3h

A wet ditch/depression was situated beneath dense willow *Salix* sp. scrub growth. The dense scrub (S1) supported a number of fallen willows *Salix* sp. with growth from the horizontal trunks and fallen dead trees.

3.2.8 Heathland and Scrub – Hawthorn Scrub h3f

Recently planted hawthorn *Crataegus monogyna* hedgerow which has failed, probably due to cattle grazing. Plants are bushy but no more than 30 cm high and sporadic. This has been classified as hawthorn scrub, as opposed to hedgerow, due to the fact that it was never a continuous shrubby linear feature.

3.2.9 Woodland – Other lowland mixed deciduous woodland W1f7

Quobleigh Woods (W4) comprised wet woodland typically dominated by alder *Alnus glutinosa* with some grey willow *Salix cinerea* and birch *Betula sp.* The ground flora was characterised by remote sedge *Carex remota*, nettle *Urtica dioica*, hemlock water-dropwort and locally frequent Himalayan balsam. Ancient woodland indicator species recorded included: remote sedge, wood sedge *Carex sylvatica*, hairy brome *Bromopsis ramosa*, opposite-leaved golden-saxifrage *Chrysosplenium oppositifolium*, wood speedwell *Veronica montana*, wood club-rush *Scirpus sylvaticus*, wood melick *Melica uniflora*, bluebell *Hyacinthoides non-scripta* and narrow buckler-fern *Dryopteris carthusiana*. However, the composition and classification of this woodland does not fall within the ancient woodland classification.

3.2.10 Other Woodland; Broadleaved – w1g7

Broadleaved semi-natural woodland (W3) included a woodbank at the Central boundary. The canopy was dominated by oak *Quercus robur* with frequent ash *Fraxinus excelsior*. The woodland was unmanaged, with a sparse understorey of grey willow *Salix cinerea* and hazel *Corylus avellana* in places and in others dominated by bramble *Rubus fruticosus* agg.. Ground flora was largely species-poor and dominated by nettle but included locally frequent remote sedge *Carex remota* in places.

The woodland sloped down to a shallow depression running through the centre of the habitat approximately 20 cm depth and 1 m width. This was largely dry at the time of survey with the exception of isolated pools but is thought likely to hold running water at times of high rainfall. The stream bed was largely free of vegetation with an orange iron precipitate on the surface and heavily shaded by the canopy. Lesser pond sedge *Carex acutiformis* was present at low abundance.

W7 is a continuation of W3 with a similar species composition but situated on slightly elevated drier land.

A mature woodland belt was located on an east-facing slope (W1), with the canopy dominated by oak and ash *Fraxinus excelsior*. The understorey was well-developed with coppiced hazel *Corylus avellana*, alder *Alnus glutinosa*, bramble *Rubus fruticosus* agg., grey willow *Salix cinerea*, blackthorn *Prunus spinosa*, hawthorn *Crataegus mongyna*, and apple *Malus pumila*. Mature trees of alder, ash and oak have high bat roost potential. The ground flora is dominated by bare ground with sparse foxglove *Digitalis purpurea*, partly due to shading, but also possible due to management for pheasant rearing (a pheasant pen is present). A wet ditch runs along the eastern side of the woodland.

3.2.11 Hedgerows

The hedgerows with either entire or partial lengths within the red line boundaries of the Site are described in Table 5.

Table 5: Hedgerows within the Site

Hedgerow Number	Classification (Condition)	Description
Northern GI		
L3	Line of trees - associated with bank or ditch	Mature trees lining the stream, predominantly alder, but also hazel <i>Corylus avellana</i> , hawthorn <i>Crataegus monogyna</i> , bramble, willow <i>Salix</i> sp. and ash <i>Fraxinus excelsior</i> .
L4	Line of trees	Woodland edge dominated by species such as mature oak and ash.
L5	Line of trees	
H8	Species-rich native hedgerow with trees – associated with bank or ditch	A previously laid hedge 2 m in width. The hedge is associated with a ditch on the eastern side. Species present included oak, rose, ash, hawthorn, blackthorn, hazel, grey willow, bramble, dogwood and field maple. Five mature hedgerow trees were present within the hedge, including oak and ash.
H9	Species-rich native hedgerow - associated with bank or ditch	Hedgerow with an integral small ditch, with large coppice stools of hazel present, the most abundant species within the hedge. Management was by flailing to a height of 2 m and 1 m width. Other woody species present included ash, hawthorn, blackthorn, dogwood, holly, alder, rose, field maple, elder and bramble. The ground flora was species-poor, dominated by nettle, however the ancient woodland indicator black bryony <i>Tamus communis</i> was recorded within this hedge.
H12A	Line of trees - associated with bank or ditch	Former hedgerow which was outgrown into a line of mature trees and shrubs. The hedgerow was fenced on both sides and had reached an approximate width of 4 m at the point where the hedgerow joined the wood. Along the subsequent length of the hedgerow, the width was 2.5 m. A deep ditch ran along the eastern side of the hedge, which was not continuous. A ditch was also associated with the hedgerow from the junction on the western side, this was also not continuous. Mature trees consisted of oak and ash. Shrub species included hawthorn, holly, blackthorn, hazel, English elm, field maple, apple <i>Malus</i> sp. and elder. The ground flora supported bluebell <i>Hyacinthoides non-scripta</i> , ivy <i>Hedera helix</i> and bracken.
H18A	Line of trees	An outgrown hedgerow with many standard mature oak, ash and aspen <i>Populus tremula</i> trees. Other woody species within the hedge included silver birch, hawthorn, bramble, rose, field maple, English elm, goat willow, hazel, holly and wild cherry. The line of trees was currently unmanaged and reached a height of approximately 10 m and a width of 5 m. Ground flora was dominated by nettle and bracken.
H18B	Line of trees	
H22	Species-rich native hedgerow - associated with bank or ditch	The hedgerow supported locally abundant grey willow, with frequent hawthorn, blackthorn, bramble, ash, rose, hazel. A species-poor ground flora was present, with frequent nettle and hedge bindweed <i>Calystegia sepium</i> . A recent lack of management had resulted in an outgrown hedge with a gappy base, reaching a height of 3 m and a width of 2 m. The hedgerow had a shallow integral ditch.
Central GI		
H25	Species-rich native hedgerow (Poor)	An outgrown hedge, with the most abundant woody species comprising hazel, English elm and hawthorn. Oak, rose, dogwood, ash, field maple and blackthorn are also present. Ground flora is species poor with locally abundant stands of bracken. The hedgerow reaches 5m height, and 1m width.
H26	Line of trees (Moderate)	This hedgerow is similar in character to H25 in species composition, although supports a greater proportion of standard mature oak and ash trees. The hedgerow reaches approximately 5m height in general.

Hedgerow Number	Classification (Condition)	Description
H28	Line of trees – associated with bank or ditch (Moderate)	A lack of management had resulted in an outgrown hedge of mostly mature standard trees and large shrubs. Woody species include oak, ash, blackthorn, bramble, broom <i>Cytisus scoparius</i> and holly <i>Ilex aquifolium</i> . The hedgerow was situated upon a small bank with an associated small ditch. The ground flora was species poor. Evidence of management in the past by hedge laying was evident.
H60	Species-rich native hedgerow with ditch	Woody species include bramble, blackthorn, rose, hawthorn, ash and hazel. The hedgerow is dense but gappy at the base in places and managed by flailing to a height of 3 m and a width of 1 m. The hedgerow has an integral small ditch.
Southern GI		
L1	Line of trees with ditch	Line of mature trees associated with stream and off-site woodland to the South.
L2	Line of trees	Line of mature trees bordering the Site.
H38	Species-poor native hedgerow with ditch	Hedgerow situated upon a small bank with a dry ditch on the western side of the hedge. The hedge was dense and managed by flailing to a height of 1.5 – 2 m. Field entrances were present within the hedge. Species present included hawthorn, bramble and blackthorn.
H46	Species-rich native hedgerow with bank and ditch	A dense hedge failed to a height of 2 – 3 m, with a small number of gaps at the base. The hedgerow was situated upon a half bank, with a ditch on the northern side. Species present included blackthorn, bramble, field maple <i>Acer campestre</i> , dog rose, dogwood <i>Cornus sanguinea</i> , hawthorn and grey willow.
H47	Species-rich native hedgerow with bank and ditch	Hedgerow was situated on a bank adjacent to a stream and comprised a line of trees and shrubs, dominated by alder with occasional ash, white willow <i>Salix alba</i> , blackthorn, bramble, hazel, dogwood and honeysuckle <i>Lonicera periclymenum</i> .
H48	Species-rich native hedgerow with ditch	Woody species present included frequent grey willow as well as blackthorn, oak, bramble, dogwood, dog rose and field rose <i>Rosa arvensis</i> . The hedgerow was managed to a height of 4 m and a width of 2 m, with dense growth in most places. A ditch was situated on the west side of the hedgerow, which was mostly dry at the time of survey except at the northern end.
H49	Species-rich native hedgerow with bank, ditch and trees	Dense bushy hedgerow which was flailed to height of 2 – 3 m and a width of 2 m, with gaps at the base towards the western end. The hedgerow was situated on a small bank and a shallow ditch lies on the west side of the hedge. Woody species present included blackthorn, hawthorn, ash, bramble, dog rose, hazel, oak, grey willow and honeysuckle.
H50	Species-poor native hedgerow with bank and ditch	Hedgerow was managed through flailing and is gappy. Species present included bramble, hawthorn, hazel and honeysuckle. The hedgerow was managed at a height of 2 m and a width of 1 m.
H51	Species-poor native hedgerow	Hedgerow was managed through flailing and very defunct at the southern end and therefore is double fenced. Gaps reached up to 5 m in length. The hedgerow was situated partly on a dry shallow depression, which was cattle poached. Species present included bramble, hawthorn, hazel and honeysuckle. The hedgerow was managed at a height of 3 m and a width of 1 m.
H67	Line of trees with ditch	Line of trees situated on a bank adjacent to a stream and comprised a line of trees and shrubs, dominated by alder with occasional ash, white willow, blackthorn, bramble, hazel, dogwood and honeysuckle.
H69	Species-poor native hedgerow with ditch	The hedgerow was flailed hard to a height of 1.5 m and dominated by hawthorn with occasional bramble and blackthorn.

