

Brookleigh Phase 1C Foul Water Pumping Station

Revised Ecological Impact Assessment Report

Homes England

March 2025

Quality information

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1. Executive Summary

- 1.1 AECOM Ltd. was instructed in 2024 by Homes England to complete an Ecological Impact Assessment for a foul sewer pumping station within the wider Brookleigh site, located to the north of Burgess Hill. The works will comprise construction of a pumping station, involving underground tanks and associated pumping station infrastructure including an area for vehicle parking and turning with a temporary access road. A pipe will also be laid underground. The pumping station, temporary access road and pipeline are hereafter collectively referred to as the 'Proposed Development'.
- 1.2 AECOM completed initial ecological surveys in 2019 for the wider Brookleigh site Outline Planning Application (reference number DM/18/5114, granted approval in October 2019). Due to the time elapsed since these initial ecological surveys, updated surveys have been completed, including:
- Extended Phase 1 habitat survey (completed by Zebra Ecology in November 2023);
 - Bat roost suitability assessment (completed by Zebra Ecology in November 2023);
 - Walkover to confirm the results of the Zebra Ecology surveys (completed by AECOM in February 2024);
 - Badger survey (completed by AECOM in February 2024);
 - Great crested newt Habitat Suitability Index (HSI) & eDNA survey (completed by AECOM in April 2022).
- 1.3 The desk study identified one statutory designated site within 2km of the Site; Bedelands Farm Local Nature Reserve (LNR) 0.7km east of the Site. The desk study also identified five non-statutory designated sites within 2km of the Site, the closest being Bedelands Local Wildlife Site (LWS) 0.8km east of the Site. A total of 11 areas of ancient woodland were identified within 1km of the Site, with the closest being Sussex Way Shaw 2 and Hook Place Shaw, located 0.4km south-west and 0.4km north-west of the Site respectively. Considering the proximity of these designated sites there is potential for indirect impacts as a result of the Proposed Development. Therefore, standard best practice measures in relation to construction have been recommended to avoid construction impacts, in particular from dust deposition.
- 1.4 The Site comprises modified grassland, blackthorn scrub, bramble scrub and an area of bracken (*Pteridium aquilinum*). Hedgerows are present in the centre and to the west of the Site but will be retained, with a temporary access from Isaac's Lane created in an existing gap in the western hedgerow and the pipeline installed under the central hedgerow using trenchless techniques. Modified grassland and blackthorn scrub will be lost as a result of the Proposed Development, along with temporary removal of approximately 30m² bracken, located within an existing hedgerow gap. 1,257m² of modified grassland will be temporarily lost to facilitate below-ground works, with this area returned to grassland post-completion, but likely to form part of the road network for development in the future (to be covered under a separate application). 96m² of modified grassland will be permanently lost to facilitate the Pumping Station Apron. 1,253m² of modified grassland will be lost to provide a temporary access road to facilitate construction and operation of the Proposed Development, which will be replaced with a permanent solution during the development of Phase 1C as part of the residential road network. This permanent solution will be subject to a separate planning application; however, this report assumes this grassland will be lost permanently. Standard best practice measures in relation to construction will reduce the risk of construction impacts, including pollution impacts to adjacent retained habitats.
- 1.5 The Site supports foraging and commuting bats, and trees suitable to support roosting bats (which will be retained during the works) are present adjacent to the Site. Measures to avoid disturbance impacts, including from lighting will be included in the Construction Environmental Management Plan (CEMP).
- 1.6 Scrub and grassland present is also suitable to support nesting birds. Removal of suitable habitat will be completed outside of the typical nesting season (i.e. outside March – September inclusive) where possible; however, where this is not possible (e.g. due to timing restrictions for other species such as reptiles) an ecologist will complete a nesting bird check immediately prior to vegetation removal and supervised clearance.
- 1.7 Grassland within the Site supports a small population of grass snake (*Natrix helvetica*) and slow worm (*Anguis fragilis*). As the area of this habitat due to be removed within the Site is small, and as suitable

grassland to the east and west of the Site will be retained a precautionary working method with two-stage clearance will be implemented to encourage reptiles to move into suitable retained habitat.

- 1.8 Three ponds were identified within 250m of the Site; namely Pond 15 approximately 190m to the west, Pond 16 approximately 241m to the north and Pond 26 approximately 60m to the west. Ponds 15 and 26 waterbodies returned a negative result for great crested newt in surveys completed in April 2022. Pond 16 was found to be dry. Due to negative results returned for these waterbodies in both 2019 and 2022, along with the partial barrier of Isaac's Lane separating the Site from these waterbodies, these results are considered to still be valid and great crested newt are considered likely to be absent from the Site.
- 1.9 No badger setts were present within the Site or a 30m buffer; however, badgers are known to be present in the wider area and may use the Site for foraging. Embedded measures such as ensuring trenches are covered will be in place to reduce the risk of impacts on badgers.
- 1.10 Given the embedded mitigation, Construction Environmental Management Plan (CEMP) and species-specific mitigation discussed in this document, no residual significant effects on ecology are anticipated.
- 1.11 No cumulative effects are anticipated with other nearby schemes or sections of the wider Brookleigh development.

2. Introduction

Project Background

- 2.1 AECOM Ltd. was instructed in 2024 by Homes England to complete an Ecological Impact Assessment (EclA) for a foul sewer pumping station within the wider Brookleigh site, located to the north of Burgess Hill. The works will comprise the construction of a pumping station, comprising underground tanks and associated pumping station infrastructure including an area for vehicle parking and turning with a temporary access road. A pipe will also be laid underground. The pumping station, temporary access road and pipeline are hereafter collectively referred to as the 'Proposed Development'. The proposed access road will be constructed to facilitate the works and initial operation of the pumping station. This access road will become permanent during the housing development in the surrounding area, to be subject to a separate planning application; however, the access point from Isaac's Lane will be temporary to facilitate the Proposed Development only. The pipeline proposed as part of the Proposed Development will link to sewer infrastructure to the north, also subject to a separate planning application.
- 2.2 The foul sewer pumping station will be located in the south of Phase 1C of the wider Brookleigh development, to the north of Fairbridge Way. The location of the Proposed Development is shown in Figure 1 and is hereafter referred to as 'the Site'.

Previous Surveys

- 2.3 This EclA relies on a Preliminary Ecological Appraisal completed by Zebra Ecology in November 2023 on behalf of Hill Holdings Ltd. of the wider Phase 1C, accompanied by an ecological walkover survey completed by AECOM Ecologists in February 2024, as well as previous surveys completed by AECOM between 2019 and 2022.
- 2.4 A suite of ecological surveys was previously completed at the Site in 2019 by AECOM in support of the Outline Planning Application for the wider Brookleigh (formerly Northern Arc) site (AECOM, 2019a – f), including an extended Phase 1 habitat survey, bat roost suitability survey, bat activity surveys, badger (*Meles meles*) survey, reptile survey, great crested newt (*Triturus cristatus*) presence/ likely absence survey, riparian mammal survey, invertebrate survey, hazel dormouse (*Muscardinus avellanarius*) survey and breeding bird survey.
- 2.5 In addition, ecological surveys were undertaken in 2021 by Greengage on behalf of Bellway in support of the Reserved Matters Application for Phase 1B of the wider Brookleigh development (Bellway, 2021). This included hazel dormouse survey of hedgerows and woodland connected to the Site.
- 2.6 Updated great crested newt environmental DNA survey was completed by AECOM in April 2022 of ponds within 250m of the Site, where no barrier to newt movement is present.

Scope

- 2.7 The purpose of this report is to assess impacts on ecological receptors and inform the planning application.
- 2.8 This assessment is informed by the previously completed surveys detailed above, as well as the following update surveys:
- Extended Phase 1 habitat survey (completed by Zebra Ecology in November 2023 (Zebra Ecology, 2023), supplemented by AECOM in February 2024);
 - Bat roost suitability assessment (completed by Zebra Ecology in November 2023 (Zebra Ecology, 2023).);
 - Walkover survey to confirm the findings of the Zebra Ecology survey (completed by AECOM in February 2024);
 - Badger survey (completed by AECOM in February 2024);
 - Great crested newt HSI & eDNA survey (completed by AECOM in April 2022).
- 2.9 This report details the findings of the surveys undertaken to date. It gives recommendations for best ecological practice as required for the Proposed Development and an assessment of impacts is made

using best practice guidelines, following the mitigation hierarchy of avoidance, mitigation, compensation and enhancement.

3. Wildlife Legislation and Planning Policy

Wildlife Legislation

3.1 The following legislation has been considered in respect of the ecology assessment:

- The Wildlife and Countryside Act 1981 (as amended) (His Majesty's Stationary Office (HMSO), 1981);
- The Protection of Badgers Act 1992 (HMSO, 1992);
- The Countryside and Rights of Way Act 2000 (HSMO, 2000);
- The Natural Environment and Rural Communities Act 2006 (as amended) (HMSO, 2006);
- The Conservation of Habitats and Species Regulations 2017 (as amended) (HMSO, 2017);
- The Invasive Alien Species Act (Enforcement and Permitting) Order 2019 (as amended) (HMSO, 2019); and
- The Environment Act 2021 (Legislation.gov.uk, 2021).

3.2 The relevance of this legislation is discussed in the following sub-sections.

The Conservation of Habitats and Species Regulations 2017 (as amended)

3.3 The Conservation of Habitats and Species Regulations 2017 (as amended) are the principal means by which the European Union Directive on the Natural Habitats and Wild Fauna and Flora (92/43/EEC) (EC Habitats Directive) was transposed in UK law. Although the UK is no longer part of the European Union, amendments to the regulations have made it clear that their provisions continue to apply post-Brexit.

3.4 The Conservation of Habitats and Species Regulations 2017 (as amended) provide for the designation and protection of 'European sites' known as Special Areas of Conservation (SAC), the protection of 'European protected species' (including bat species), and the adaptation of planning and other controls for the protection of European Sites. As well as sites designated under European nature conservation legislation, UK Government policy states that internationally important wetlands designated under the Ramsar Convention 1971 (Ramsar sites) are afforded the same protection as Special Protection Areas (SPAs) (classified under Article 4 of the EC Birds Directive 1979) and SACs for the purpose of considering development proposals that may affect them.

3.5 In addition, the need for an assessment of impacts on European sites is set out in the Conservation of Habitats and Species Regulations 2017 (as amended). The Regulations apply the precautionary principle to European sites. Article 6 (3) states that 'Any plan or project not directly connected with or necessary to the management of the site but likely to have a significant effect thereon, either individually or in combination with other plans or projects, shall be subject to appropriate assessment of its implications for the site in view of the site's conservation objectives.'

3.6 These sites in the UK no longer form part of the EU's Natura 2000 ecological network. The Conservation of Habitats and Species (Amendment) (EU Exit) Regulations 2019 (referred to as the 2019 Regulations) have created a national site network on land and at sea, including both the inshore and offshore marine areas in the UK. The national site network includes:

- existing SACs and SPAs
- new SACs and SPAs designated under these Regulations

3.7 Any references to Natura 2000 in the 2017 Regulations and in guidance now refers to the new national site network.

3.8 Projects can only be permitted having ascertained that there will either be no likely significant effect or be no adverse effect on the integrity of the site(s) in question. Projects with predicted adverse impacts on European sites (now national site network) may still be permitted if there are no alternatives to them and there are Imperative Reasons of Overriding Public Interest (IROPI) as to why they should go ahead. In such cases, compensation will be necessary to ensure the overall integrity of the site network.

3.9 The Regulations also amended the Wildlife and Countryside Act 1981 (as amended), updating Schedules 5 and 8 to consider provisions made by the Habitat Regulations 1994 in relation to the protection of

European Protected Species. They also offered further clarification to Part 4 of Section 9 considering “reckless” offences on wild animals, which was previously amended by the Countryside and Rights of Way Act 2000 (CRoW).