Figure 2: Northern GI Baseline UKHab Map

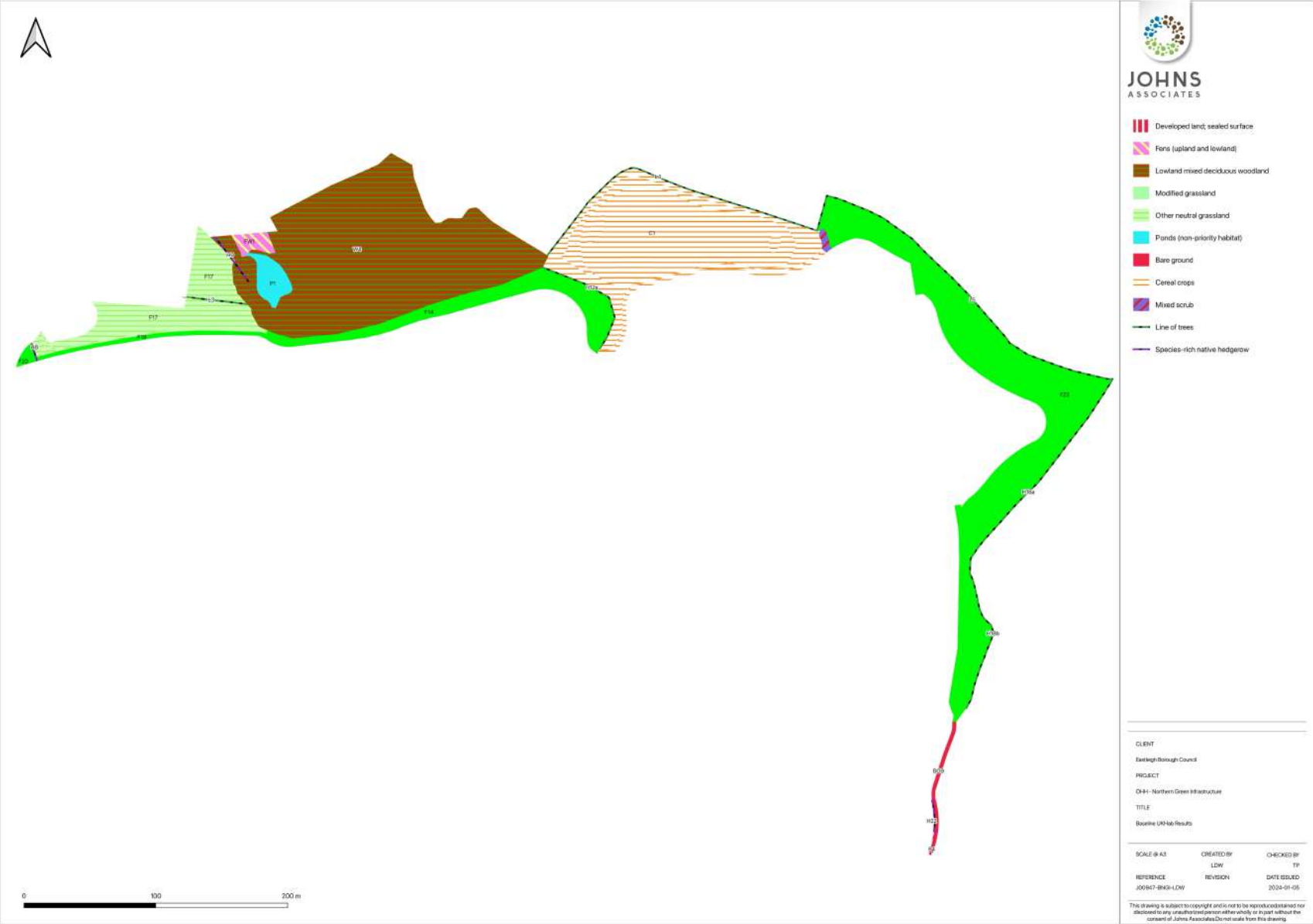


Figure 2: Central GI Baseline UKHab Map

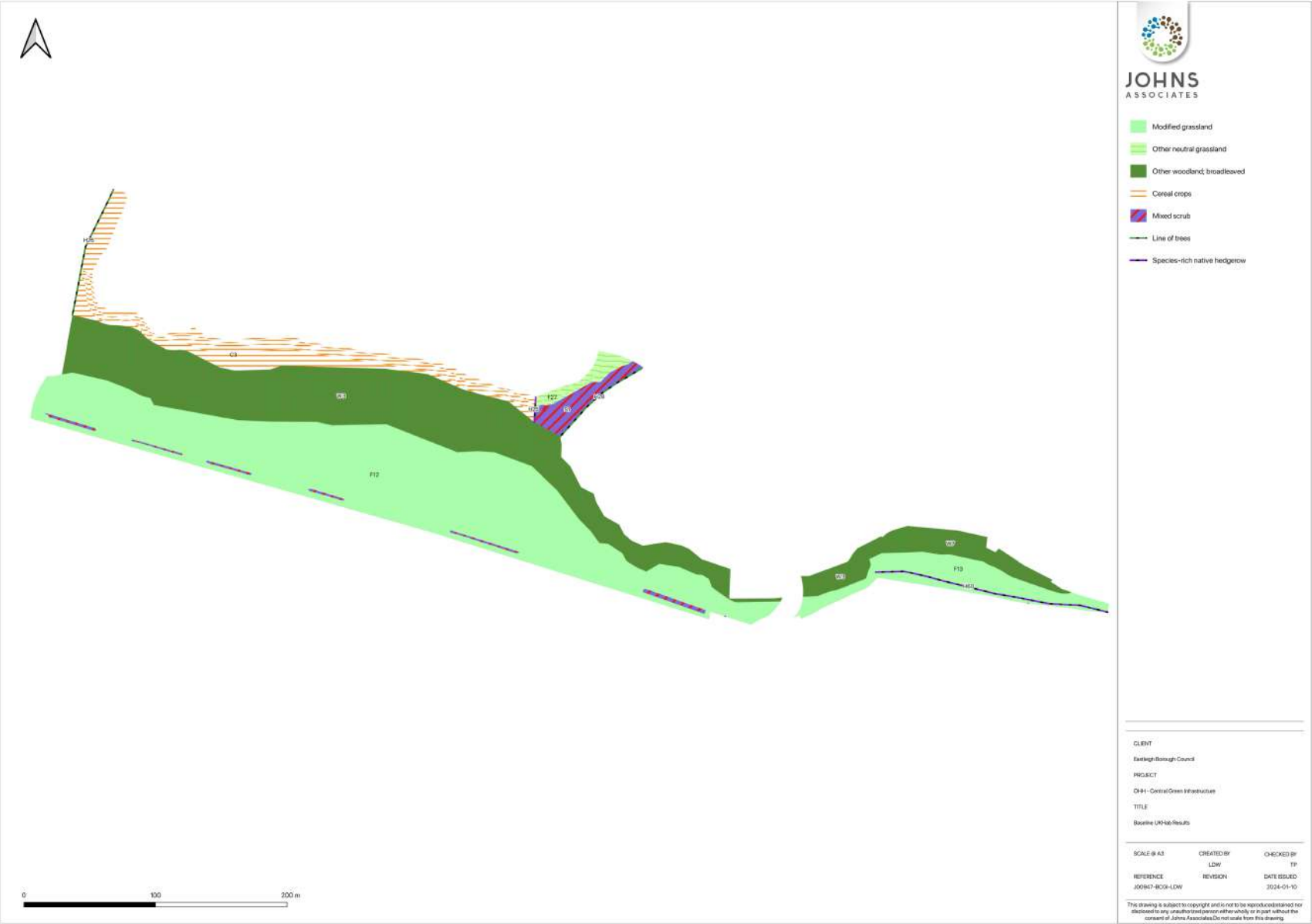
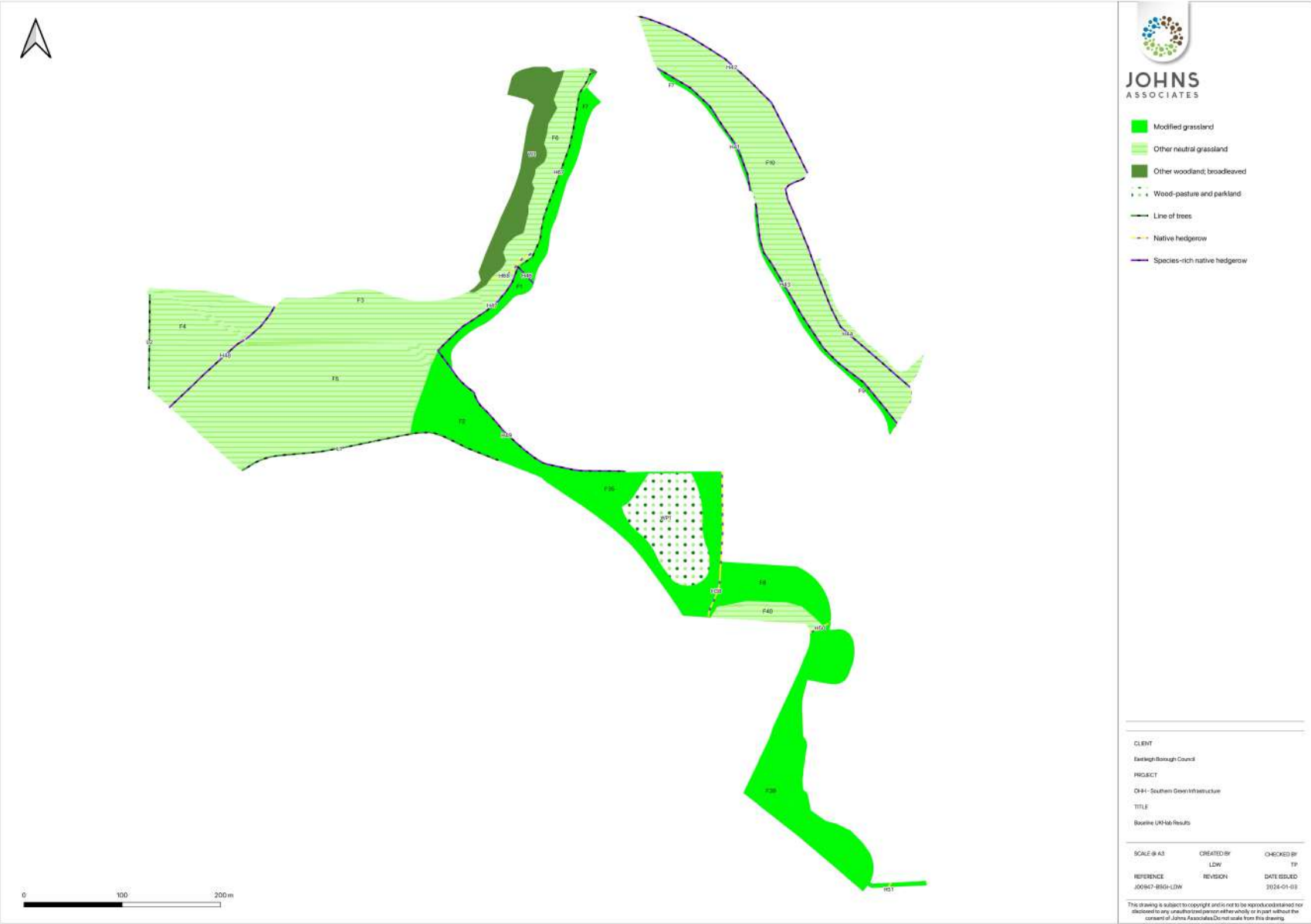


Figure 4: Southern GI Baseline UKHab Map



3.3 PROTECTED SPECIES

Please refer to the detailed ecological baseline set out with the separate Environmental Statement and subsequent Addendums relating to planning permission O/20/89498.

3.3.1 Badgers

No evidence of badger (including setts) has been recorded from any of the walkover surveys of the Site conducted by Johns Associates since 2017, including the 2022 and 2023 update surveys. Despite this, badgers are known to be able to move into areas relatively quickly, and the habitats on Site represent a potential foraging resource for the species. Mitigation will therefore be required for this species.

3.3.2 Bats

Ground level tree assessments carried out by Johns Associates and reported on in 2020 and updated in 2023 did not find any potential roost features associated with trees to be removed as part of the Proposed Development. The adjacent woodland does contain trees with suitability for roosting bats, so woodland protection/management and adoption of a suitably sensitive lighting scheme is necessary for the Proposed Development.

Bat activity and automated detector surveys have been completed across the wider site by Johns Associates and reported on in 2020. No change in habitat condition that would suggest any notable variation in the baseline recorded has occurred. Common pipistrelle *Pipistrellus pipistrellus* was the most frequently recorded species within the Site, followed by soprano pipistrelle *P. pygmaeus*. In total nine species of bat were recorded during the activity and automated surveys recorded across the wider site. These showed the wider presence of noctule *Nyctalus noctula*, Nathusius’ pipistrelle *P. nathusii*, Daubenton’s *Myotis daubentonii*, Natterer’s *M. nattereri*, brown long-eared *Plecotus auritus*, serotine *Eptesicus serotinus* and barbastelle *Barbastella barbastellus* (very low levels of activity). A number of bats, including more light sensitive species are known to forage and commute along/associated with habitats within the Proposed Development Site, notably the hedgerows and woodland.

Following the Bat Mitigation Guidelines 2023 the species assemblage score at the Site is provided in Table 6 below. The total score is 19 which does not meet the County Importance Threshold Score of 20.

Table 6 Assessment of Bat Species Assemblage

Species	Rarity	Score	Total Score
Barbastelle	Rarest Annex II species and very rare	4	19
Serotine	Rarer or restricted distribution	3	
Nathusius pipistrelle	Rarer or restricted distribution	3	
Natterer’s	Widespread in many geographies, but not as abundant in all	2	
Noctule	Widespread in many geographies, but not as abundant in all	2	
Daubenton’s	Widespread in many geographies, but not as abundant in all	2	
Brown long-eared	Widespread	1	
Soprano pipistrelle	Widespread	1	
Common pipistrelle	Widespread	1	

3.3.3 Breeding Birds

Johns Associates have carried out breeding bird surveys across the wider Horton Heath Site in 2020. Given the proposed minor loss of nesting habitat, mitigation will be required for this group. The following table details the species which

were associated with the Site.

Table 7: Bird species recorded on Site

GI Area	Species
Northern	Blackcap <i>Sylvia atricapilla</i> , chiffchaff <i>Phylloscopus collybita</i> , chaffinch <i>Fringilla coelebs</i> , goldfinch <i>Carduelis carduelis</i> , greenfinch <i>Chloris chloris</i> , long-tailed tit <i>Aegithalos caudatus</i> , nuthatch <i>Sitta europaea</i> , and whitethroat <i>Sylvia communis</i>
Central	Blackcap, carrion crow <i>Corvus corone</i> , chiffchaff, chaffinch, dunnoek <i>Prunella modularis</i> , house sparrow <i>Passer domesticus</i> , and whitethroat
Southern	Blackcap, barn owl <i>Tyto alba</i> , carrion crow, chiffchaff, chaffinch, dunnoek, mistle thrush <i>Turdus viscivorus</i> , and whitethroat

3.3.4 Dormice

Habitat enhancement and management for the single known population of dormouse located to the south of the Site is being implemented as part of EPS licence EPSL 2022-62953-EPS-MIT associated with the main OHH Link Road. Given the very small amount of habitat being removed, and the low number of records of dormouse in the woodland, it is highly unlikely that dormice are present within the habitats proposed for removal. However, a precautionary approach will be adopted, and mitigation will therefore be required for this species.

3.3.5 GCN and Other Amphibians

Johns Associates has undertaken great crested newt population size class assessment surveys of ponds associated with One Horton Heath since 2017 (most recently 2022), building on earlier surveys. These continue to conclude that only the pond located at Chalcroft Farm (small population) and ponds offsite in the most northerly part of the OHH site currently support great crested newt. The terrestrial habitats associated with the GI areas constitute high value habitats for GCN. The OHH proposals aim to introduce more favourable terrestrial habitats and a network of new great crested newt and wildlife ponds elsewhere, together with SuDS ponds to support the growth of the two populations. Consequently, it has been demonstrated and concluded under EPS licence 2022-62944-EPS-MIT-1 that it is highly unlikely that great crested newt will be present within the footprint of the Northern GI south of Quobliegh Stream, or within the Central GI. However, a precautionary approach will be adopted, and mitigation will be required for this species in these areas. Works within the Southern GI will take place within 250m of the pond at Chalcroft and will therefore be subject to a suitable mitigation licence.

It is likely that other amphibians such as common toad are present within hedgerows and woodland within the three GI areas, therefore mitigation will be required for this group.

3.3.6 Otters and Water Voles

There are no desk study records of otter within 1.8km of OHH, although a 2014 survey by Ecologica Associates Ltd. Found one set of footprints within the wider OHH boundary. Repeat surveys by Johns Associates in 2018 and 2020 found no evidence of the species. It is unlikely that otter is present within the GI areas, however, a precautionary approach will be adopted for this species.

There is one historic record of water vole within the Northern GI and evidence of the species was recorded in past surveys, however, water vole surveys in 2018 by Johns Associates recorded no evidence of water voles in any of the GI areas, and the Site walkover in 2023 confirmed that habitat along the watercourses across the Site remains largely unsuitable for the species. It is therefore highly unlikely that the species persists within any of the GI areas, however, due to their history of association with the wider site, a precautionary approach will be adopted for these species, and mitigation will be required for water vole.

3.3.7 Reptiles

The most recent surveys carried out in 2020 confirmed very low numbers of grass snake within the Central GI and no records of reptiles within the surveyed areas in the Northern or Southern GIs. Historic surveys in 2014, 2015 and 2018 recorded low numbers of slow worm, grass snake and common lizard in the Northern GI, low numbers of slow worm and common lizard within the Central GI and low numbers of common lizard in the Southern GI. As such, it is reasonable to conclude that small numbers of common reptiles remain present in each GI area. Mitigation will therefore be required for this group.

3.3.8 Hedgehogs

No evidence of hedgehog has been recorded from any of the walkover surveys conducted by Johns Associates since 2017, including all of the nocturnal surveys. Despite this, hedgehogs are notoriously under-recorded, and it is reasonable to assume that low numbers of the species are present on Site given the presence of suitable habitats, and the records returned for the previous data search. Mitigation will therefore be required for this species.

3.4 BIODIVERSITY NET GAIN (BASELINE)

The tables below detail the specific area-based and linear habitat types associated with each GI area within the Site, with their relative conditions and baseline unit values. Full details can be found in the associated BNG reports prepared by Johns Associates (February 2024).

3.4.1 Habitats

Table 8: Summary of Northern GI baseline assessment for area-based habitats

Broad Habitat	Habitat	Distinctiveness	Area (Ha)	Condition	Units
Urban	Sealed surface/ hardstanding	V. low	0.0006	N/A	0.00
	Bare ground	Low	0.0308	Poor	0.06
Cropland	Cereal crops	Low	1.2664	N/A	2.52
Grassland	Modified grassland	Low	0.3414	Poor	0.75
			1.2991	Moderate	5.19
			0.0564	Good	0.37
	Other neutral grassland	Medium	0.2274	Good	3.14
Lakes	Ponds (non-priority habitat)	Medium	0.0747	Moderate	0.69
Heathland and Scrub	Mixed scrub	Medium	0.0096	Poor	0.02
Woodland and Forest	Lowland mixed deciduous woodland	High	1.7895	Moderate	24.70
Wetland	Fens (upland and lowland)	V. high	0.0392	Good	0.00*
Totals			5.14		37.47

Table 9: Summary of Central GI baseline assessment for area-based habitats

Broad Habitat	Habitat	Distinctiveness	Area (Ha)	Condition	Units
Cropland	Cereal crops	Low	0.6391	N/A	1.27
Grassland	Modified grassland	Low	0.3946	Poor	0.86
			2.6206	Moderate	11.53
	Other neutral grassland	Medium	0.0742	Good	1.00
Heathland and Shrub	Hawthorn scrub	Medium	0.0469	Poor	0.22
	Mixed scrub	Medium	0.1249	Moderate	1.15
Woodland and Forest	Other woodland; broadleaved	Medium	0.2212	Moderate	2.04
			1.9993	Good	27.59
Totals			6.12		45.64

Table 10: Summary of Southern GI baseline assessment for area-based habitats

Broad Habitat	Habitat	Distinctiveness	Area (Ha)	Condition	Units
Grassland	Modified grassland	Low	0.8303	Poor	1.83
			2.7874	Moderate	12.08
	Other neutral grassland	Medium	0.1869	Poor	0.86
			5.7813	Moderate	53.19
			1.2171	Good	16.46
Woodland and forest	Other woodland; broadleaved	Medium	0.0029	Moderate	0.03
			0.5599	Good	7.73
	Wood-pasture and parkland	High	0.6707	Poor	6.17
Totals			12.0365		98.34

3.4.2 Hedgerows

Table 11: Summary of Northern GI baseline assessment for linear habitats

Linear Habitat	Distinctiveness	Length (km)	Condition	Units
Line of trees	Low	0.538	Moderate	2.15
		0.293	Good	1.76
Line of trees – associated with bank or ditch		0.143	Moderate	0.64
Species-rich native hedgerow - associated with bank or ditch	High	0.068	Moderate	0.89
Species-rich native hedgerow with trees - associated with bank or ditch	V. high	0.014	Moderate	0.26
Totals		1.056		5.70

Table 12: Summary of Central GI baseline assessment for linear habitats

Linear Habitat	Distinctiveness	Length (km)	Condition	Units
Line of trees	Low	0.102	Moderate	0.47
Line of trees – associated with bank or ditch		0.080	Moderate	0.37
Species-rich native hedgerow	Medium	0.019	Poor	0.08
Species-rich native hedgerow - associated with bank or ditch	High	0.180	Good	3.56
Totals		0.381		4.48

Table 13: Summary of Southern GI baseline assessment for linear habitats

Linear Habitat	Distinctiveness	Length (km)	Condition	Units
Line of trees	Low	0.095	Moderate	0.44
Line of trees – associated with bank or ditch		0.482	Moderate	2.18
Native hedgerow		0.005	Poor	0.01
Native hedgerow – associated with bank or ditch	Medium	0.020	Poor	0.09
		0.197	Good	2.60
Species-rich native hedgerow - associated with bank or ditch	High	0.018	Poor	0.12
		0.264	Good	5.46
Species-rich native hedgerow with trees – associated with bank or ditch	V. high	0.243	Good	6.42
Totals		1.324		17.31

4 PROPOSED INTEGRATED AND ADDITIONAL ECOLOGICAL MEASURES

4.1 ECOLOGICAL MEASURES

All works will be implemented in accordance with the site wide OHH Ecological Mitigation and Management Strategy (EMMS) prepared for Eastleigh Borough Council by Johns Associates in 2022. A specific Habitat Mitigation and Management Plan (HMMP) for the Proposed Development will be included within the planning application. This will include the following broad principles as required by the site wide EMMS.