The Wildlife and Countryside Act 1981 (as amended)

- 3.10 All species of wild bird in the UK are protected under Part 1 Section 1(1) of the Wildlife and Countryside Act 1981 (as amended) (WCA). They are protected against intentional killing, injuring or taking, as well as taking, damaging or destroying nests in use or being built, and taking or destroying eggs.
- 3.11 In addition to general protection for birds, certain species listed in Schedule 1 of the WCA are afforded special protection. These birds are either: rare, endangered, declining or vulnerable species. In addition to the protection afforded to all bird species it is an offence to cause ‘reckless’ or ‘intentional’ disturbance to the specially protected Schedule 1 listed species when they are building nests.
- 3.12 The Secretary of State may also designate Areas of Special Protection (subject to exceptions to provide further protection to birds).
- 3.13 The WCA makes it an offence (subject to exceptions) to intentionally kill, injure or take any wild animal listed on Schedule 5, and prohibits interference with places used for shelter or protection, or intentionally disturbing animals occupying such places.
- 3.14 The WCA makes it an offence (subject to exceptions) to intentionally pick, uproot or destroy any wild plant listed in Schedule 8.
- 3.15 The WCA contains measures at Schedule 9 for preventing the establishment of non-native species which may be detrimental to native wildlife.

The Countryside and Rights of Way Act 2000 (CRoW)

- 3.16 Schedule 12 of the CRoW Act amends the species provisions of the WCA, strengthening the legal protection for threatened species. The provisions make certain offences ‘arrestable’, create a new offence of reckless disturbance, confer greater powers to police and wildlife inspectors for entering premises and obtaining wildlife tissue samples for DNA analysis, and enable heavier penalties on conviction of wildlife offences.

Natural Environment and Rural Communities (NERC) Act 2006 (as amended)

- 3.17 Section 41 of the NERC Act requires the listing of habitats and species that are considered to be of principal importance for the conservation of biodiversity in England, including habitats and species in England that have been identified as priorities within the UK Biodiversity Action Plan (UKBAP).
- 3.18 The NERC Act requires that the Section 41 list be used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the NERC Act 2006 ‘to have regard’ to the conservation of biodiversity in England, when carrying out their normal functions.

The Protection of Badgers Act 1992

- 3.19 Badgers and their setts are protected under the Protection of Badgers Act 1992. In England and Wales this makes it an offence to:
 - Wilfully kill, injure or take a badger (or attempt to do so);
 - Cruelly ill-treat a badger;
 - Dig for a badger, intentionally or recklessly damage or destroy a badger sett, or obstruct access to it; cause a dog to enter a badger sett; and
 - Disturb a badger while it is occupying a sett.

The Invasive Alien Species Act (Enforcement and Permitting) Order 2019 (as amended)

- 3.20 The Invasive Alien Species Regulations sets out to address the problems concerned with invasive alien species (IASs) in order to protect native biodiversity and ecosystem services and minimize and mitigate

the human health and/or economic impacts that IASs can have. It sets out rules to prevent and manage the introduction and spread of IASs through prevention, early detection and rapid eradication, and management.

The Environment Act 2021

3.21 The Environment Act 2021, published by the UK Government as the Environment Bill in October 2019 (Environment Bill, 2019), includes proposals to make biodiversity net gain (BNG) a mandatory requirement within the planning system in England. The biodiversity elements of the Act include:

- Strengthened biodiversity duty;
- Biodiversity net gain to ensure developments deliver at least 10% increase in biodiversity;
- Local Nature Recovery Strategies to support a Nature Recovery Network;
- Duty upon Local Authorities to consult on street tree felling;
- Strengthen woodland protection enforcement measures;
- Conservation Covenants;
- Protected Site Strategies and Species Conservation Strategies to support the design and delivery of strategic approaches to deliver better outcomes for nature;
- Prohibit larger UK businesses from using commodities associated with wide-scale deforestation; and
- Requires regulated businesses to establish a system of due diligence for each regulated commodity used in their supply chain.

National Planning Policy

3.22 At a national level, the UK Government published the National Planning Policy Framework (NPPF) in 2012. The NPPF supersedes previous national planning policy guidance (PPGs) and planning policy statements (PPSs). The NPPF summarises in a single document the Government planning policies for England, and how these are expected to be applied. The NPPF was last updated in September 2023 (Ministry of Housing, Communities and Local Government, 2023).

3.23 Policies and objectives which are of particular relevance to biodiversity include:

- Paragraph 180 of the revised NPPF states that “*Planning policies and decisions should contribute to and enhance the natural and local environment by... ..minimising impacts on and providing net gains for biodiversity, including by establishing coherent ecological networks that are more resilient to current and future pressures*”.
- Paragraph 181 states “*Plans should: distinguish between the hierarchy of international, national and locally designated sites; allocate land with the least environmental or amenity value, where consistent with other policies in this Framework; take a strategic approach to maintaining and enhancing networks of habitats and green infrastructure; and plan for the enhancement of natural capital at a catchment or landscape scale across local authority boundaries*”.
- Paragraph 185, stresses the importance of ecological networks stating that “*To protect and enhance biodiversity and geodiversity, plans should:*
 - A) *Identify, map and safeguard components of local wildlife-rich habitats and wider ecological networks, including the hierarchy of international, national and locally designated sites of importance for biodiversity; wildlife corridors and stepping stones that connect them; and areas identified by national and local partnerships for habitat management, enhancement, restoration or creation; and*
 - B) *promote the conservation, restoration and enhancement of priority habitats, ecological networks and the protection and recovery of priority species; and identify and pursue opportunities for securing measurable net gains for biodiversity.*”
- Paragraph 186 which states that in relation to the determination of planning applications local planning authorities “*should apply the following principles:*

- A) *if significant harm to biodiversity resulting from a development cannot be avoided (through locating on an alternative site with less harmful impacts), adequately mitigated, or, as a last resort, compensated for, then planning permission should be refused;*
 - B) *development on land within or outside a Site of Special Scientific Interest, and which is likely to have an adverse effect on it (either individually or in combination with other developments), should not normally be permitted. The only exception is where the benefits of the development in the location proposed clearly outweigh both its likely impact on the features of the site that make it of special scientific interest, and any broader impacts on the national network of Sites of Special Scientific Interest;*
 - C) *development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and*
 - D) *development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to incorporate biodiversity improvements in and around developments should be encouraged, especially where this can secure measurable net gains for biodiversity."*
- Paragraph 188 states that "*The presumption in favour of sustainable development does not apply where development requiring appropriate assessment because of its potential impact on a habitats site is being planned or determined*".

Regional Planning Policy

Sussex Biodiversity Action Plan

3.24 The Sussex Biodiversity Partnership has prepared a list of species and habitats to be included in a Biodiversity Action Plan for the county. Priority species within the Sussex Biodiversity Action Plan include:

- Birds (52 priority bird species in Sussex, from a range of habitats including farmland);
- Fish (seven priority freshwater fish species);
- Herptiles (all ten of the UK's priority species of amphibian and reptile species, including great crested newt *Triturus cristatus*);
- Terrestrial Invertebrates (220 priority species of invertebrate in Sussex); and
- Terrestrial Mammals - 16 priority terrestrial mammal species in Sussex, including hazel dormouse (*Muscardinus avellanarius*), brown long-eared bat (*Plecotus auritus*) and brown hare (*Lepus europaeus*).

3.25 Priority habitats within the Sussex Biodiversity Action Plan are:

- Lowland farmland (which includes arable field margins, hedgerows, lowland meadows and traditional orchards);
- Wetlands (which includes eutrophic standing waters, ponds and reedbeds);
- Coastal;
- Woodland (including wood pasture and parkland); and
- Marine.

Local Planning Policy

Mid Sussex District Plan (March 2018)

3.26 The Mid Sussex District Plan (2018) comprises a suite of documents to guide planning and development in the district. The plan was adopted in March 2018 and will cover a plan period up until 2031.

3.27 Policy DP37 Trees, Woodland and Hedgerows states that "*The District Council will support the protection and enhancement of trees, woodland and hedgerows..., In particular, ancient woodland and aged or veteran trees will be protected. Development that will damage or lead to the loss of trees, woodland or hedgerows..., will not normally be permitted.*"

- 3.28 Policy DP38 Biodiversity states that *“Biodiversity will be protected and enhanced by ensuring development:... takes opportunities to improve, enhance, manage and restore biodiversity and green infrastructure, so that there is a net gain in biodiversity.... protects existing biodiversity, so that there is no net loss of biodiversity; Minimises habitat and species fragmentation and maximises opportunities to enhance and restore ecological corridors to connect natural habitats and increase coherence and resilience; Avoids damage to, protects and enhances the special characteristics of internationally designated Special Protection Areas, Special Areas of Conservation; nationally designated Sites of Special Scientific Interest...; and locally designated Sites of Nature Conservation Importance, Local Nature Reserves and Ancient Woodland or to other areas identified as being of nature conservation interest, including wildlife corridors, aged or veteran trees, Biodiversity Opportunity Areas and Nature Improvement Areas”*.

Burgess Hill Neighbourhood Plan (2016)

- 3.29 The Burgess Hill Neighbourhood Plan was adopted in 2016 and aims to focus on community development and provide the framework to deliver benefits for residents, businesses and visitors. The Plan provides clarity to communities, landowners and other interested parties on how the town of Burgess Hill will improve and transform for the benefit of existing future and population.
- 3.30 Policy G3: Nature Conservation and Biodiversity states that *“Existing areas of nature conservation will be retained and protected from any negative impacts likely to arise from development. The Town Council will seek appropriate improvements to the habitat network in development proposals wherever possible. There will be new designations and enhancement of existing nature conservation as follows:*
- a. Enhanced meadow areas will be provided in the Leyland's Park policy area including east of Freek's Lane/Roman Meadow and parts of Bedelands Farm Local Nature Reserve.*
 - b. Projects that improve the interpretation and visitor facilities to Bedelands Farm Local Nature Reserve will be supported.*
 - c. Enhancements to ponds will be supported where appropriate”*.

4. Methodology and Impact Significance Criteria

Standards and Guidance

- 4.1 The 'Guidelines for Ecological Impact Assessment in the UK and Ireland' issued by the Chartered Institute of Ecology and Environmental Management (CIEEM, 2022) (hereafter 'the CIEEM EcIA guidelines') provide guidance on the process of identifying the value of ecological features, characterising impacts upon them and assessing whether these impacts are significant. The 'mitigation hierarchy' of avoidance, mitigation, compensation and enhancement underpin the CIEEM EcIA guidelines.
- 4.2 As per the CIEEM EcIA guidelines, the following definitions are used for the terms 'impact' and 'effect':
- **Impact** – 'Actions resulting in changes to an ecological feature'; and
 - **Effect** – 'Outcome to an ecological feature from an impact'.

Assessment Methodology

Methodology for Determining Baseline Conditions and Sensitive Receptors

Desk Study

- 4.3 A desk study was carried out to identify nature conservation designations, Site of Special Scientific Interest (SSSI) impact zones and protected and notable habitats and species potentially relevant to the Proposed Development.
- 4.4 The desk study identified international nature conservation designations within 10km of the Site, other statutory nature conservation designations within 2km of the Site and local non-statutory nature conservation designations and protected and notable habitats and species within 2km of the Site.
- 4.5 The desk study was carried out using data from the Multi-Agency Geographic Information for the Countryside (MAGIC) website (Defra, 2024) and Sussex Biodiversity Records Centre (SxBRC) (SxBRC, 2024).

Extended UK Habitat Classification

- 4.6 A UK Habitat Classification survey was completed by Zebra Ecology on 22nd November 2023. This involved a surveyor walking the Site and wider Phase 1C area, mapping habitat types and recording any supplementary information within target notes. Plant species lists were also compiled. The survey was completed in accordance with the Preliminary Ecological Appraisal guidelines (CIEEM, 2017) and the UK Habitat Classification system (UK Habitat Ltd., 2023).
- 4.7 AECOM ecologists completed an ecological walkover survey on 26th February 2024 to confirm the results of the Zebra Ecology PEA remained valid, specifically for the Site and Proposed Development. This survey was 'extended' to determine the suitability of the Site to support protected and/or notable species.

Ground Level Tree Assessment

- 4.8 An ecologist who is registered to use the Natural England WML-CL18 (Bat Survey Level 2) class licence from Zebra Ecology completed a Ground Level Tree Assessment (GLTA) on 22nd November 2023. The survey followed best practice guidance from the Bat Conservation Trust (Collins, 2023). An inspection of trees was completed from the ground to identify features suitable to support roosting bats, as well as any evidence of bats present. Trees were assessed as either:
- 'None' (no potential roost features)
 - 'FAR' (Further Assessment Required)
 - 'PRF' (at least one potential roost feature present)
 - PRF-I (potential roost feature suitable for individual or small numbers of bats), or
 - PRF-M (potential roost feature suitable for multiple bats and/or a maternity colony).
- 4.9 AECOM ecologists, one of whom is registered to use the Natural England WML-CL18 (Bat Survey Level 2) class licence completed an ecological walkover survey on 26th February 2024, including a GLTA to confirm the results of the Zebra Ecology survey remained valid, specifically for the Site.

Badger Survey

- 4.10 A walkover survey to search for signs of badger was conducted by two AECOM ecologists on 26th February 2024, in accordance with the methodology described by Harris *et al.* (1989). This methodology remains appropriate under current best practice guidance (Badger Trust, 2023). This survey comprised an update to the previous survey completed by AECOM in 2019 (AECOM, 2019e).
- 4.11 The survey involved searching the Site and adjacent areas of suitable habitat, paying particular attention to areas of woodland/tree line edge, hedgerows and field margins where setts and other signs of badger activity are commonly found. The following signs of badgers were sought:
- Setts;
 - Bedding material;
 - Footprints;
 - Paths;
 - Latrines;
 - Hairs; and
 - Foraging signs including 'snuffle holes'.
- 4.12 The location of any setts and other signs of badger activity identified were recorded and subsequently mapped in order to establish the distribution of badger activity across the Site.
- 4.13 Any setts found were classified according to the standard survey methodology (Harris *et al.*, 1989) based in part on the number of entrance holes. Setts are classified as 'main', 'annexe', 'subsidiary' or 'outlying'.

Great Crested Newt Habitat Suitability Index (HSI)

- 4.14 The HSI is a method of quantifying the suitability of a waterbody to support great crested newt (Amphibian and Reptile Groups of the United Kingdom, (ARG) 2010). Three waterbodies located within 250m of the Site were assessed using the HSI criteria based on the standard method on 20th April 2022 by two ecologists, one of whom is registered to use the Natural England WML-CL08 (Great Crested Newt Survey Level 1) class licence. The pond locations are shown in Figure 3.
- 4.15 Calculation of the HSI score of a waterbody requires that the following ten key variables are recorded and assigned a numerical value:
- Location within Britain;
 - Waterbody area;
 - Drying (based on both local knowledge and field evidence);
 - Water quality;
 - Percentage perimeter shaded;
 - Presence or absence of waterfowl;
 - Presence or absence of fish;
 - Number of waterbodies situated within 1km;
 - Suitability of terrestrial habitat; and
 - Percentage of macrophyte cover.
- 4.16 The resulting HSI score is then used to categorise the suitability of the waterbody for great crested newt (see Table 1 below).

Table 1. Habitat Suitability Index score and interpretation (based on ARG, 2010)

HSI score	Waterbody suitability for great crested newt
>0.8	Excellent
0.7	Good

HSI score	Waterbody suitability for great crested newt
0.6	Average
0.5	Below average
<0.5	Poor

Great Crested Newt Environmental DNA (eDNA) Survey

- 4.17 Two ponds present within 250m of the Site (Pond 15 and Pond 26) were subject to great crested newt environmental DNA (eDNA) survey to confirm presence/absence of great crested newt. Pond 16 was not subject to eDNA survey as it was found to be dry.
- 4.18 eDNA refers to DNA that can be extracted from environmental samples such as water, soil or faeces without first isolating any target organism. All living organisms leave traces of their DNA within the environment, enabling the detection of great crested newt through collection and testing of water samples from waterbodies.
- 4.19 Collection of water samples for eDNA analysis was undertaken in accordance with the methodology recommended by Technical Advice Note WC1067 prepared by Biggs *et al.* (2014). In line with this guidance water samples were collected from several locations within each waterbody. From these combined water samples, a subsample from each waterbody was preserved using ethanol for subsequent laboratory analysis.
- 4.20 For eDNA samples taken within the optimum survey window (15th April to 30th June), negative results from eDNA surveys are accepted as evidence of likely absence of great crested newt from the waterbody in question, and further survey is not then required. As all samples were taken within the optimum survey window, a negative result can be relied upon for confirming absence of great crested newt. Positive results indicate that great crested newt DNA is present within a waterbody, and therefore further surveys are required to inform an estimation of population size.

Methodology for Determining Construction and Operational Effects

Characterising Potential Ecological Impacts

- 4.21 The potential ecological effects of the Proposed Development have been identified and characterised. This took into consideration the following criteria:
- **Positive or negative** – whether the effect will result in net loss or degradation of an important ecological feature or whether it would improve or enhance it;
 - **Magnitude** – the size and intensity of the effect measured in relevant terms, e.g. number of individuals lost or gained, area of habitat lost or created, the degree of change to existing conditions;
 - **Extent** – the spatial scope of the effect;
 - **Reversibility** – the extent to which effects were reversible either spontaneously or through active mitigation;
 - **Duration** – the length of time over which the effect occurred; and
 - **Timing and frequency** – consideration of the timing of events in relation to ecological change; some effects might be of greater significance if they took place at certain times of year.
- 4.22 Potential impacts were characterised initially in the absence of any mitigation, except where this was integral to the design of the Proposed Development. A sequential process was then applied to avoid, mitigate and compensate for any significant impacts. Any additional mitigation or compensation proposed was subsequently identified and its likely effectiveness assessed.

Significance Criteria

Methodology for Determining Significance of Effects

- 4.23 The significance of the predicted impacts on important ecological features arising from the potential impacts associated with the Proposed Development, including designed-in and additional mitigation

measures, was assessed. The significance of the effects was assessed as either being negative, positive or not significant.

- 4.24 The CIEEM EclA guidelines (updated in 2022) state that ‘A significant effect is an effect that is sufficiently important to require assessment and reporting so that the decision maker is adequately informed of the environmental consequences of permitting a project. A significant effect is a positive or negative ecological effect that should be given weight in judging whether to authorise a project: it can influence whether permission is given or refused and, if given, whether the effect is important enough to warrant conditions, restrictions or further requirements such as monitoring. A significant effect does not necessarily equate to an effect so severe that consent for the project should be refused planning permission. For example, many projects with significant negative ecological effects have been lawfully permitted following EIA procedures. In broad terms, significant effects encompass impacts on the structure and function of defined sites, habitats or ecosystems and the conservation status of habitats and species (including extent, abundance and distribution).’
- 4.25 The valuation of sites used established value systems (e.g. SSSIs are all of national importance) and reflected the geographical context of the valuation. The categories shown in Table 2 were applied to give geographic context.

Table 2. Examples of criteria used to evaluate important ecological features in a defined geographical context

Geographical level at which ecological feature is important	Example of criteria
International (Very high)	An internationally important site, e.g. Special Protection Area (SPA), Special Area of Conservation (SAC) or Ramsar; a regularly occurring population of an internationally important species (listed on Annex IV of the Habitats Directive)
National (High)	A nationally designated site, e.g. SSSI, or a site considered worthy of such designation; a large regularly occurring population of a nationally important species
Regional (Medium)	An ecological feature identified in the local BAP. A smaller area of local BAP habitat which are essential to maintain the viability of a larger whole; non-statutory designated sites; a regularly occurring, locally significant number of a nationally important species. An ecological feature identified as a habitat or species of Principal Importance within Section 41 of the NERC Act 2006.
Borough (Low)	An ecological feature that is scarce within the district or borough or which appreciably enriches the district or borough habitat resource.
Local (Very low)	A good example of a common or widespread ecological feature in the local area.
Negligible	No or very limited ecological value.

Adverse Effects

- 4.26 For habitat areas and species, an effect is considered to be significant if the favourable conservation status of an important ecological feature would be compromised by the project. Conservation status is defined by CIEEM (2022) as being:
- **Habitats** – ‘conservation status is determined by the sum of the influences acting on the habitat that may affect its extent, structure and functions as well as its distribution and its typical species within a given geographical area.’
 - **Species** – ‘conservation status is determined by the sum of influences acting on the species concerned that may affect its abundance and distribution within a given geographical area.’
- 4.27 The decision as to whether the favourable conservation status of an important ecological feature is likely to be compromised was made using professional judgement through consideration of multiple factors in relation to the predicted effects of the Proposed Development.
- 4.28 A similar procedure was adopted for designated sites that would be affected by the Proposed Development, except that the focus in this case was on effects on the integrity of each site, defined by ODPM Circular 06/2005 and Defra Circular 01/2005 Biodiversity and geological conservation (Office of the Deputy Prime Minister, 2005) - statutory obligations and their impact within the planning system as ‘the coherence of ecological structure and function, across a site’s whole area, that enable it to sustain the habitat, complex of habitats and/or levels of populations of species for which it was classified.’ This

assessment was made with reference to the features for which a site has been classified/notified and involved combining assessments of the effects on the conservation status of each of these features.

- 4.29 For non-statutory sites, such features may not have been formally defined and would need to be agreed with the designating authority (e.g. the local authority or county wildlife trust).

Beneficial Effects

- 4.30 As per CIEEM EcIA guidelines (updated in 2022), a positive effect was considered significant if it results in ‘a change that improves the quality of the environment e.g. by increasing species diversity, extending habitat or improving water quality. Positive impacts may also include halting or slowing an existing decline in the quality of the environment’.
- 4.31 Effects could be permanent or temporary, direct or indirect, and could be cumulative. These factors were brought together to assess the magnitude of the impact on particular important ecological features and, wherever possible, the magnitude of the impact was quantified.

Magnitude of Potential Impacts

- 4.32 Professional judgement was used to assign the impacts on the important ecological features to one of four classes of magnitude (see Table 3). This approach deviates from that advocated by the CIEEM EcIA guidelines, but it enables comparison between different impact topics.
- 4.33 **Major** or **moderate** effects are regarded as **significant**. **Minor** or **negligible** effects are considered not significant. Where significant effects occur, the scale of the effect was also considered on a geographical scale (i.e. international, national, regional, county, district or local). For example, effects on habitats within a SSSI (a feature of high/national importance) may not always be significant at a national scale, but may be significant at regional, county or district level.

Table 3. Definition of magnitude of impacts

Magnitude	Definition
High	A permanent or long-term effect on the extent or integrity of a site, habitat, species assemblage or community, population or group. If adverse, this is likely to threaten its sustainability; if beneficial, this is likely to substantially enhance its conservation status.
Medium	A permanent or long-term effect on the extent or integrity of a site, habitat, species assemblage or community, population or group. If adverse, this is unlikely to threaten its sustainability; if beneficial, this is likely to be sustainable but unlikely to enhance its conservation status.
Low	A permanent or long-term reversible effect on a site, habitat, species assemblage or community, population or group whose magnitude is detectable but will not threaten its integrity.
Very low	A short-term but reversible effect on the extent or size or integrity of a site, habitat, species assemblage or community, population or group that is within the normal range.

Significance of Potential Impacts

- 4.34 Impacts and effects could be permanent or temporary, direct or indirect, and could be cumulative.
- 4.35 For this assessment a matrix approach was used, in which ecological value/importance and magnitude of impact are cross referenced to identify a level of significance. Table 4 presents the categorisation of the significance of effects.

Table 4. Significance of impacts

Feature importance	Magnitude of impact			
	High	Medium	Low	Very Low
International and National (High)	Major	Major	Moderate	Minor
County (Medium)	Major	Moderate	Minor	Negligible
Borough (Low)	Moderate	Minor	Negligible	Negligible
Local (Very Low)	Negligible	Negligible	Negligible	Negligible

- 4.36 With reference to Table 3, in accordance with CIEEM (2022) EcIA guidelines, a clear distinction between evidence based and value-based judgements was made so that decision-makers and other stakeholders are aware of the level of subjective evaluation that has been used.

Terminology

- 4.37 The residual effects of the Proposed Development were translated to a significance level using a scale of negligible, minor, moderate and major as outlined in Table 5. In addition, Table 5 converts these conclusions an equivalent conclusion based on the CIEEM 2022 EcIA guidelines.

Table 5. CIEEM assessment terms for significance level

Effect significance terminology		Equivalent CIEEM assessment
Significant (Beneficial)	Major Beneficial	Beneficial effect on structure/function or conservation status at regional, national or international level.
	Moderate Beneficial	Beneficial effect on structure/function or conservation status at regional level.
Non-significant	Minor Beneficial	Beneficial effect on structure/function or conservation status at Site or local level.
Non-significant	Negligible	No effect on structure/function or conservation status.
Non-significant	Minor Adverse	Adverse effect on structure or conservation status at Site - local level
Significant (Adverse)	Moderate Adverse	Adverse effect on structure/function or conservation status at regional level.
	Major Adverse	Adverse effect on structure/function or conservation status at regional, national or international level

Cumulative Assessment

- 4.38 Table 6 outlines schemes that have been considered as being relevant in considering the potential for ecological cumulative effects, as they lie within 1km of the Site and have the potential to affect the Site.