Specific measures associated with habitats and species within the Proposed Development Site are set out below.

4.1.1 Watercourses including River Itchen SAC

4.1.1.1 Constraint

Prevention of sediment discharge into streams and SAC maintenance of water quality.

4.1.1.2 Sensitive Period

All times.

4.1.1.3 Actions

Full details of construction measures set out in relevant CEMP. See also measures for fish (Atlantic salmon) below.

The Environmental Permitting (England and Wales) Regulations 2016 require a permit or exemption to be obtained for any construction activities which will take place on or within 8 metres of a non-tidal main river. Ordinary Water Course Consent will need to be obtained for other water course crossings/works. These are issued by the Lead Local Flood Authority (Hampshire County Council). Works in close proximity to watercourses present a particularly high risk of water pollution, especially through the mobilisation of sediments.

Retention, protection and restoration of watercourses and associated riparian corridors including bankside and in channel enhancement measures, promoting reconnection with the floodplain and Stage 0 features, delivered in accordance with a detailed long-term water features management plan. All watercourses will be protected by a 10m ecological buffer (excluding SUDS connections and ecological improvements) with an associated 10-50m green infrastructure corridor (measured from the bank edge of water limit when watercourse is full i.e. bankfull). This buffer will be enhanced with appropriate habitat management and habitat creation measures that complement and enhance the watercourses.

Early inclusion of SuDS to promote on-site attenuation of surface waters emerging from the OHH area to enable long-term high quality wetland/watercourse habitats, promoting physical habitat diversity, reconnection to the floodplain and Stage 0 headwater processes, to ensure no further downstream mobilisation of soil/riverine sediment and nutrients and to provide ecologically valuable natural filtration features within the development such as wetland areas reed beds etc that is above and beyond the net zero nutrient and sediment emission measures described in above.

A robust water quality monitoring regime of all SUDS basins and flows into/out of the One Horton Heath Site (including sediments, turbidity, conductivity, pH, nitrates and phosphates) will be implemented to provide feedback on the efficacy of net zero nutrient/sediment (including SuDS) treatment measures and to inform a responsive system of remedial management works to ensure that the long-term function of these features is maintained.

Phased delivery of development and associated reduction in nutrient inputs as agricultural activities cease and zero/low nutrient/sediment input/output activities start. This will include interim land use change to reduce existing nutrient levels from the soil to reduce duration of legacy release from soils to water once agricultural activities cease.

CEMP measures:

- Sediment control:
 - Control of sediment and runoff will be managed in accordance with the principles set out in the CIRIA SuDs Manual.
 - Installation temporary sediment basins/traps/settlement ponds and/or early construction of the permeant SuDs features will be undertaken before any earthworks begin.
 - Haul roads will be designed to minimise and control run-off including temporary surfacing and temporary drainage to intercept sediment laden run-off and wetting of surfaces during periods of dry weather.
 - Run-off control measures to divert run-off around areas being excavated will be installed in conjunction with sediment basins/silt traps.
 - The contractor will minimise the amount of land disturbed at any time to reduce the potential for run-off to enter water courses (phasing).
 - The use of methods including, retaining grass and vegetation for as long as possible, in disturbed areas, controlling erosion via the use of straw bale barriers, geotextile silt fences and sediment basins (with regular clearing out of excess sediment off-site) and ensuring that the runoff from the disturbed area passes through sediment control systems before discharge will be required.
 - De-watering operations – water pumped out of excavations generally carries a heavy sediment load and should never be discharged direct into watercourses. It should be routed first through features that will allow sediment to be filtered out and settle out.
 - Working in or on the banks of watercourses presents a high risk of significant sediment mobilisation and challenges in intercepting it and capturing it once mobilised. The Contractor must consider the temporarily diversion of watercourses around work sites.
 - Worked areas should be finished and vegetation established as soon as works are complete and the area/time ground is left bare and disturbed should be minimized.
 - All discharge of water into local watercourses will be in line with relevant Environment agency licenses and permits.
 - All sediment controls will be set out in the Contractors Construction phase plan and will be subject to weekly checks.
- Dealing with silty or contaminated water:
 - Silt, including fine silt or other contaminated water must not be allowed to enter watercourses and ditches. The water courses in this area feed into the River Itchen, a European Special Area of Conservation for wildlife. Pollution of the watercourses could have significant environmental and ecological impact.
 - There is a potential for significant silt and run-off from the construction works and storage areas, (which slope down towards the drainage ditches) to enter watercourses and ditches.

- The Principal Contractors plan their work to contain any contamination, for example, bunding, the use of silt barriers/geotextile fencing or alternative effective measures to prevent this occurring.
- Contaminated water can arise from excavations, exposed ground, stockpiles, plant and wheel washing, concrete mixing, or other construction activities.
- Catch-pits or silt traps on drains will be used to remove suspended solids such as mud and silt to prevent contaminated water entering surface water drains, surface waters or ground waters, or draining onto the land.
- Wheel washing locations need to be identified away from watercourses and ditches. Before wheel washing takes place, checks will be carried out to ensure that sediment traps and measures to prevent run-off and the transmission of hydrocarbons/salt/invasive plant seeds are in place during cleaning. These must be checked and emptied at regular intervals.
- Adequate provision for dealing with silty water is to be agreed in advance. Any planned discharges off the site will require prior approval with the appropriate authorities.
- All washings from cement and other cleaning processes must be contained within the site and removed via tanker or other appropriate means to prevent discharge into the local environment.
- All contaminated water must be removed from site and adequately treated prior to discharge under the appropriate permits and licences.
- Stream/watercourse diversions:
 - Temporary damming/dewatering or rerouting of watercourses will be required for the installation of bridge and walkway. All works which will impact the immediate environment and any European Protected Species (EPS) will be undertaken in accordance with the method statement reviewed and agreed with the OHH Ecologist and all relevant license conditions.
- Installation of drainage and SuDS features:
 - Temporary SuDs and/or early installation of the permanent SuDs features will be implemented to prevent silt contamination of high-risk watercourses.
 - During construction of the sewers and infrastructure the likelihood of any contamination being caused is slim, however all machines are well serviced and will be fueled via diesel station located within the compound facilities that will have the appropriate raised blockwork surround with plastic lining to help prevent spillages.
 - If there are spillages whilst a machine is onsite, then this can be addressed using the locally located spill kits to prevent any further contamination within the soil. There will also be the appropriate skips for waste materials etc. that will be delivered on a call-off basis to prevent over filling.

4.1.2 Fish (Including Atlantic Salmon)

4.1.2.1 Constraint

Surface water runoff into watercourses (n.b. on site water course is ephemeral and of very limited suitability for fish species. Effects are largely limited to downstream habitats).

4.1.2.2 Sensitive Period

Construction and operation.

4.1.2.3 Actions

The development will not result in a net increase in fine sediments ('fines') reaching the River Itchen SAC resulting in adverse effects on Atlantic salmon.

Construction phase mitigation: Sediment run-off can be particularly severe during the land clearance, surface contouring and groundworks construction phases, where soils are exposed. It is a particular risk during storms/times of high rainfall. Measure to address sediments are set out in the Construction Environmental Management Plan (CEMP). These include:

- Phasing and timings: no works should occur during periods of heavy rainfall events. Consideration should be given to timings of ground works close to watercourses to avoid sensitive spawning periods for Atlantic salmon (avoid key spawning period of November- December).
- Installation of temporary SuDS where strategic SuDS features cannot be implemented or not yet effective (e.g. before vegetation establishment which can typically take up to 3 years).
- Plans to deal with erosion from flow 'escapes' during heavy and extreme rainfall events – e.g. biodegradable netting (erosion 'blankets') along ditch/swale/wetland edges before vegetation has established."
- The measures to be used during the development in order to minimise environmental impacts of the works (considering impacts such as potential disturbance, noise and vibration, lighting, pollution, water quality impacts, storage of fuels and chemicals, sediment and silt control, hydrological regime changes).

4.1.3 SINC and Habitats

4.1.3.1 Constraint

Light sensitive and nocturnal species.

4.1.3.2 Sensitive Period

Construction and operation.

4.1.3.3 Actions

The zone between 15-50m from the habitat boundary will be subject to the following restricted uses and constraints:

- Footpaths.
- Cycleways.
- SuDS.
- Biodiversity enhancement permitted.
- Minimal additional lighting so this does not compromise ecological function.

Ecological buffer subject to the specifications as described above will be implemented between the link road and the woodland to protect the habitat and to ensure that root protection areas are respected.

Where the removal or severance of woodland is unavoidable, compensatory native species rich planting will occur in accordance with the prescriptions agreed with Eastleigh Borough Council. Woodland management and monitoring will be implemented from the start of the project delivery process if not before to maximise habitat value, structure and

longevity, including the control of non-native invasive species. A woodland management plan will be prepared and implemented for all woodlands.

Hedgerows with mature trees at regular intervals will have a 15m buffer (measured from tree stems).

Hedgerows without mature trees or only occasional trees will have a minimum 5m ecological buffer (plus RPA around any mature trees to be retained) measured from the centre line of the hedgerow.

These buffers will be subject to the following constraints:

- No excavation (except SuDS, respecting RPAs).
- No construction related activities or activities likely to have negative effect on habitat.
- Biodiversity Enhancement permitted.

All hedgerows will be managed for biodiversity in accordance with a long-term management plan, including new planting to infill gaps in hedgerows and ongoing high-quality management.

4.1.4 Invasive Non-native Species

4.1.4.1 Constraint

Japanese knotweed, Himalayan balsam, rhododendron, and laurel have all been recorded within Quobleigh Woods in the Northern GI. Additionally, evidence of mink has been recorded within the Northern and Southern GIs.

4.1.4.2 Sensitive Period

Construction.