Table 6. Developments within 1km of the Site

Application number	Scheme	Address	Description	Status
DM/18/5114	Brookleigh	Burgess Hill Northern Arc, Land North And North West Of Burgess Hill, Between Bedelands Nature Reserve In The East And, Goddard's Green Waste Water Treatment Works In The West	Comprehensive, phased, mixed-use development comprising approximately 3,040 dwellings, three local centres, a Centre for Community Sport, healthcare facilities, employment development comprising a 4ha dedicated business park, two primary schools and a secondary school, public open space and associated infrastructure.	Under construction
DM/19/3845	Freeks Farm	Land To The West Of Freeks Lane Freeks Lane Burgess Hill West Sussex	Approval of reserved Matters pursuant to Condition 1 of DM/18/0509 for the erection of 460 dwellings, including public open space, play areas, associated infrastructure including roads, surface water attenuation and associated demolition.	Under construction
DM/19/3313	Eastern Bridge and Link Road	Land East Of Isaacs Lane And Land West Of Freeks Lane Burgess Hill West Sussex	Single carriageway link road from Isaacs Lane to Freeks Farm with separate 4.5m 'Green Superhighway' and cycle/footway provision. All-modes bridge across the River Adur, together with earthworks, surface water and foul drainage infrastructure, utilities corridors, street lighting, landscaping and fencing.	Under construction
DM/19/1895 (Outline) DM/21/2627 (Reserved Matters)	Fairbridge Way development	Land At And Adjacent To The Former Sewage Treatment Works Fairbridge Way Burgess Hill West Sussex RH15 8BF	Construction of 307 residential units, car and cycle parking, internal roads, a LEMP and associated boundary treatments	Under construction
DM/21/2870	Brookleigh Phase 1B	Burgess Hill Northern Arc, Land North And North West Of Burgess Hill, Between	Reserved Matters Application pursuant to outline application DM/18/5114. Erection of 247 dwellings, alteration to Lowlands Farm and its	Under construction

Application number	Scheme	Address	Description	Status
		Bedelands Nature Reserve In The East And, Goddard's Green Waste Water Treatment Works In The West	conversion to form two dwellings, car parking, open space and infrastructure including an extension to Bedelands Nature Reserve	
DM/22/0239	Church & Community Facility	Land Off Maple Drive Burgess Hill West Sussex	The erection of a new Church and Community Facility including all associated external works forming car, motor cycle and cycle parking and associated hard and soft landscaping.	Approved
DM/22/2553	Brookleigh Secondary School	Burgess Hill Northern Arc, Land North And North West Of Burgess Hill, Between Bedelands Nature Reserve In The East And, Goddard's Green Waste Water Treatment Works In The West	Application for reserved matters, pursuant to outline application DM/21/3279 for the erection of a Secondary School, including specialist support centre, car parking (including Electric Vehicle charging), cycle parking, drop off area, access, multi-use games area, all weather pitch, substation, bin storage, means of enclosure and lighting, with associated landscaping and infrastructure	Approved

Desk Study and Field Survey Limitations

- 4.39 The aim of a desk study is to help characterise the baseline context of a proposed development and provide valuable background information that would not be captured by a single site survey alone. Information obtained during the course of a desk study is dependent upon people and organisations having made and submitted records for the area of interest. As such, a lack of records for a particular habitats or species does not necessarily mean that the habitats or species do not occur in the study area. Likewise, the presence of records for particular habitats and species does not automatically mean that these still occur within the area of interest or are relevant in the context of the Proposed Development.
- 4.40 Where habitat boundaries coincide with physical boundaries recorded on OS maps the resolution is as determined by the scale of mapping. Elsewhere, habitat mapping is as estimated in the field and/or recorded by hand-held GPS. Where areas of habitat are given, they are approximate and should be verified by measurement on site where required for design or construction. While indicative locations of trees are recorded this does not replace requirements for detailed specialist arboricultural survey to British Standard 5837:2012 *Trees in Relation to Design, Demolition and Construction*.
- 4.41 Populations of annual plant species may fluctuate markedly between years dependent on the growing conditions present in any given season. The habitat surveys were completed in November and February, outside of the optimum growing period. The survey recorded all habitat types within the Site to an appropriate level of botanical detail to inform this report and comprised an updated survey with existing habitat information available. Therefore, this is not considered to be a significant constraint.
- 4.42 It should be noted that ecosystems are dynamic and constantly changing, and therefore species may move, or new species may be recorded in subsequent years. For this reason, and in accordance with current guidance, the existing survey data has a 'shelf-life' of, and should only be relied on for a period of, two years from the date of survey, reduced to 12-18 months for bat data (CIEEM, 2019). However, standing advice from Natural England states that for hazel dormouse "*Surveys up to 3 years old are acceptable if the habitats have not significantly changed*"¹.

Quality Assurance

- 4.43 The AECOM ecologists who conducted the surveys and authored this report are members, at the appropriate level, of the CIEEM and follow their code of professional conduct when undertaking ecological work.
- 4.44 The bat roost suitability assessment was completed by a surveyor who is registered to use the Natural England WML CL-18 (Bat Survey Level 2) class licence.

¹ <https://www.gov.uk/guidance/hazel-dormice-advice-for-making-planning-decisions>

- 4.45 Great crested newt presence/absence surveys were completed by surveyors who are registered to use the Natural England WML CL-08 (Great Crested Newt Survey Level 1) class licence, or an accredited agent.

5. Baseline Conditions

Desk Study

Statutory Designations

- 5.1 Table 7 details the statutory nature conservation designations of sites identified by the desk study, based on the method described in Section 4 of this report. No internationally designated sites were identified within 10km of the Site.
- 5.2 There is only one site, Bedelands Farm Local Nature Reserve (LNR), with National statutory designations for nature conservation within 2km of the Site.
- 5.3 The Site is also within a Site of Special Scientific Interest (SSSI) Impact Zone but the Proposed Development is not of a development type of concern. Therefore, SSSI Impact Zones are not discussed further. The nearest SSSI to the site is Ditchling Common SSSI which is located approximately 2.5km to the south-east.

Table 7. Statutory designated sites within 2km of the Site

Designation	Reason(s) for Designation	Size (hectares)	Relationship to the Site
Bedelands Farm LNR	The Nature Reserve consists of ancient meadows, woodland, hedgerows and ponds.	35.1	0.7 km east

Non-statutory Designations

- 5.4 Table 8 details the non-statutory nature conservation designations identified by the desk study using the method described in Section 4 of this report. There are five sites with non-statutory designations within 2km of the Site. All of the sites are designated as Local Wildlife Sites (LWS).

Table 8. Non-statutory designations within 2km of the Site

Designation	Reason(s) for Designation	Size (hectares)	Relationship to the Site
Great Wood & Copyhold Hanger LWS	This site consists of an ancient, wooded gill valley with several old, abandoned water meadows. The ground flora including species like bluebell (<i>Hyacinthoides non-scripta</i>) and wood anemone (<i>Anemone nemorosa</i>) is generally species-rich and well-developed especially near the streams. The site also has a particularly good fern and bryophyte communities.	50.9	0.7 km north-west
Bedelands LWS	The site consists of an array of habitat types such as ancient woodland, open water which progresses through reedbed to species-rich willow (<i>Salix</i> sp.) and alder (<i>Alnus glutinosa</i>) carr, species rich meadows and pastures with species rich hedgerows. This juxtaposition of habitat types makes the site important for wildlife and much of it is Local Nature Reserve (LNR).	44.4	0.8 km east
Burgess Hill Railway Lands LWS	This site consists of a series of meadows next to a railway where common herbs are well represented with species such as yarrow (<i>Achillea millefolium</i>), bird's-foot trefoil (<i>Lotus corniculatus</i>) and sorrel (<i>Rumex acetosa</i>). Other habitats add to the interest of the site including scrub, old hedges and woodland which provide cover and feeding sites for small birds and mammals.	6.7	1.3 km south-east
Pond Lye LWS	This site includes a pond with extensive areas of sedge swamp around the margins with species such as greater pond-sedge (<i>Carex riparia</i>) and bladder-sedge (<i>Carex vesicaria</i>). There is also a species-rich neutral grassland and a meadow with locally uncommon plants. The pond is of great ornithological important for breeding birds including great crested grebe (<i>Podiceps cristatus</i>), water rail (<i>Rallus aquaticus</i>) and mute swan (<i>Cygnus olor</i>).	17.9	1.9 km north-west
Keymer Tile Works LWS	LWS reasons: This site is a working clay pit that supports a matrix of successional habitats from temporary pools and are clay to unimproved grassland to dense scrub, deciduous woodland and willow carr. It is a very varied site of particular importance for breeding amphibians such as common toad (<i>Bufo bufo</i>) and great crested newt.	20.6	2.1 km south-west

Ancient Woodland

5.5 The desk study found 11 areas of ancient woodland within 1km of the Site:

- Sussex Way Shaw 2: ancient semi-natural woodland 0.3km south-west (0.4 ha);
- Hook Place Shaw: ancient semi-natural woodland 0.4km north-west (0.4 ha);
- Bridge Hall Farm Wood: ancient semi-natural woodland 0.4km west (1.9ha);
- Bridge Farm Shaw 2: ancient semi-natural woodland 0.5km west (0.5ha);
- Big Wood: ancient semi-natural woodland 0.6km north-east (11.3 ha);
- Six Acre Wood: ancient semi-natural woodland 0.6km north-west (2.9ha);
- Watford Wood: ancient semi-natural woodland 0.7km east (1.9 ha);
- Ten Acre Gill: ancient semi-natural woodland 0.7km north-east (1.4 ha);
- Bridge Farm Shaw: ancient semi-natural woodland and ancient replanted woodland 0.7km west (1.1 ha semi-natural, 0.4 ha replanted);
- Coopers Shaw: ancient semi-natural woodland 0.8km east (1.6 ha); and
- Long Wood: ancient replanted woodland 1km east (1.4 ha).

Habitats

Baseline Habitat Types

5.6 The habitats recorded and their distributions within the Site are summarised in Table 9 below and shown in Figure 1.

Table 9. Habitats present within or Adjacent to the Site.

Habitat	Description
g4 – Modified grassland g4 12 – Scattered bracken on modified grassland	Within Site. Grassland on sloping ground across the Site. An area of bracken (<i>Pteridium aquilinum</i>) on modified grassland was present in an existing hedgerow gap along the western edge of the Site.
h3a - Blackthorn scrub	Within Site. A small area of blackthorn (<i>Prunus spinosa</i>) scrub is present in the south of the Site, along the fence line separating the Site from Fairbridge Way.
h3d – Bramble scrub	Within Site. A small area of bramble (<i>Rubus fruticosus</i> agg.) scrub is present in the south of the Site, along the fence line separating the Site from Fairbridge Way.
h2a 11 – Native hedge with trees	Adjacent to West of Site Hedge line with trees running north to south on the west side of the grassland area, in close proximity to the Site boundary in the south and north. This will be retained within the Proposed Development, with access into the Site utilising an existing access gate.
h2a 11 – Native hedge with trees	Adjacent to North of Site Hedge line with trees running east to west on the north side of the grassland area, in close proximity to the site boundary along its length. This will be retained within the Proposed Development.

5.7 Habitats recorded within and adjacent to the Site are described in detail below.

g4 – Modified Grassland and g4 12 – Modified Grassland with Scattered Bracken: Within the Site

5.8 The Site predominantly comprised g4 Modified Grassland (Plate 1). Species recorded included dominant perennial rye grass (*Lolium perenne*), with frequent creeping buttercup (*Ranunculus repens*), occasional red fescue (*Festuca rubra*), broad-leaved dock (*Rumex obtusifolius*), and greater plantain (*Plantago major*), and rarely recorded soft rush (*Juncus effusus*). Rarely recorded individual instances of immature bramble (*Rubus fruticosus*) were present in the grassland.

- 5.9 This habitat was previously grazed, including during AECOM surveys conducted in 2018 and 2019; however, grazing has since ceased, replaced with a mowing regime.
- 5.10 An area of bracken was present within modified grassland, in a hedgerow gap approximately 30m wide at the western extent of the Site.



Plate 1. g4 Modified Grassland within the Site

h3a – Blackthorn Scrub: Within the Site

- 5.11 A small area of blackthorn scrub was present in the south of the Site, along the fence line separating the Site from Fairbridge Way (right in Plate 2).