4.1.4.3 Actions

An invasive species management plan will be implemented to control populations of invasive non-native plant species.

Construction activity should not cause the spread of any invasive species and specialist contractors should be employed to control and deal with invasive species, where required.

4.1.5 Badgers

4.1.5.1 Constraint

Foraging habitat present.

4.1.5.2 Sensitive Period

All times.

4.1.5.3 Actions

Precautionary surveys will continue to ensure any new setts or re-activated setts are taken into account in the construction programme. Should it be necessary, Natural England badger licences will be sought to ensure legal compliance in terms of disturbance of any setts and any requirements for exclusions/sett closure/provision of artificial setts. Deep excavations will be covered at night or suitable mammal ladders/earth maps will be provided to allow large mammals including

badger to exit excavations.

See 'Otters' below in relation to mammal tunnel and ledges under new bridges.

4.1.6 Bats

4.1.6.1 Constraint

Loss/degradation of foraging habitat (section of woodland and hedgerows removed).

4.1.6.2 Sensitive Period

Spring to Autumn.

4.1.6.3 Actions

The loss of foraging habitat across the site has been minimised through the retention of key high value habitats. These habitats will be protected and enhanced, with connectivity between these habitat areas and potential roost sites maintained both across the site and the wider landscape through the measures to protect these specific habitats.

4.1.7 Birds

4.1.7.1 Constraint

Breeding birds - potential nesting habitat present throughout the Site.

4.1.7.2 Sensitive Period

Breeding season (March to August inclusive).

4.1.7.3 Actions

No vegetation clearance within bird nesting season. Habitats requiring works during the nesting season (1st March-31st August inclusive) will be subject to a pre-works nesting bird check with measures implemented to protect any active nests likely to be affected by the works. Where areas of suitable nesting habitat for valued bird species is lost, suitable alternative nesting habitat will be provided on site through a network of bird boxes features incorporated to mature trees, new tree and shrub planting and enhanced grassland, woodland, wetlands.

4.1.7.4 Constraint

Bird hazard management plan – new planting/open water.

4.1.7.5 Sensitive Period

Construction and operation.

4.1.7.6 Actions

Control of construction drainage and earth works during the construction phase should ensure that wide areas of permanent open water do not develop which can attract geese, gulls and wading species.

If necessary, bare loose soil should be compacted to reduce its suitability for bird species.

The timing of all significant earthworks, particularly topsoil spreading and grading, shall be notified to the airport (Airfield Operations) in advance and scheduled, where possible, at times of lower flying activity.

Grass seeding should be done in phased sections if the area to be seeded is larger than 150m² rather than all at once.

Intervals between discrete blocks should ideally be in the order of 3 days. This will produce staggered germination, reducing the amount of seed available to pigeons, reducing the area affected at any one time and allowing better deployment of passive deterrent measures.

Blocks of ground where construction work has been completed shall be reinstated or covered and re-seeded (where applicable) at the earliest opportunity.

Waste control and disposal for the Site, including food waste, should be controlled to avoid the build-up of scavenging bird species such as gulls and corvids. Waste should be placed in covered skips and bins to reduce risk.

See Bird Hazard Management Plan (Johns Associates 2023).

4.1.8 Dormice

4.1.8.1 Constraint

Section of woodland and hedgerows removed in Central GI.

4.1.8.2 Sensitive Period

April to November inclusive.

4.1.8.3 Actions

Completion of works under a Precautionary Method Statement to include Ecological Clerk of Works supervision, ecological toolbox and adopting PTES guidance (Managing Small Woodlands for Dormice) with woodland/hedgerow vegetation removal between December to March.

Avoidance of hedgerow or woodland severance within 150m of confirmed records of dormouse was recommended in the Environmental Statement associated with planning permission O/20/89498. The points at which the footpaths within the Central GI intersect H25 and H26 are within 55m and 85m respectively of the known dormouse records within W3.

It is considered highly unlikely that dormouse is present within the construction and operational areas associated with the Proposed Development. Taking this into account alongside the scheme design and the specific measures set out in Section 4.1, it is considered reasonable to control that the scheme will result in neutral and non-significant effect to dormouse.

Where possible, the vegetation either side of the footpath will be allowed to grow tall to provide an aerial crossing point for dormice.

4.1.9 Amphibians (including GCN) and Reptiles

4.1.9.1 Constraint

Suitable habitat and refugia present.

4.1.9.2 Sensitive Period

Hibernation (November to February inclusive) – suitable hibernacula.

Active period (March – October inclusive) – suitable terrestrial habitats.

4.1.9.3 Actions

A suitable mitigation licence will be required for works involving the construction of sealed surfaces within the Southern GI.

Additionally, vegetation management works within areas of suitable habitat in all, should be carried out within the active season for reptiles (March-October inclusive) to avoid the disturbance of hibernating animals which are unable to move away from the development area. No removal of suitable refuge habitat will be undertaken when overnight temperatures are consistently (for five consecutive nights) below 5°C, to remove the risk of disturbing hibernating reptiles.

An ecological toolbox talk will be delivered prior to any works. Prior to the commencement of works the working footprint will be agreed and demarcated on site to include vehicle access areas, material storage, skip and materials handling areas associated with the demolition works. This working footprint will be minimised and designed with the contractor to avoid any unnecessary impacts on suitable reptile habitats. Where suitable habitats are present within the agreed works area, a two phased cut of any habitat considered it be suitable for reptiles, such as tussocky grass, will be conducted to prepare the working area. The first cut will be to approximately 15cm in order to encourage any reptiles present to move out of the area. The area will then be left to settle and a subsequent cut to 5cm will follow. A suitably qualified ecologist will lift and remove any potential refugia from within the working area. The vegetation will then be cut to be maintained in an unsuitable condition for the duration of works.

Prior to the movement of any machinery into the working area, a check by a suitably qualified ecologist will be carried out to ensure no animals are likely to be harmed.

If reptiles or amphibians are found at any stage of the vegetation clearance works, they will be encouraged to move away of their own accord into the surrounding retained habitat. Should great crested newt be found, then the project ecologists, Johns Associates will be contacted for further advice.

4.1.10 Otters

4.1.10.1 Constraint

Watercourse crossings.

4.1.10.2 Sensitive Period

All times.

4.1.10.3 Actions

Watercourse footpath crossing points to be designed to enable continued access along the watercourse for semi-aquatic mammals such as otter. Mammal crossings will be included where provision for mammal access cannot be incorporated along the stream at water level.

10m minimum construction buffer to all watercourses (other than crossing points). Use of well serviced plant and adoption of best practice standards for noise/vibration. No illumination of watercourse corridors from construction and

minimal operational lighting. Ongoing monitoring for otter during the construction period to enable methods to be adapted if detected.

Watercourse restoration using best practice measures (e.g. as defined by the UK River Restoration Centre) to increase physical habitat diversity, reconnect to the floodplain, increase light levels to the channel and riparian corridor and maximise species diversity, controlling non-native species.

4.2 BIODIVERSITY NET GAIN (POST-DEVELOPMENT)

The BNG calculations are based on the following drawings:

- Northern Green Infrastructure Sheets 1-3 of 3 dwg. DD579L16-R6, DD579L17-R6 and DD579L18-R6 by Deacon Design);
- Central Green Infrastructure Sheets 1-3 of 3 (dwg. DD579L13-R6, DD579L14-R6, DD579L15-R6 by Deacon Design);
- Southern Green Infrastructure Sheets 1-6 of 6 (dwg. DD579L05-R6, DD579L06-R6, DD579L07-R5, DD579L08-R5, DD579L09-R6, DD579L10-R5 by Deacon Design).

The landscape and ecological plan includes the retainment of existing area-based habitats, enhancement of existing habitats and also newly created habitats.

4.2.1 Habitats

The tables below detail the specific habitat types, their proposed conditions and unit values.

Table 14: Summary of Northern GI post-development assessment for area-based habitats

Broad Habitat Type	Habitat	Distinctiveness	Area (Ha)	Condition	Units
Urban	Sealed surface/ hardstanding	V. low	0.4401	N/A	0.00
Grassland	Modified grassland	Low	0.3574	Moderate	1.27
	Other neutral grassland	Medium	0.0168	Moderate	0.11
Heathland and shrub	Mixed scrub	Medium	1.4742	Good	13.95
			0.0223	Moderate	0.15
Lakes	SuDS	Medium	0.1052	Good	0.97
Individual trees	Rural trees (71 small trees)	Medium	0.1422	Moderate	1.23
Woodland and forest	Lowland mixed deciduous woodland	High	0.2891	Moderate	0.97
Wetland	Fens (upland and lowland)	V. high	1.7895	Moderate	24.70
Totals			0.7874	Good	2.34
			5.14*		45.68

Table 15: Summary of Central GI post-development assessment for area-based habitats

Broad Habitat Type	Habitat	Distinctiveness	Area (Ha)	Condition	Units
Urban	Sealed surface/ hardstanding	V. low	0.3843	N/A	0.00
Grassland	Modified grassland	Low	0.5252	Moderate	2.01
	Other neutral grassland	Medium	0.7113	Moderate	5.16
Heathland and shrub	Hawthorn scrub	Medium	2.0403	Good	19.53
	Mixed scrub	Medium	0.0320	Poor	0.15
Individual trees	Rural trees (67 small trees)	Medium	0.2166	Moderate	1.84
Woodland and forest	Other broadleaved woodland	Medium	0.2728	Moderate	0.92
Totals			2.2111	Good	30.1
			6.12*		59.78

Table 16: Summary of Southern GI post-development assessment for area-based habitats

Broad Habitat Type	Habitat	Distinctiveness	Area (Ha)	Condition	Units
Urban	Sealed surface/ hardstanding	V. low	0.4697	N/A	0.00
Grassland	Modified grassland	Low	0.8635	Moderate	3.30
	Other neutral grassland	Medium	0.6530	Moderate	4.75
			8.2883	Good	99.93
Heathland and shrub	Mixed scrub	Medium	0.0154	Moderate	0.11
Lakes	SuDS	Medium	0.0974	Moderate	0.75
	Great crested newt (GCN) pond		0.0387	Good	0.43
Individual trees	Rural trees (76 small trees)	Medium	0.3094	Moderate	1.04
Woodland and forest	Other woodland; broadleaved	Medium	0.0029	Moderate	0.03
			0.5599	Good	7.73
	Wood-pasture and parkland	High	0.6707	Moderate	6.82
Wetland	Fens (upland and lowland)	V. high	0.3752	Good	1.17
Totals			12.03*		124.46

* Totals shown exclude additional areas of individual trees.

4.2.2 Hedgerow Habitats

The tables below detail the specific hedgerow types, their proposed conditions and unit values.