Plate 2. Scrub along the southern Site boundary, comprising h3a blackthorn scrub in the right side of the image, and h3d bramble scrub to the left.

h3d – Bramble Scrub: Within the Site

- 5.12 A small area of immature bramble scrub was present in the south of the Site, along the fence line separating the Site from Fairbridge Way (left in Plate 2).

h2a5 11 Hedge with Trees – Native Species-Rich: Outside the Site

- 5.13 Two hedgerows were present outside of, but adjacent to the Site. Both comprise native species-rich hedgerows with trees.
- 5.14 A hedgerow with mature trees running north to south was present to the west side of the Site, with trees comprising common oak (*Quercus robur*). Other species present within the hedgerow included field maple (*Acer campestre*), hazel (*Corylus avellana*), hawthorn (*Crataegus monogyna*), blackthorn, elder (*Sambucus nigra*), dog rose (*Rosa canina*), holly (*Ilex aquifolium*) and sycamore (*Acer pseudoplatanus*).



Plate 3. Hedgerow to the west of the Site

- 5.15 A hedgerow with mature trees running east to west was present in the centre of the Site. Species present included common oak, blackthorn, hawthorn, field maple, common ash (*Fraxinus excelsior*), spindle tree (*Sambucus nigra*), elder, hazel, Portuguese laurel (*Prunus lusitanica*), dog rose and bramble.



Plate 4. Hedgerow in the centre of the Site

Priority Habitats

- 5.16 Species-rich hedges with trees are listed as habitats of Principal Importance under Section 41 of the NERC Act 2006 (as amended).

Protected and Notable Species

Bats

Desk Study

- 5.17 The desk study returned records of five bat species within 2km of the Site within the last 10 years; Daubenton's bat (*Myotis daubentonii*), Natterer's bat (*Myotis nattereri*), common pipistrelle (*Pipistrellus pipistrellus*), soprano pipistrelle (*Pipistrellus pygmaeus*) and brown long-eared bat (*Plecotus auritus*). The nearest records are common pipistrelle and soprano pipistrelle 0.5km north-east of the Site. Full desk study results are in Appendix A.
- 5.18 During walked transect surveys completed within the Site and adjacent habitat in 2019 (AECOM, 2019a), common pipistrelle and soprano pipistrelle were recorded within the Site.
- 5.19 The closest static automated detectors to the Site deployed by AECOM in 2019, within connected habitat comprised one detector in a hedgerow approximately 240m north of the Site and one at the edge of woodland approximately 540m to the north-east. The devices recorded common pipistrelle, soprano pipistrelle, noctule (*Nyctalus noctula*), Leisler's bat (*Nyctalus leisleri*), serotine (*Eptesicus serotinus*), brown long-eared bat, *Myotis* species, barbastelle (*Barbastella barbastellus*) and Nathusius' pipistrelle (*Pipistrellus nathusii*) (AECOM, 2019a).

Bat Roost Suitability Assessment – Trees

- 5.20 Zebra Ecology (Zebra Ecology, 2023) conducted surveys on 22nd November 2023 including a GLTA which included trees adjacent to the Site (with canopy spread into the Site). They concluded that four trees had potential roost features. One tree (T4) was classified as PRF-M (i.e., suitable to support multiple bats). Two trees (T3 and T7) were assessed as PRF-I (i.e. suitable to support individual bats) with 'Further Assessment Required'. The fourth tree (T13) was assessed as 'Further Assessment Required'. Further details are provided in Appendix B, with the trees shown in Figure 2.
- 5.21 No trees will be removed to accommodate the Proposed Development, and no works to trees are anticipated. Therefore, no further assessment was completed; however, a survey completed by AECOM in February 2024 confirmed the findings of the Zebra Ecology PEA.

Availability of Commuting and Foraging Habitat

- 5.22 The Site itself has low suitability to support foraging and commuting bats (making reference to Collins, 2023); however, the immediately surrounding area including hedgerows, tree lines and woodland is of overall moderate suitability. The Site itself supports modified grassland and a short section of hedgerow only, with the wider area supporting species-rich hedgerows with trees, woodland and the River Adur is located approximately 20m south of the Site on the opposite side of Fairbridge Way, and approximately 50m east of the Site. There is currently no artificial lighting of the Site with the exception of potential light spill from highways lighting on Fairbridge Way, to the south of the Site.

Great Crested Newt

Desk Study

- 5.23 The desk study returned records of great crested newts within 2km of the Site within the last 10 years. The nearest record was 0.48km north-west of the Site in 2022. A search of the MAGIC website returned a single great crested newt European Protected Species Mitigation Licence (EPSML) within 1km of the Site. This was 2015-13175-EPS-MIT associated with the Fairbridge Way development, for which great crested newts have been translocated to a location over 500m from the Site, with licenced works complete.
- 5.24 Surveys conducted during 2019 (AECOM, 2019b) did not find any ponds containing great crested newt within 250m of the Site.

Field Survey

- 5.25 There are no water bodies within the Site. The River Adur is present to the east of the Site and Isaac's Lane to the west, both of which present barriers to the movement of great crested newt.

- 5.26 Two waterbodies (Pond 15 and Pond 26) within 250m of the Site were subject to HSI and eDNA survey in April 2022. A negative result for great crested newt was returned for both waterbodies (see Appendix C and Figure 3). Due to negative results returned for these waterbodies in both 2019 and 2022, along with the partial barrier of Isaac's Lane separating the Site from these waterbodies, these results are considered to still be valid and great crested newt are considered absent from the Site. One additional pond (Pond 16) was found to be dry.

Reptiles

Desk Study

- 5.27 The desk study returned records of two species of reptile slow-worm (*Anguis fragilis*) and grass snake (*Natrix helvetica*) within 2km of the Site within the last 10 years. The nearest records are slow-worm 0.78km south-east of the Site and grass snake 1.64km west-south-west of the Site.
- 5.28 Surveys conducted during April and May 2019 (AECOM, 2019c) confirmed the presence of both species with a low population of grass snake and a low population of slow worm recorded within the Site.

Field Survey

- 5.29 The Site provides suitable habitat for reptile species with bramble, scrub, and grassland present.

Badger

Desk Study

- 5.30 Surveys conducted during 2019 (AECOM, 2019d) did not record any setts within the Site or a 30m buffer. A single latrine was recorded approximately 25m east of the Site at the northern boundary. The desk study returned from SxBRC did not include badger records.

Field Survey

- 5.31 No evidence of badger (*Meles meles*) activity was recorded during the PEA conducted by Zebra Ecology in November 2023 (Zebra Ecology, 2023) or the badger walkover survey completed by AECOM in February 2024 within the Site or within a 30m buffer, however habitats within the Site are suitable for badger foraging and badgers are known to be present in the wider area (AECOM, 2019d).

Hazel Dormouse

Desk Study

- 5.32 The desk study returned records of hazel dormouse within 2km of the Site within the last 10 years. The nearest record was 0.33km east of the Site.
- 5.33 Hazel dormouse surveys undertaken by AECOM in 2019 recorded hazel dormice in habitat directly connected to hedgerows adjacent to the Site (AECOM, 2019e). Continued presence of hazel dormouse was confirmed by Greengage in 2021 for hedgerows and woodland connected to hedgerows adjacent to the Site (Bellway, 2021; Greengage, 2022).

Field Survey

- 5.34 The updated walkover survey completed by AECOM in February 2024 confirmed that habitats directly adjacent to the Site remain suitable for use by hazel dormouse. Scrub present within the Site is limited to isolated areas of blackthorn and bramble which are immature with large gaps (approximately 10m) between them and suitable habitat, and bracken within existing hedgerow gaps. Updated hazel dormouse surveys have not been completed, as the hedgerow within the centre of the Site will be retained. However, hazel dormouse is assumed to be present in the hedgerow in the centre of the Site.

Nesting Birds

Desk Study

- 5.35 The desk study returned records for 35 bird species within 2km of the Site. This included records for kingfisher (*Alcedo atthis*), hobby (*Falco subbuteo*), white tailed eagle (*Haliaeetus albicilla*), red kite (*Milvus milvus*), and barn owl (*Tyto alba*), which are protected under Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). No records were from within the Site.
- 5.36 In addition to the protected species listed above, the desk study returned records for 15 species listed on the Birds of Conservation Concern (BOCC) 5 Red list, and 10 species listed on the Amber list. Full desk study results can be found in Appendix A.

- 5.37 Breeding bird surveys conducted by AECOM in 2019 (AECOM, 2019f) recorded species such as robin (*Erithacus rubecula*), blue tit (*Cyanistes caeruleus*), great tit (*Parus major*) and wren (*Troglodytes troglodytes*) utilising the hedgerow adjacent to the west of the Site. In addition, song thrush (*Turdus philomelos*) and dunnoek (*Prunella modularis*) were recorded in woodland approximately 30m east of the Site. Wren, dunnoek and song thrush are on the BOCC 5 Amber list (Stanbury et al., 2021). The remaining species recorded are on the Green list. A kingfisher (*Alcedo atthis*) nest was recorded in the wider Brookleigh site, approximately 1.45km north-west of the Site. Barn owl surveys completed by AECOM in 2019 (AECOM, 2019f) concluded barn owl were likely absent from the Site.

Field Survey

- 5.38 Grassland within the Site is suitable for ground nesting birds. Hedgerows adjacent to the Site are suitable for nesting birds; however, no hedgerows are scheduled for removal. The updated Phase 1 habitat survey completed by Zebra Ecology (Zebra Ecology, 2023) and walkover survey completed by AECOM in February 2024 found that habitats within the Site had not changed significantly since previous surveys.
- 5.39 Updated surveys for breeding birds were not considered to be required due to the retention of the majority of suitable habitat present and the small-scale nature of permanent habitat loss to facilitate the Proposed Development.

Other Notable and Protected Species

Desk Study

- 5.40 The desk study returned records for hedgehog (*Erinaceus europaeus*), 0.42km south-west of the Site in 2017 and most recently 0.51km south-south-west of the Site in 2023. While no specific survey for hedgehog is required, habitats adjacent to the Site are suitable to support this species and hedgehogs are considered likely to be present.
- 5.41 The desk study returned records for 17 invasive non-native species, of which 10 are species of plant. The closest record was for three-cornered garlic (*Allium triquetrum*), 0.43km south-east of the Site in 2023. No records were returned for within the Site.

Field Survey

- 5.42 No invasive non-native species were recorded within the Site.
- 5.43 Habitats within the Site are suitable to support terrestrial invertebrates. However, the habitats present are unlikely to support rare or notable species assemblages.
- 5.44 No other protected and/or notable species are considered to be of relevance to the Proposed Development.

6. Evaluation

6.1 In reference to Table 2, on the basis of the desk study and field surveys undertaken to date the important ecological features considered within this assessment are evaluated in Table 10 below.

Table 10. Evaluation of ecological features

Feature	Importance category	Further consideration required?	Rational for inclusion/non-inclusion in further assessment
Bedelands Farm LNR	County (Medium)	Yes	The nearest national statutory designated site, Bedelands Farm LNR, is located approximately 0.7km east of the Site. Considering the scale of potential impacts of the Proposed Development, in the absence of mitigation there is a small potential for impacts on national statutory nature conservation designations.
Bedelands LWS	County (Medium)	Yes	Bedelands LWS is the closest non-statutory designated site, approximately 0.8km east from the Site. Considering the proximity of this non-statutory designated site, in the absence of mitigation there is a small potential for impacts on national statutory nature conservation designations. As all other non-statutory designated sites are beyond 1km from the Site, no impacts on any other non-statutory nature conservation designations are anticipated.
Ancient woodland	County (Medium)	Yes	11 areas of ancient woodland are present within 1km of the Site. The closest of these, Sussex Way Shaw 2, is present 0.3km west of the Site. In the absence of mitigation there is potential for impacts on ancient woodland during construction.
Habitats within/adjacent to the Site	Local (Very low)	Yes	Loss of common and widespread habitat types (e.g. modified grassland and immature blackthorn scrub) is anticipated. Further consideration is required.
Species – bats	County (Medium)	Yes	Trees suitable to support roosting bats are present within 10m of the Site. These will be retained during the works. Grassland which could be used by foraging bats will be replaced by the Proposed Development. Illumination of adjacent habitats used for foraging and commuting during construction could affect local bat species. Further consideration is required.
Species – great crested newt	N/A	No	Considered to be absent from the Site.
Species – badger	Borough (Low)	Yes	No evidence of badger activity was recorded in the Site or a 30m buffer, however habitats adjacent to the Site are suitable for badger. Further consideration is required.
Species – reptiles	Borough (Low)	Yes	Small populations of reptiles are present in grassland that will be lost during construction. Further consideration is required.
Species – hazel dormouse	County (Medium)	Yes	Considered to be present within the hedgerow in the centre of the Site. Further consideration required.
Species – nesting birds	Local (Very low)	Yes	Scrub and grassland provide suitable habitat for nesting birds. Further consideration is required.
Species – terrestrial invertebrates	N/A	No	Notable populations or species considered unlikely to be present.
Species – invasive non-native species	N/A	No	Considered to be absent from the Site.
Species – hedgehog	N/A	Yes	Habitats present are suitable to support this species.

7. Embedded Mitigation

Designated sites

- 7.1 The Site is 0.7km from Bedelands Farm LNR, and 0.8km from Bedelands LWS. Considering the proximity of this statutory and non-statutory designated site and given the scale and nature of the Proposed Development (comprising construction of an underground pumping station and associated pipework), the scope for impacts is considered to be low. Any potential for impacts can be mitigated through the implementation of good practice construction methods, which will be described in a CEMP or similar document. The CEMP will be implemented during construction and will specify good practice measures to control noise and dust generated as a result of site clearance and construction works. The CEMP will include best practice measures including (but not necessarily limited to):
- Enclosure and sheeting of material stockpiles;
 - Sheltered location for material storage;
 - The use of wheel washes to reduce the trafficking of soil onto adjacent roads with prompt clearance as a remedial action;
 - The use of a bowser on-Site during extended periods of dry weather to damp down dust;
 - Sheeting of vehicles carrying spoil;
 - Dust suppression measures for any on-Site crushers; and
 - Bunding of fuel stores and material stockpiles to prevent pollution.
- 7.2 In addition, all reagents and chemicals will be clearly signed and appropriately stored, contained and banded.

Habitats

- 7.3 The updated Phase 1 habitat survey completed by Zebra Ecology in November 2023, and updated walkover survey completed by AECOM in February 2024 identified the presence of habitats of low ecological value within the Site, comprising species-poor semi-improved grassland (g4 modified grassland) and approximately 4m² of immature blackthorn scrub. Hedgerows are present adjacent to the Site that are of a higher ecological value although these will be retained and protected during the Proposed Development. Hedgerows will predominantly be protected as part of the wider tree protection measures for the Proposed Development, with fencing in place as outlined in the Arboricultural Impact Assessment (AECOM, 2024).
- 7.4 On the basis of habitats present during the November 2023 and February 2024 updated survey, the Proposed Development will result in the permanent loss of:
- Approximately 96m² of g4 modified grassland for the Pumping Station Apron;
 - Approximately 1,253m² of g4 modified grassland for an access road; and
 - Approximately 4m² of h3a blackthorn scrub;
- 7.5 The Proposed Development will also result in the temporary loss of:
- Approximately 1,257m² of g4 modified grassland for construction of underground tanks; and
 - Approximately 30m² of bracken for an access point from Isaac's Lane.
- 7.6 The 96m² of g4 modified grassland permanently lost within the Site will be replaced with concrete.
- 7.7 The 1253m² of g4 modified grassland lost for the access track will be replaced temporarily with Type 1 Granular Sub-Base (u1b developed land – sealed surface) until construction of the wider Phase 1C.
- 7.8 The 1,257m² of g4 modified grassland temporarily lost for the creation of underground tanks will be unavailable during construction but replaced with grassland upon completion.
- 7.9 The Type 1 Granular Sub-Base will be temporary in nature to provide a temporary access road to facilitate construction and operation of the Proposed Development; however, it will be replaced with a permanent access road during construction of the housing proposed for Phase 1C. Therefore, this is considered to be

- permanently lost and will be replaced with 'suburban mosaic' as originally anticipated within the Biodiversity Net Gain assessment for Plot 1.8, within which the Proposed Development is predominantly situated.
- 7.10 Grassland that is temporarily lost to facilitate the construction of underground infrastructure including tanks and pipework will be replaced with grassland of a similar species composition upon completion of the works.
- 7.11 The Biodiversity Net Gain assessment for the wider Brookleigh project was completed on a 'plot-by-plot' basis for the Outline Planning Application, reported within the Biodiversity Scheme. As the Proposed Development spans three of these plots, the Biodiversity Net Gain assessment for these has been updated, taking the detailed design of the Proposed Development into account, outlined below and detailed within Appendix D.
- 7.12 The Biodiversity Net Gain assessment for Plot P1.8 remains unchanged with the inclusion of the Proposed Development. This plot is still anticipated to be 'suburban mosaic' post-development. Therefore, Plot 1.8 is still anticipated to achieve an increase of 3.48 area-based biodiversity units, and 0.97 hedgerow biodiversity units as outlined in the Biodiversity Scheme (AECOM, 2020).
- 7.13 While there is a small reduction in the area-based and hedgerow units anticipated to be achieved within OS1.7 compared to the Biodiversity Scheme (a reduction of 0.06 area-based units and 0.05 hedgerow units, see Appendix D), the reduction in units is minimal. When incorporated into the wider Brookleigh development Biodiversity Net Gain calculations, this reduction in hedgerow units reduces the anticipated Biodiversity Net Gain for linear features from 23.48% to 23.47%, a reduction of 0.01%, and for area-based habitats from 32% to 31.99%. However, the overall Brookleigh development would still achieve well above a 10% net gain.
- 7.14 It is recommended that potential impacts on retained habitats within and adjacent to the Site are mitigated for through the implementation of good practice construction methods (see Paragraph 7.1 for further details).

Bats

Roosting Bats

- 7.15 All UK native bat species and their roosts (whether bats are present or not) are protected under the Conservation of Habitats and Species Regulations 2017 (as amended) and the Wildlife and Countryside Act 1981 (as amended). Taken together, under this legislation it is an offence to damage or destroy a bat roost, or deliberately to capture, kill, injure or disturb a bat.
- 7.16 A bat roost is defined as “*any structure or place, which is used for shelter or protection*” or a “*breeding site or resting place*”. Because bats commonly use the same roosts at particular times of the year after periods of absence, the roost is protected whether or not bats are resident.
- 7.17 Given the above legislation, the potential presence of bats at a site represents a material consideration in the planning process. Even where planning permission is not required there is still a legal responsibility placed on the developer to obtain a Natural England licence to cover any works that have the potential to result in an offence under the above legislation.
- 7.18 Seven UK bat species are listed as species of principal importance within Section 41 of the Natural Environment and Rural Communities (NERC) Act (2006) as amended: namely barbastelle bat, Bechstein's bat (*Myotis bechsteinii*), noctule bat, soprano pipistrelle, brown long-eared bat, greater horseshoe bat (*Rhinolophus ferrumequinum*) and lesser horseshoe bat (*Rhinolophus hipposideros*).

Trees

- 7.19 All existing trees with suitability to support roosting bats will be protected and retained. Therefore, no further surveys were undertaken to determine the presence of bats and measures have been embedded to avoid disturbance to bats, on the basis that roosting bats could be present.
- 7.20 A toolbox talk will be prepared and delivered to contractors prior to works commencing. This will highlight areas of suitable bat roosting habitat, legislation with regards to bats and include contact details for ecologists. The toolbox talk will make contractors aware that roosting bats could be present in the area,

that certain trees must be retained, and certain works avoided in proximity to these trees to reduce the risk of disturbance.

- 7.21 As outlined in Paragraph 7.23 below, lighting impacts on roosting bats will be avoided through embedded measures detailed in the Biodiversity Scheme (AECOM, 2020).

Bat Flight Lines and Foraging Habitats

- 7.22 Bats were recorded commuting over the Site or foraging within the Site during bat activity surveys in 2019 (AECOM, 2019a). Given to the availability of habitat in the wider area, including woodland to the east and hedgerows to the north and west which will be predominantly retained within the wider Brookleigh development, the loss of modified grassland and approximately 4m² of blackthorn scrub within the Site is not considered likely to have any impact on foraging and commuting bats in the wider area. The hedgerow within the Site will be retained, with a trenchless technique used to install the pipeline beneath the hedge.

Lighting Impacts on Bats

- 7.23 The Biodiversity Scheme for the wider Brookleigh development (AECOM, 2020) will be adhered to during construction of the Proposed Development. This includes the following measures to avoid lighting impacts on bats during construction:

- Works at night to only be permitted under exceptional circumstances;
- If security lighting is required, it will use motion-sensor lights on a short (1 minute) timer with hoods/cowls to avoid upwards light spill, and using LED technology as the wavelengths of LEDs can be controlled to avoid those most disturbing to bats; and
- Light spill onto hedgerows, trees, the river corridor and retained woodlands will be avoided.

- 7.24 The Proposed Development does not include any operational lighting.

Badger

- 7.25 Badgers and their setts are protected under the Protection of Badgers Act 1992 and the Wildlife and Countryside Act 1981 (as amended). Under the above legislation it is an offence to:

- Wilfully kill, injure or ill-treat a badger;
- Cruelly ill-treat a badger, or
- Damage, destroy or obstruct access to a sett or any part thereof.

- 7.26 A badger sett is defined in the legislation as any structure or place which displays signs indicating current use by a badger.

- 7.27 As badgers are present in the wider area, a pre-construction badger check will be undertaken within 6 months prior to works commencing to ensure no setts or sett entrances are present within 30m of the Site.

- 7.28 The Biodiversity Scheme (AECOM, 2020) and Ecological Mitigation Strategy (AECOM, 2020b) for the wider Brookleigh development will be adhered to, and include the following with regards to badgers:

- Lighting should not be directed at badger setts, hedgerows, trees or woodlands;
- Works at night will only be permitted in exceptional circumstances;
- No heavy machinery within 10m of badger setts, or excavation works within 20m of setts (without a licence);
- Chemicals to be stored securely and away from badger setts and paths;
- No fire or chemicals to be used within 20m of a sett entrance;
- Trenches to be covered at the end of each working day or include a means of escape if an animal were to fall in; and
- Activities such as noise and vibration that may agitate badgers to be limited to locations away from setts.

Reptiles

- 7.29 All UK native reptile species are protected against intentional killing or injuring under Schedule 5 of the Wildlife and Countryside Act 1981 (as amended). It should be noted that, where it is predictable that reptiles are likely to be killed or injured by an activity (such as site clearance) this could legally constitute “intentional killing or injuring”, even if that was not the intention of the activity. There are four ‘widespread species’ of reptile in the UK: common lizard (*Zootoca vivipara*), slow worm, grass snake and adder (*Vipera berus*). All four widespread reptile species are listed as species of principal importance under Section 41 of the NERC Act 2006 (as amended), making them a material consideration during the planning process.
- 7.30 The two other native reptile species to the UK, sand lizard (*Lacerta agilis*) and smooth snake (*Coronella austriaca*), are European Protected Species and as such receive full protection under the Wildlife and Countryside Act 1981 (as amended) and The Conservation of Habitats and Species Regulations 2017 (as amended). However, the Site and surrounding area does not contain suitable habitat for these species.
- 7.31 Grassland within the Site supports a low population of grass snake and slow worm. Therefore, as outlined in the Biodiversity Scheme for the wider Brookleigh development (AECOM, 2020), a precautionary method of working will be implemented during clearance of grassland within the Site, comprising two-stage vegetation clearance to encourage reptiles to move eastwards into retained grassland during construction.
- 7.32 The precautionary working method will be undertaken during the active reptile season (generally March to October, weather dependent) when overnight temperatures are above 5°C to ensure reptiles are mobile, rather than in hibernation so they can relocate to retained areas of suitable habitat. Prior to clearance works, a suitably experienced ecologist will check areas of suitable habitat. If any reptile species are encountered, these will be moved from the Site by the ecologist to retained suitable habitat.
- 7.33 Suitable vegetation within the Site will then be cleared in two phases; first to a height of 150mm using hand tools and left for 24 hours to enable any remaining reptiles to relocate. Phase 2 will commence with a suitably experienced ecologist undertaking another check for any reptiles present, following which the vegetation will be cut to ground level. During both phases, clearance will be undertaken towards suitable retained habitats (i.e. habitats will be cleared starting at the northern end and working south).
- 7.34 The grassland must be maintained at a sward height of 50mm or below to discourage reptiles from re-entering these areas.
- 7.35 The loss of available reptile habitat within the Site as a result of the Proposed Development will be mitigated through measures outlined in the Biodiversity Scheme for the wider Brookleigh development (AECOM, 2020). This included the retention and enhancement of Open Space plot OS1.2, located to the east of the Site to increase its carrying capacity for reptiles. The concept masterplan for the overall Brookleigh development includes replacement suitable reptile habitat in excess of what will be lost.