Table 17: Summary of Northern GI post-development assessment for linear habitats

Linear Habitat Type	Retained/ Enhanced/ Created? (ID Code)	Distinctiveness	Length (km)	Condition	Units
Line of trees	Retained (L4, L5)	Low	0.242	Moderate	0.97
			0.293	Good	1.76
	Enhanced (H18a, H18b)		0.296	Good	1.60
Line of trees – associated with bank or ditch	Retained (L3)		0.046	Moderate	0.21
	Enhanced (H12a)		0.097	Good	0.58
Species-rich native hedgerow	Created (H107)	Medium	0.022	Good	0.20
Species-rich native hedgerow – associated with bank or ditch	Enhanced (H9)	High	0.042	Good	0.85
Species-rich native hedgerow with trees – associated with bank or ditch	Created (H106)	V. high	0.041	Good	0.55
Totals			1.079		6.72

Table 18: Summary of Central GI post-development assessment for linear habitats

Linear Habitat Type	Retained/ Enhanced/ Created?	Distinctiveness	Length (km)	Condition	Units
Line of trees	Retained	Low	0.096	Moderate	0.44
Line of trees – associated with bank or ditch			0.080	Moderate	0.37
Species-rich native hedgerow	Created	Medium	0.151	Good	1.36
Species-rich native hedgerow – associated with bank or ditch	Retained	High	0.180	Good	3.56
Totals			0.507		5.73

Table 19: Summary of Southern GI post-development assessment for linear habitats

Linear Habitat Type	Retained/ Enhanced/ Created? (ID Code)	Distinctiveness	Length (km)	Condition	Units
Line of trees	Retained (L2)	Low	0.095	Moderate	0.44
Line of trees – associated with bank or ditch	Retained (L1)	Low	0.271	Moderate	1.25
	Enhanced (H67)		0.211	Good	1.25
Native hedgerow – associated with bank or ditch	Retained (H69)	Medium	0.047	Good	0.62
Species-rich native hedgerow – associated with bank or ditch	Retained (H47, H48)	High	0.258	Good	5.34
	Enhanced (H46, H50)		0.038		0.68
Species-rich native hedgerow with trees – associated with bank or ditch	Retained (H49)	V. high	0.237	Good	6.26
	Enhanced (H38)		0.145		3.25
		Totals	1.302		19.09

4.2.3 Offsetting

Some habitat units from the Southern GI have been used to offset the anticipated biodiversity losses resulting from the construction of the Secondary Infrastructure Road. The results shown below represent the units that the Southern GI can be expected to deliver **after offsetting**. Full details can be found in J00947 OHH Secondary Road GI BNG Assessment Report 18-12-23 and J00947 OHH Southern GI BNG Assessment Report (January 2024 – to be updated).

4.2.4 Headline Results

As demonstrated above, the biodiversity net gain results (after offsetting in Southern GI) show an overall net gain in habitats and hedgerows. The trading rules have been satisfied for both.

Table 20: Summary of biodiversity net gain assessment **after offsetting**

GI Area	Baseline Units	Post-development Units	Net Unit Change	% Change	Trading Rules Satisfied?
Habitats					
Northern GI	37.47	45.68	8.21	21.90	Yes
Central GI	45.64	59.78	14.15	31.00	Yes
Southern GI	73.21	90.16	16.95	23.15	Yes
Hedgerows					
Northern GI	5.70	6.71	1.20	17.85	Yes
Central GI	4.48	5.73	1.25	27.82	Yes
Southern GI	17.31	19.09	1.77	10.24	Yes

See Figures 5-7 overleaf for the Proposed UKHab maps.

Figure 5: Northern GI Proposed UKHab map (Post-development)

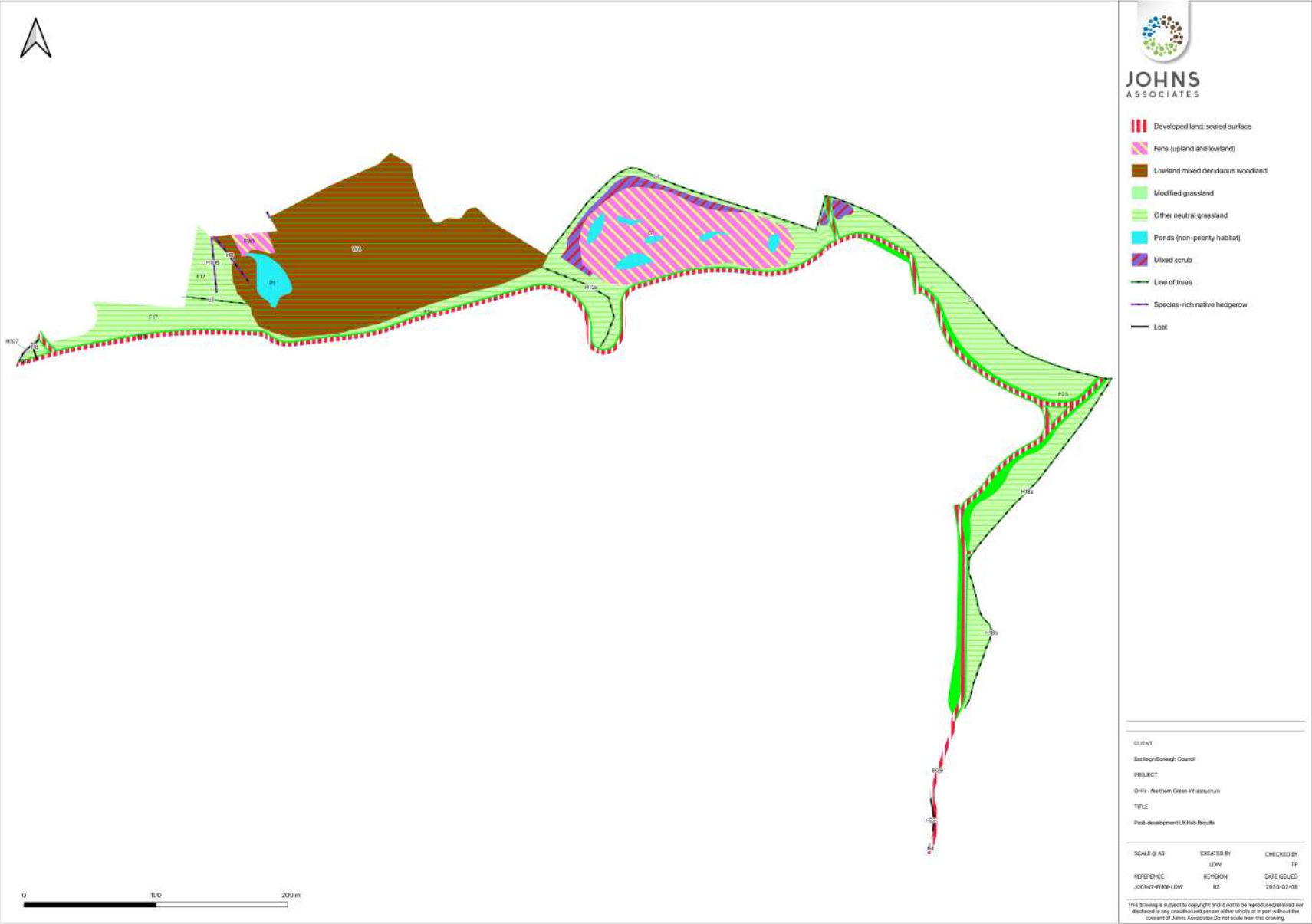


Figure 6: Central GI Proposed UKHab map (Post-development)

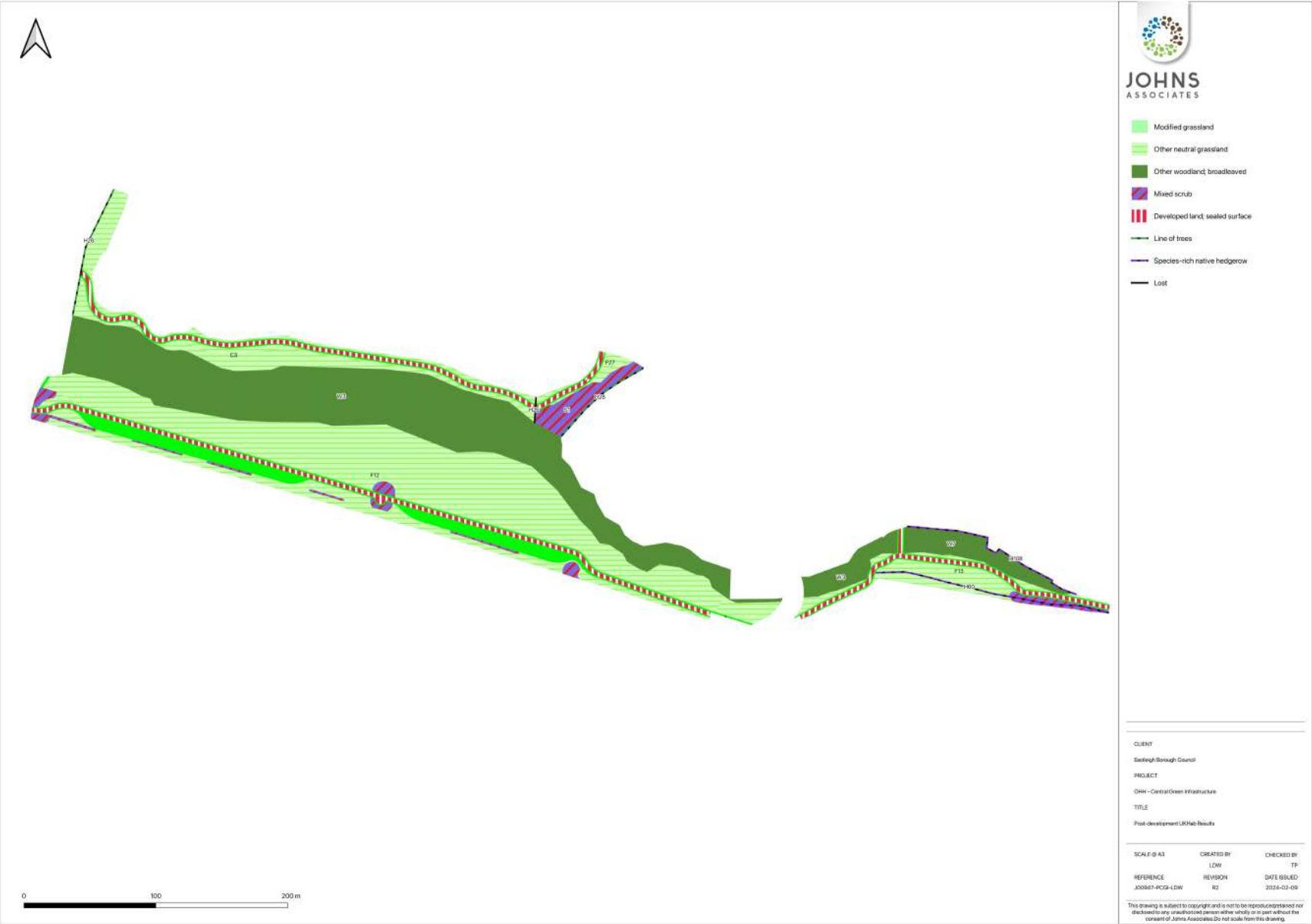


Figure 7: Southern GI Proposed UKHab map (Post-development)



5 ASSESSMENT OF LIKELY RESIDUAL EFFECTS

5.1 HABITATS

Because some area-based habitats and hedgerows are being lost in order to facilitate the proposed development, compensation and enhancement has been incorporated into the design in order to ensure compliance with Rule 1 and Principle 8 of the Metric User Guide. Table 7 demonstrates how the mitigation hierarchy has been applied to all habitats on Site in accordance with Principle 3 of the Metric User Guide. A map showing habitats to be retained (and protected during construction), enhanced, and lost can be found in Appendix B.

Biodiversity units are more easily achievable when habitats are retained and protected during construction and thereafter enhanced through improved management practices or additional planting (Principle 6 of the Metric User Guide). Therefore, as per the mitigation hierarchy, the improvement of the distinctiveness or condition (or both) of the retained habitats should always be a high priority. In this case, the enhancement of retained tree lines is not practicable, therefore new habitat creation is proposed in order to compensate for losses and provide sufficient enhancement to the Site overall.

Figures 8-13 overleaf demonstrate that in each GI area, habitat loss/creation is planned within habitats of lower unit value wherever possible, and the highest unit value habitats are to be retained or enhanced, depending on their baseline condition.

5.1.1 Northern GI

Impacts to habitats are largely avoided, however, losses of bare ground, cropland, modified and other neutral grassland, and mixed scrub are anticipated. In order to compensate for the losses, and ensure a net gain of more than 10%, the following measures are proposed:

- Creation of 0.3574ha of modified grassland
- Creation, retention and enhancement of 1.491ha of other neutral grassland
- Retention of 1.7895 ha of lowland mixed deciduous woodland
- Creation of 0.1275ha of mixed scrub
- Creation and retention of 0.7874ha of fens
- Creation of 0.0675ha of permanently wet SuDS
- Retention of 0.0747ha of pond
- Planting of 71 small individual trees.

Impacts to all lines of trees are avoided, however, some losses of species-rich hedgerows are anticipated. In order to compensate for the losses and ensure a net gain of more than 10%, the following measures are proposed:

- Enhancement and retention of 0.974km of line of trees
- Enhancement and creation of 0.064km of species-rich native hedgerow
- Creation of 0.041km of species-rich native hedgerow with trees and bank.

5.1.2 Central GI

A small impact/loss to each of the habitat types within the Central GI is anticipated, however, the following compensation and enhancement measures ensure a net gain of more than 10% with trading rules satisfied:

- Creation of 0.5252ha of modified grassland
- Creation, retention and enhancement of 2.7516ha of other neutral grassland
- Retention and enhancement of 2.2111ha of other broadleaved woodland
- Retention of 0.032 ha of hawthorn scrub
- Creation and retention of 0.2166 ha of mixed scrub
- Planting of 67 small individual trees.

Some impact/loss of lines of trees and species-rich hedgerow is anticipated. In order to compensate for the losses and ensure a net gain of more than 10%, the following is proposed:

- Retention of 0.176 km of line of trees
- Retention and creation of 0.331 km of species-rich hedgerow.

5.1.3 Southern GI

Impacts to woodland habitats are avoided, however, some loss of grassland habitat is anticipated. The following measures are proposed in order to compensate for losses anticipated as a result of the Proposed Development as well as those which are to be used to offset losses resulting from the Secondary Infrastructure Road. These measures will ensure a net gain of over 10%, and a satisfaction of the trading rules for both the Southern GI and the Secondary Infrastructure Road:

- Creation and retention of 0.8635 ha of modified grassland
- Creation, retention and enhancement of 8.9413 ha of other neutral grassland
- Enhancement of 0.6707ha of wood pasture & parkland
- Retention of 0.5628 ha of other broadleaved woodland
- Creation of 0.0154ha of mixed scrub
- Creation of 0.3752ha of fens
- Creation of 0.0974ha of permanently wet SuDS
- Creation of 0.0387ha of pond (for great crested newt mitigation)
- Planting of 76 small trees.

Impacts to lines of trees are avoided, however a small loss of species-poor and species-rich hedgerows is anticipated. In order to compensate for the losses and ensure a net gain of more than 10%, the following is proposed:

- Retention and enhancement 0.577 km of line of trees
- Retention of 0.047 km of species-poor hedgerow

- Enhancement and retention of 0.296 km of species-rich hedgerow
- Retention and enhancement of 0.382 km of species-rich native hedgerow with trees.

5.1.4 Summary

Taking the above into account alongside the specific measures set out in Section 4.1, no significant negative impacts are expected to arise in relation to habitats from the Proposed Development. The Statutory Biodiversity Metric calculations summarised in Section 4.2 show an overall net gain in habitat and hedgerow units, with all trading rules met, for each GI area associated with this planning application.