Hazel Dormouse

- 7.36 The hedgerow in the centre of the Site will be retained, with the proposed pipeline installed beneath the hedge using trenchless techniques, avoiding the need for habitat removal. Therefore, all habitat suitable for hazel dormouse within the Site will be retained.

Nesting Birds

- 7.37 All species of wild bird in the UK are protected under Part 1 Section 1(1) of the Wildlife and Countryside Act 1981 (as amended) against intentional killing, injuring or taking, as well as taking, damaging or destroying nests in use or being built, and taking or destroying eggs. Special protection is also afforded to species listed in Schedule 1 of the Wildlife and Countryside Act 1981 (as amended). These birds are rare, endangered, declining or vulnerable species. In addition to the protection afforded to all bird species, it is an offence to cause reckless or intentional disturbance to the specially protected Schedule 1 listed species (such as barn owl) when they are building nests.
- 7.38 Although barn owl were considered to be absent from the Site on the basis of surveys completed by AECOM in 2019, the Proposed Development would be suitable for foraging barn owl once landscaping has matured.

- 7.39 Approximately 4m² of blackthorn scrub and 1,349m² of grassland will be lost to facilitate the Proposed Development. Removal of suitable habitat will be completed outside of the typical nesting season (i.e. outside March – September inclusive) where possible; however, where this is not possible (e.g. due to timing restrictions for other species) an ecologist will complete a nesting bird check immediately prior to vegetation removal.

8. Potential Effects and Mitigation Measures

- 8.1 This section presents an initial assessment of likely construction and operational effects of the Proposed Development in relation to ecology and provides recommendations for mitigation measures and further considerations.
- 8.2 Impacts are considered with embedded measures detailed in Section 7 taken into account, but prior to any additional mitigation. The assessment is based on the assumption (which is considered intrinsic to the scheme) that construction industry good practice will be implemented using a Construction Environmental Management Plan (CEMP).

Effects of Construction and Site Clearance

- 8.3 This section considers both temporary and permanent impacts and effects of the Proposed Development as a result of construction and Site clearance, including impacts on receptors outside of the Site (e.g. nature conservation designations, adjacent habitats). The assessment is focused on the following impacts:
- Dust deposition and pollution;
 - Loss of habitat;
 - Disturbance from lighting, noise and vibration; and
 - Killing and injury of protected species.

Temporary Impacts During Construction

Dust Deposition and Pollution

Retained habitats and designated sites

- 8.4 There is the potential for dust deposition and pollution within the Site and immediate surroundings during site clearance and construction, including retained habitats.
- 8.5 With measures outlined in Paragraphs 7.1 and 7.14 embedded into the Proposed Development, overall this is considered to be a **very low magnitude, negligible adverse impact** on a feature of **Local (Very Low) importance** that is **non-significant**. No additional mitigation is required.

Disturbance – Lighting

Bats

- 8.6 There is the potential for lighting during construction to disturb roosting and commuting/foraging bats. However, with the embedded measures outlined in Paragraph 7.23 this is considered to be a **very low magnitude, negligible adverse impact** on a feature of **County (Medium) importance** that is **non-significant**. No additional mitigation is required.

Badger

- 8.7 There is the potential for lighting during construction to disturb badgers. However, with the embedded measures outlined in Paragraphs 7.27 and 7.28 this is considered to be a **very low magnitude, negligible adverse impact** on a feature of **Borough (Low) importance** that is **non-significant**.

Disturbance – Noise and Vibration

Bats

- 8.8 There is the potential for noise and vibration during construction of the access track to disturb roosting bats, should they be present within Trees 3, 4, 7 and/or 13, as the access track is in close proximity (within 10m) to these trees. As Tree 4 is suitable to support multiple bats (including a maternity roost), taking a precautionary approach due to the risk of roost abandonment this is considered to be a **high magnitude, major adverse impact** on a feature of **County (Medium) importance** that is **significant**. Taking a precautionary approach, this would also be an offence under the legislation that protects bats. Mitigation is outlined below.

Permanent Impacts During Construction

Habitat Loss

8.9 On the basis of habitats present during the November 2023 and February 2024 updated survey, the Proposed Development will result in the permanent loss of:

- Approximately 96m² of g4 modified grassland for the Pumping Station Apron
- Approximately 1,253m² of g4 modified grassland for an access road;
- Approximately 4m² of h3a blackthorn scrub;

8.10 The Proposed Development will also result in the temporary loss of:

- Approximately 1,257m² of g4 modified grassland for construction of underground tanks; and
- Approximately 30m² of bracken (g4 12 modified grassland with bracken) for an access point of Isaac's Lane.

8.11 With measures outlined in Paragraphs 7.3 to 7.13 embedded into the Proposed Development, the impact of habitat loss is assessed to be a **low magnitude**, adverse impact on a feature of **Local (Very low) importance**, leading to a **minor** effect that is **non-significant**.

Killing, Injury and Disturbance

Bats

8.12 Prior to mitigation and discounting provisions in place as part of the Proposed Development design, killing and injury of roosting bats is assessed to be a **High magnitude**, adverse impact on a feature of **County (Medium) importance**, leading to a **major** effect that is **significant**.

8.13 However, trees suitable to support roosting bats will be retained. To avoid inadvertent removal of trees suitable to support roosting bats, as outlined in Paragraph 7.20, a toolbox talk will be delivered to contractors highlighting the potential presence of roosting bats in trees scheduled to be retained. Therefore, killing and injury of bats is not anticipated, removing this potential impact.

8.14 Disturbance of roosting, foraging and commuting bats could occur through construction lighting, noise and vibration. This is considered to be a temporary impact and is outlined in Paragraph 8.6 above.

Reptiles

8.15 Site clearance could result in the killing and injury of grass snake and slow worm within the Site. This killing and injury would be an offence under legislation that protects this species. Mitigation is therefore required, which has been embedded into the Proposed Development through the Biodiversity Scheme (AECOM, 2020) as outlined in Paragraph 7.31.

8.16 Implementation of measures embedded into the Proposed Development, comprising the precautionary working method would result in a **low magnitude**, adverse impact on a feature of **Borough (Low) importance**, resulting in a **negligible** effect that is **non-significant**. Implementation of the precautionary working method will also comply with relevant legislation.

Hazel Dormouse

8.17 As all habitat suitable for hazel dormouse is being retained (as described in Paragraph 7.36), no impacts are anticipated, and hazel dormouse are not discussed further.

Nesting Birds

8.18 Site clearance could result in the killing, injury and disturbance of nesting birds, as well as destruction of active birds' nests within the Site.

8.19 This would be a **high magnitude**, adverse impact on a feature of **Local (Very low) importance** resulting in a **negligible** effect which is **non-significant**. However, this would also be an offence under legislation that protects this species. Embedded mitigation outlined in Paragraph 7.39 will reduce the risk of impacts to nesting birds and will ensure compliance with legislation.

Hedgehog

- 8.20 Prior to mitigation, site clearance could result in the killing and injury of hedgehogs within the Site. This would be a **high magnitude**, adverse impact on a feature of **Local (Very low)** importance resulting in a **negligible** effect which is **non-significant**. However, killing and injury of hedgehogs should be avoided; therefore, mitigation is outlined below.

Effects once the Proposed Development is complete and operational

- 8.21 Impacts on important ecological features are not anticipated during operation of the Proposed Development.

Mitigation

- 8.22 Based on the assessment, this section outlines the mitigation measures required.

Mitigation during site clearance and construction

- 8.23 Although impacts are considered prior to mitigation, the assessment is based on the assumption (which is considered intrinsic to the Proposed Development) that construction industry good practice will be implemented using a CEMP. These measures will minimise potential effects related to pollution, noise, dust and lighting and avoid significant adverse effects on habitats and species.
- 8.24 The killing, injury and disturbance of protected species will also be avoided through implementation of the mitigation hierarchy. Where impacts cannot be avoided, best practice measures (with respect to timing of construction works and hand searches) will be used, under precautionary working methods (as outlined in Section 7).

Bats

- 8.25 Works within 10m of Trees 3, 4, 7 and 13 will comprise installation of an access track, to be completed when bats are unlikely to be present (i.e. November to March inclusive), or by hand; therefore, these works are not considered likely to lead to disturbance of roosting bats, as they will be completed either outside of the active bat season, or without machinery that could lead to noise disturbance.
- 8.26 Therefore, implementation of this precautionary working approach would reduce the impact to a **very low magnitude**, adverse impact on a feature of **County (Medium)** importance, resulting in a **negligible** effect that is **non-significant**.

Hedgehog

- 8.27 If any hedgehogs are found during works, they should either be carefully placed in retained habitat (using appropriate gloves), or, if are hibernating over winter, taken to a wildlife rescue centre.
- 8.28 As outlined in Paragraph 7.28 with respect to badger, to reduce the risk of mammals becoming trapped in excavations, excavations will be backfilled the same day. Where this is not possible, excavations will either be covered overnight, or a ramp provided to enable animals to escape. Excavations will be checked for the presence of animals by a nominated member of the site staff prior to works commencing the next morning.
- 8.29 Implementation of these measures will reduce any impact to one that is a **low magnitude**, adverse impact on a feature of **Local (Very low)** importance, resulting in a **negligible** effect that is **non-significant**.

Mitigation once the Proposed Development is complete and operational

- 8.30 No mitigation is required during the operational phase of the Proposed Development.

Enhancements

- 8.31 No enhancement features are anticipated specific to the Proposed Development. Enhancement measures details within the Biodiversity Scheme (AECOM, 2020) will be implemented across the wider site, including within the wider Phase 1C during its subsequent development (subject to a separate application).

9. Residual Effects

- 9.1 Following implementation of environmental design and management approaches it is concluded that no significant residual ecological effects will remain as a result of the Proposed Development.

10. Cumulative Effects Assessment

10.1 The following schemes have been considered as being relevant in considering the potential for ecological cumulative effects as they are within 1km of the Site:

- DM/18/5114 Wider Brookleigh Scheme (formerly Northern Arc);
- DM/19/3845 Freeks Farm;
- DM/19/3313 Eastern Bridge and Link Road;
- DM19/1895 Fairbridge Way Development;
- DM/21/2870 Brookleigh Scheme – Phase 1B;
- DM22/0239 Church & Community Facility on Maple Drive; and
- DM/22/2553 Brookleigh Scheme – Secondary School.

10.2 Further details on these schemes are provided in Table 6

Cumulative Effects During Construction

10.3 The developments at Fairbridge Way, Freeks Farm, the Eastern Bridge and Link Road and Phase 1B of the Brookleigh Scheme have commenced but will be continuing when the Proposed Development commences. The Brookleigh Secondary School development is considered unlikely to commence during construction of the Proposed Development.

10.4 There is potential for a temporary cumulative effect from noise, light and dust pollution on retained habitats within the Site, including the River Adur and immediately adjacent offsite habitats. However, a CEMP should be in place during all proposed developments, which would reduce any temporary cumulative effect to one that is non-significant.

10.5 There is potential for Phase 1B of the Brookleigh Scheme to impact the same population of reptiles as the Proposed Development through potential killing and injury. However, as the Proposed Development will implement a precautionary working method, killing and injury of reptiles is not anticipated. The Ecological Impact Assessment for Phase 1B (Bellway, 2021) stated that reptiles within Plot P1.5, located to the north of the Site and currently separated from it by the Eastern Bridge and Link Road construction site, would be translocated to OS1.1a, located approximately 390m east of the Site. Therefore, the population within the Site would not be moved into areas of adjacent habitat where reptiles have already been encouraged and will be able to re-establish within the Site once construction is complete, and as proposed planting matures reducing any cumulative effect to one that is non-significant.