Figure 8: Northern GI Habitat Retention Map

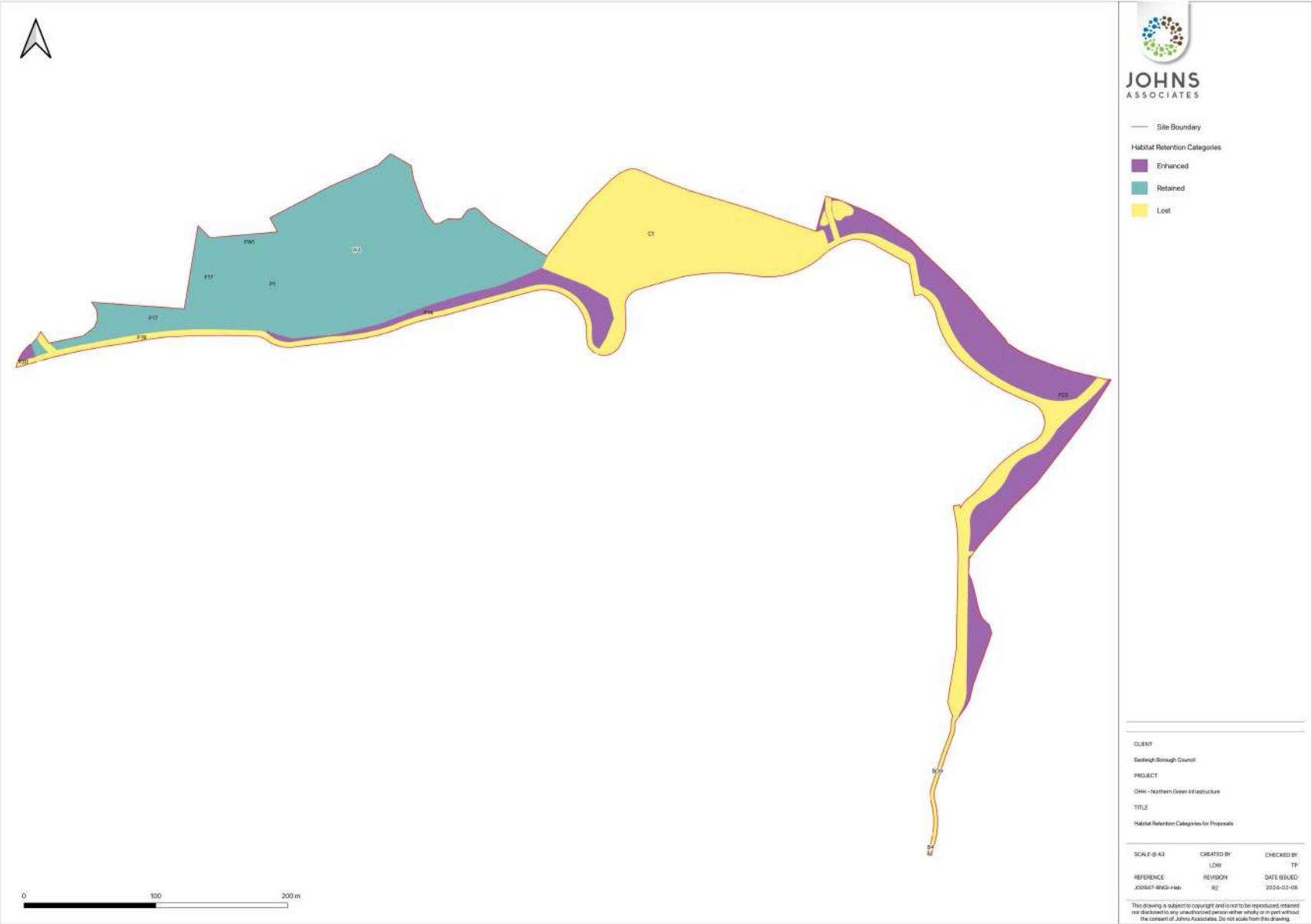


Figure 9: Central GI Habitat Retention Map



Figure 10: Southern GI Habitat Retention Map



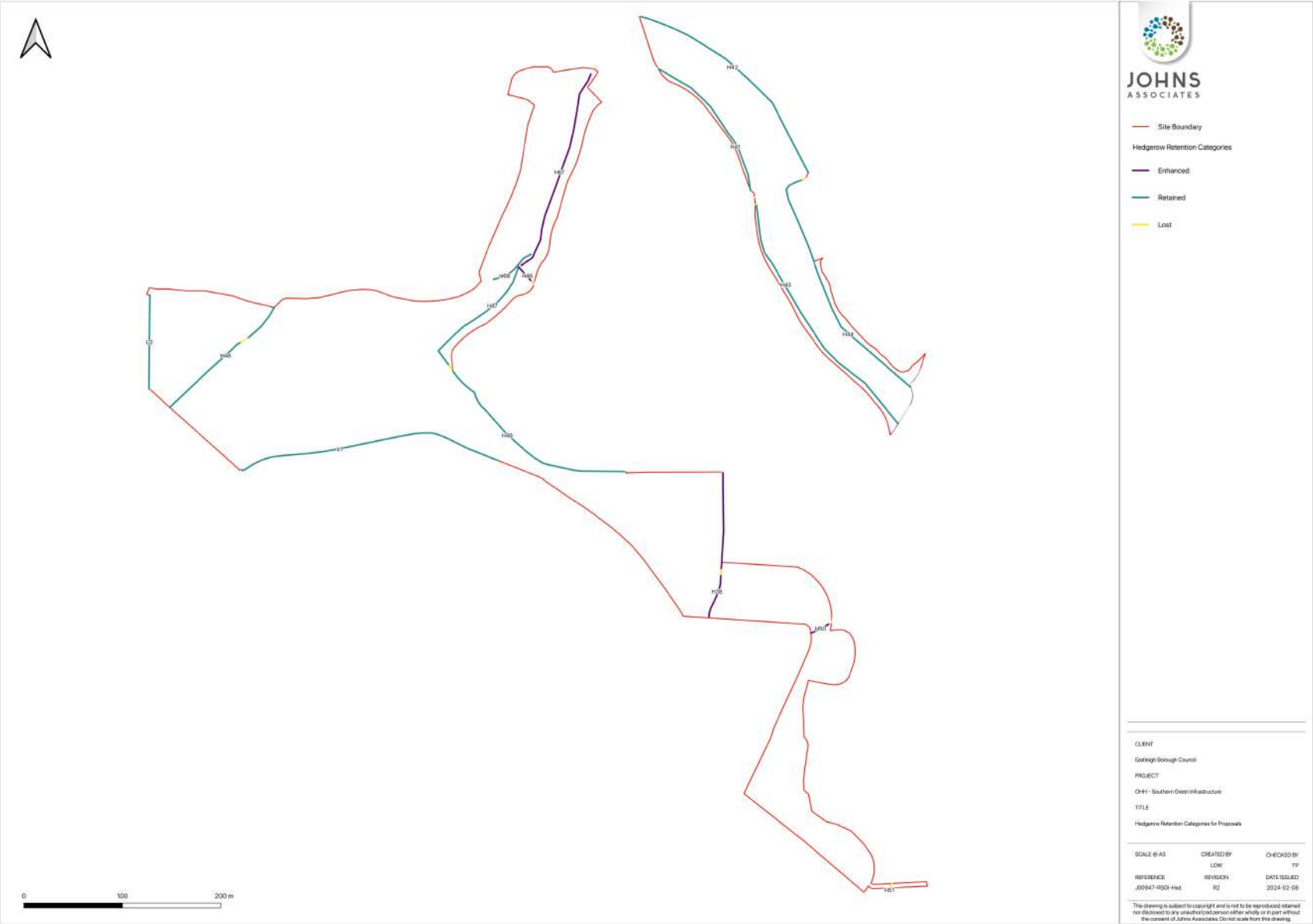
Figure 11: Northern GI Hedgerow Retention Map



Figure 12: Central GI Hedgerow Retention Map



Figure 13: Southern GI Hedgerow Retention Map



5.2 BADGERS

No direct evidence of badger has been recorded in the area associated with the Proposed Development. Taking this into account alongside the scheme design and the specific measures set out in Section 4.1, it is considered reasonable to control that the scheme will result in neutral and non-significant effect to badgers.

5.3 BATS

The scheme design has sought to minimise the loss of these areas and provide replacement habitats that will be of suitable value to bats, including grassland, tree and open water habitats, plus enhancement of some woodland habitats. There is no artificial lighting associated with the scheme so no impacts to bats from increased lighting are anticipated. Taking this into account alongside the specific measures set out in Section 4.1, it is considered reasonable to control that the scheme will result in neutral and non-significant effects to bats.

5.4 BREEDING BIRDS

A number of bird species (although no notable species) are known to use the habitats within the Site, notably hedgerows and woodland. The scheme design has sought to minimise the loss of these areas and provide replacement habitats that will be of suitable value to birds, including grassland, tree and open water habitats. There is no artificial lighting associated with the scheme so no impacts to birds from increased lighting are anticipated. Taking this into account alongside the specific measures set out in Section 4.1, it is considered reasonable to control that the scheme will result in neutral and non-significant effects to birds.

5.5 DORMICE

It is considered highly unlikely that dormouse is present within the construction areas associated with the Central GI footpath. Taking this into account alongside the scheme design and the specific measures set out in Section 4.1, it is considered reasonable to control that the scheme will result in neutral and non-significant effect to dormouse.

5.6 GCN AND OTHER AMPHIBIANS

It is considered highly unlikely that great crested newt is present within the construction and operational areas associated with the Northern and Central GIs. Common frog *Rana temporaria* and toad may be present. GCN are likely to be present within the Southern GI, however, works will be undertaken under a suitable licence, and working method. Additionally, a new GCN pond has been created in association with the Southern GI, and various habitat and hedgerow enhancements will increase the suitability of terrestrial habitats for the species in this area and across the Central and Northern GIs. Taking this into account alongside the scheme design and the specific measures set out in Section 4.1, it is considered reasonable to control that the scheme will result in neutral and non-significant effect to amphibians.

5.7 OTTER AND WATER VOLE

It is considered highly unlikely that otters and water voles are present within the construction and operational areas associated with the Proposed Development. Taking this into account alongside the scheme design and the specific measures set out in Section 4.1, it is considered reasonable to control that the scheme will result in neutral and non-significant effect to riparian mammals.

5.8 REPTILES

It is considered that only low numbers of common reptiles are present within the construction and operational areas associated with the Proposed Development. Taking this into account alongside the scheme design and the specific measures set out in Section 4.1, it is considered reasonable to control that the scheme will result in neutral and non-significant effect to reptiles.

6 CONCLUSIONS

Taking into account the ecological baseline, the integrated and additional ecological measures associated with the scheme, and the habitat/ landscape design and other elements, alongside the anticipated increase in Biodiversity Net Gain of more than 10% for habitats and hedgerows in each GI area, it is considered reasonable to conclude that the Proposed Development will have a significant positive impact on biodiversity and will meet local and national planning policy, and associated nature conservation legislation.

APPENDIX A – LEGISLATION AND PLANNING POLICY

LEGISLATION

Many species of animal and plant receive some degree of legal protection. For the purposes of this report, legal protection refers to: species included on Annex II of the Habitats Directive 1992 (Council of European Communities, 22/07/1992) , Schedules 2 and 5 of the Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 and Schedules 1, 5 and 8 of the Wildlife and Countryside Act 1981 (as amended) , excluding species that are only protected in relation to their sale (see Section 9[5] and 13[2]) reflecting the fact that the proposed development does not include any proposals relating to the sale of species.

Legal offences associated with species listed on Schedule 2 of the Conservation of Habitats and Species Regulations and Schedule 5 of the Wildlife and Countryside Act in England and Wales include inter alia:

- Deliberate capture, injury or killing of animals or taking or destroying their eggs;
- Deliberately disturb animals in a way that would significantly affect their local distribution or abundance, or affect their ability to survive, breed or rear young;
- Intentional or reckless disturbance of an animal in its place of shelter or protection;
- Damaging or destroying a resting place or breeding site;
- Intentionally or recklessly obstructing access to a place of shelter or protection; and
- Possess, control, transport, sell, exchange or offer for sale/exchange any live or dead animal or any part of an animal.

Relevant species listed on these Schedules that are potentially associated with this Site include bats and reptile species (e.g. slow worm). All species of bat receive full protection from all legal offences listed above. Common reptile species receive partial protection under the Wildlife and Countryside Act in that they are protected from killing and injury only.

All species of wild bird are protected under the Wildlife and Countryside Act (1981) (as amended) from killing or injury. In addition, it is an offence to take or damage/ destroy their eggs and to damage or destroy a nest whilst it is in use. Species listed on Schedule 1 (such as barn owl) receive additional protection in that it is illegal to disturb birds or their young whilst occupying, or near to, an active nest.

A number of wild plants, habitats and animals (including reptiles, hedgehog and most species of bat) are also included within Section 41 of the Natural Environment and Rural Communities (NERC) Act 2006 which lists flora, fauna and habitats considered by the Secretary of State to be of principal importance for conserving biodiversity. The publication of the "England Biodiversity List" satisfies the requirements of Section 41 of the NERC Act 2006 for the conservation of biodiversity. Section 40 of the NERC Act 2006 requires public bodies, including local planning authorities, to have regard for the conservation of biodiversity in England, when carrying out their normal functions.

Badgers are protected under the Protection of Badgers Act 1992 (UK Government, 1992) which makes it an offence to wilfully kill, injure or take (or attempt to kill, injure or take) a badger; or to disturb badgers whilst occupying their setts.

The Environment Act 2021

Under the Environment Act 2021 all planning permissions granted in England (with a few exemptions) will have to deliver at least 10% biodiversity net gain from January 2024.

Mandatory biodiversity net gain as set out in the Environment Act applies in England by amending the Town & Country Planning Act (TCPA) with key statutory instruments anticipated by the end of 2023. The Act sets out the following key components to mandatory BNG:

- Minimum 10% gain required calculated using Biodiversity Metric & approval of net gain plan.

- Habitat secured for at least 30 years via obligations/conservation covenant.
- Habitat can be delivered on-site, off-site or via statutory biodiversity credits.
- There will be a national register for net gain delivery sites.
- The mitigation hierarchy still applies of avoidance, mitigation and compensation for biodiversity loss.
- Does not change existing legal environmental and wildlife protections.

The Environment Act sets out that development subject to mandatory BNG will be required to submit a biodiversity gain plan for planning authority approval and the planning authority is required to approve it prior to commencement. This is required under the 'General Condition of planning permission' added as Schedule 7A to the Town and Country Planning Act 1990 (under Schedule 14 of the Environment Act).

NATIONAL PLANNING POLICY

There are numerous national and local planning policies associated with flora and fauna (also referred to as biodiversity) that need to be addressed as part of the planning process. The Government has issued its National Planning Policy Framework (NPPF) 2023, which requires impacts to biodiversity to be minimised. Paragraph 181 of the NPPF applies the same protection to Ramsar sites as that conferred by the Habitats Regulations to SACs and SPAs. The NPPF requires development to apply the following principles (Paragraphs 179-180):

- Minimise impacts on and provide net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressure;
- Identify and pursue opportunities for securing measurable net gains for biodiversity;
- Ensure that there will be no adverse impacts to SSSIs (such development would not normally be permitted);
- Ensure that there will be no loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees), unless there are wholly exceptional reasons and a suitable compensation strategy exists; and
- Where significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts) adequate mitigation, or as a last resort compensation, must be provided.
- The NPPF and associated Planning Practice Guidance also emphasise the requirement for ecological networks and wildlife corridors to be created throughout the wider landscape (paragraph 179).

Planning authorities should follow key principles to ensure that the potential impacts of planning decisions on biodiversity conservation are considered. Circular 06/05: Biodiversity and Geological Conservation provides guidance on the application of the law relating to planning and nature conservation and complements the NPPF.

The Natural Environment Paper

"The Natural Choice: Securing the Value of Nature" outlines the Government's approach and vision for nature in the UK including protecting and improving our natural environment, growing a green economy and reconnecting people and nature.

Biodiversity 2020

A strategy for England's wildlife and ecosystem services, are the country level strategies for England and builds on the natural Environment White Paper. It sets out the strategic direction for biodiversity policy for the next decade on land (including rivers and lakes) and at sea. The priorities for action include a more integrated large-scale approach to conservation, putting people at the heart of biodiversity policy, reducing environmental pressure and improving knowledge.