Cumulative Effects During Operation

10.6 Due to the scale and nature of the Proposed Development, no cumulative effects during operation are anticipated.

11. Conclusions

- 11.1 Based on a combination of survey data collected to date, an assessment of importance of ecological receptors can be made.
- 11.2 Habitats within the Site include modified grassland, blackthorn scrub and bramble scrub. Hedgerows are present adjacent to the Site, but will be retained.
- 11.3 With regards to protected species:
- Small populations of grass snake and slow worm are present within modified grassland;
 - Badgers are present in the wider area, but no setts are present within or within 30m of the Site
 - Habitats within and adjacent to the Site are suitable for roosting bats, foraging bats and bat flight-lines;
 - Habitats within and adjacent to the Site are likely to support hazel dormouse (but will be retained);
 - Great crested newt is considered to be absent;
 - Habitats within and adjacent to the Site are suitable to support nesting birds;
 - Habitats within and adjacent to the Site are suitable to support terrestrial invertebrates, but are unlikely to support rare or notable species assemblages; and
 - No invasive non-native species were recorded within the Site
- 11.4 The following impacts have been identified:
- Dust deposition and pollution on retained habitats and designated sites during construction;
 - Lighting disturbance to bats during construction;
 - Habitat loss during construction;
 - Killing, injury and disturbance of reptiles and nesting birds during construction;
 - Potential disturbance of bats and badger;
- 11.5 Therefore, the following recommendations for mitigation have been made, including mitigation embedded into the Proposed Development:
- Implementation of a CEMP, including measures with regards to lighting, pollution, and prevention of mammals becoming trapped in excavations;
 - Pre-construction checks for badgers and nesting birds (as required); and
 - Precautionary working method with regards to reptiles and bats.
- 11.6 On this basis, no significant residual effects are anticipated. In addition, no cumulative effects are anticipated with other nearby schemes.

12. References

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ISSUE PURPOSE
ECIA
PROJECT NUMBER
60610807
FIGURE TITLE
UK Habitat Map
FIGURE NUMBER
Figure 1



AECOM

PROJECT

Brookleigh Foul Sewer
Pumping Station

CLIENT

Homes England

CONSULTANT

AECOM Limited
Midpoint, Alencon Link
Basingstoke, Hampshire
RG21 7PP
www.aecom.com

LEGEND

- Site Boundary
- 10m Study Area
- Bat Roost Suitability - Trees
 - Likely PRF-M
 - Likely PRF-I

NOTES

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ISSUE PURPOSE

ECIA

PROJECT NUMBER

60610807

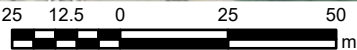
FIGURE TITLE

Bat Roost Suitability Assessment

FIGURE NUMBER

Figure 2

1:1,750 @ A3





AECOM

PROJECT

Brookleigh Foul Sewer
Pumping Station

CLIENT

Homes England

CONSULTANT

AECOM Limited
Midpoint, Alencon Link
Basingstoke, Hampshire
RG21 7PP
www.aecom.com

LEGEND

- Site Boundary
- 250m Study Area
- Great Crested Newt eDNA Result
- Negative

NOTES

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ISSUE PURPOSE

ECIA

PROJECT NUMBER

60610807

FIGURE TITLE

Great Crested Newt Survey Results

FIGURE NUMBER

Figure 3

Appendix A Desk Study Data

Table 11. Desk study data

Species	Common Name	Legally Protected Species?	Species of Principal Importance?	Other Notable Species?	Present within Site?	Present in wider zone of influence?	Distance (km) and bearing of most recent record	Date of most recent record	Distance (km) and bearing of the nearest record	Date of the nearest record
Amphibians										
<i>Bufo bufo</i>	Common Toad	✓	✓	X	X	✓	1.85km SE	2021	1.15km W	2015
<i>Lissotriton vulgaris</i>	Smooth Newt	✓	✓	X	✓	✓	0.48km NW	2022	0.48km NW	2022
<i>Rana temporaria</i>	Common Frog	✓	✓	✓	X	✓	1.03km SW	2016	1.03km SW	2016
<i>Triturus cristatus</i>	Great Crested Newt	✓	✓	✓	X	✓	0.48km N	2022	0.48km N	2022
Fungi										
<i>Geoglossum fallax</i>	Deceptive Earthtongue	X	X	X	X	✓	1.23km SSE	2014	1.23km SSE	2014
<i>Hygrocybe insipida</i>	Spangle Waxcap	X	X	X	X	✓	1.23km SSE	2014	1.23km SSE	2014
<i>Hygrocybe quieta</i>	Oily Waxcap	X	X	X	X	✓	1.23km SSE	2014	1.23km SSE	2014
<i>Podoscypha multizonata</i>	Zoned Rosette	X	X	X	X	✓	0.65km NE	2016	0.65km NE	2016
Higher Plants – Flowering Plants										
<i>Anacamptis morio</i>	Green-winged Orchid	X	X	✓	X	✓	0.82km W	2016	0.82km W	2016
<i>Buxus sempervirens</i>	Box	X	X	✓	X	✓	Within 2km	2016	Within 2km	2016
<i>Carex vesicaria</i>	Bladder-sedge	X	X	✓	X	✓	2.00km NW	2022	2.00km NW	2022
<i>Erica cinerea</i>	Bell Heather	X	X	✓	X	✓	Within 2km	2016	Within 2km	2016
<i>Euphrasia nemorosa</i>	Common Eyebright	X	X	✓	X	✓	1.22km E	2023	1.22km E	2023
<i>Filago vulgaris</i>	Common Cudweed	X	X	✓	X	✓	1.42km SSE	2014	1.42km SSE	2014
<i>Fragaria vesca</i>	Wild Strawberry	X	X	✓	X	✓	Within 2km	2017	Within 2km	2017
<i>Genista tinctoria</i>	Dyer's Greenweed	X	X	✓	X	✓	1.22km E	2023	1.22km E	2023
<i>Hyacinthoides non-scripta</i>	Bluebell	✓	X	X	X	✓	0.43km SE	2023	0.43km SE	2023
<i>Hydrocotyle vulgaris</i>	Marsh Pennywort	X	X	✓	X	✓	Within 2km	2016	Within 2km	2016
<i>Lathyrus linifolius</i>	Bitter-vetch	X	X	✓	X	✓	Within 2km	2018	1.20km SW	2018
<i>Melampyrum pratense</i>	Common Cow-wheat	X	X	✓	X	✓	1.22km E	2023	1.22km E	2023
<i>Ononis spinosa</i>	Spiny Restharrow	X	X	✓	X	✓	1.22km E	2023	1.22km E	2023
<i>Oxalis acetosella</i>	Wood-sorrel	X	X	✓	X	✓	1.22km E	2023	1.09km ENE	2022

<i>Populus nigra</i> <i>subsp. betulifolia</i>	Black-poplar	X	X	✓	X	✓	Within 2km	2018	Within 2km	2018
<i>Potentilla erecta</i>	Tormentil	X	X	✓	X	✓	1.22km E	2023	1.22km E	2023
<i>Ranunculus</i> <i>flammula</i>	Lesser Spearwort	X	X	✓	X	✓	1.22km E	2023	0.87km ENE	2022
<i>Silene flos-cuculi</i>	Ragged-Robin	X	X	✓	X	✓	1.22km E	2023	0.87km ENE	2022
<i>Succisa pratensis</i>	Devil's-bit Scabious	X	X	✓	X	✓	1.22km E	2023	1.22km E	2023
<i>Trifolium</i> <i>fragiferum</i>	Strawberry Clover	X	X	✓	X	✓	Within 2km	2014	Within 2km	2014
<i>Veronica officinalis</i>	Heath Speedwell	X	X	✓	X	✓	1.22km E	2023	1.22km E	2023
Invertebrates - Beetles										
<i>Lucanus cervus</i>	Stag Beetle	✓	✓	✓	X	✓	1.37km ESE	2015	1.37km ESE	2015
Invertebrates - Butterflies										
<i>Apatura iris</i>	Purple Emperor	✓	X	✓	X	✓	Within 2km	2014	Within 2km	2014
<i>Coenonympha</i> <i>pamphilus</i>	Small Heath	X	✓	✓	X	✓	1.79km SW	2021	0.91km E	2020
<i>Erynnis tages</i>	Dingy Skipper	X	✓	✓	X	✓	1.07km WSW	2023	1.07km WSW	2023
<i>Limenitis camilla</i>	White Admiral	X	✓	✓	X	✓	1.16km NNW	2019	1.16km NNW	2019
<i>Thecla betulae</i>	Brown Hairstreak	✓	✓	✓	X	✓	1.43km SW	2023	0.78km WSW	2018
Invertebrates – Dragonflies & Damselflies										
<i>Sympetrum</i> <i>striolatum</i>	Common darter	X	X	✓	X	✓	1.92km SSE	2023	1.63km E	2018
Invertebrates – Grasshoppers & Crickets										
<i>Roeseliana</i> <i>roeselii</i>	Roesel's Bush- cricket	X	X	X	X	✓	1.50km ENE	2018	1.22km E	2016
Invertebrates - Moths										
<i>Acronicta rumicis</i>	Knot Grass	X	✓	X	X	✓	1.79km E	2020	1.71km SW	2020
<i>Agrochola</i> <i>lychnidis</i>	Beaded Chestnut	X	✓	X	X	✓	1.79km E	2020	1.79km E	2020
<i>Amphipoea oculatea</i>	Ear Moth	X	✓	X	X	✓	1.79km E	2020	1.79km E	2020
<i>Aporophya</i> <i>lutulenta</i>	Deep-brown Dart	X	✓	X	X	✓	1.52km E	2023	1.52km E	2023
<i>Atethmia centrargo</i>	Centre-barred Sallow	X	✓	X	X	✓	1.79km E	2020	1.71km SW	2019
<i>Brachylomia</i> <i>viminalis</i>	Minor Shoulder-knot	X	✓	X	X	✓	1.79km E	2018	1.79km E	2018
<i>Calophasia lunula</i>	Toadflax Brocade	X	X	✓	X	✓	1.93km E	2023	1.79km E	2020
<i>Caradrina</i> <i>morpheus</i>	Mottled Rustic	X	✓	X	X	✓	1.79km E	2020	1.79km E	2020
<i>Chiasmia clathrata</i>	Latticed Heath	X	✓	X	X	✓	1.71km SW	2019	1.71km SW	2019
<i>Chloroclysta</i> <i>siterata</i>	Red-green Carpet	X	X	X	X	✓	1.79km E	2020	1.71km SW	2020
<i>Cirrhia icteritia</i>	Sallow	X	✓	X	X	✓	1.71km SW	2019	1.71km SW	2019
<i>Cleorodes</i> <i>lichenaria</i>	Brussels Lace	X	X	X	X	✓	1.71km SW	2020	1.71km SW	2020
<i>Conistra rubiginea</i>	Dotted Chestnut	X	X	✓	X	✓	1.79km E	2020	1.79km E	2020
<i>Crambus pratella</i>	Scarce Grass- veneer	X	X	✓	X	✓	1.71km SW	2020	1.71km SW	2020

<i>Crambus silvella</i>	Wood Grass-veneer	X	X	✓	X	✓	1.71km SW	2020	1.71km SW	2020
<i>Cyclophora annularia</i>	Mocha	X	X	✓	X	✓	1.79km E	2018	1.79km E	2018
<i>Cymatophorina diluta</i>	Oak Lutestring	X	✓	X	X	✓	1.79km E	2020	1.79km E	2020
<i>Diarsia rubi</i>	Small Square-spot	X	✓	X	X	✓	1.79km E	2018	1.79km E	2018
<i>Ecliptopera silaceata</i>	Small Phoenix	X	✓	X	X	✓	1.71km SW	2020	1.71km SW	2020
<i>Eilema sororcula</i>	Orange Footman	X	X	X	X	✓	1.71km SW	2020	1.71km SW	2020
<i>Ennomos fuscantaria</i>	Dusky Thorn	X	✓	X	X	✓	1.79km E	2020	1.67km SW	2019
<i>Ennomos quercinaria</i>	August Thorn	X	✓	X	X	✓	1.79km E	2019	1.79km E	2019
<i>Eupithecia pusillata</i>	Juniper Pug	X	X	X	X	✓	1.77km SW	2020	1.77km SW	2020
<i>Euplagia quadripunctaria</i>	Jersey Tiger	✓	X	✓	X	✓	1.93km E	2023	1.93km E	2023
<i>Euxoa nigricans</i>	Garden Dart	X	✓	X	X	✓	1.79km E	2018	1.79km E	2018
<i>Evergestis pallidata</i>	Chequered Pearl	X	X	X	X	✓	1.71km SW	2020	1.71km SW	2020
<i>Furcula bicuspis</i>	Alder Kitten	X	X	X	X	✓	1.71km SW	2022	1.71km SW	2022
<i>Hecatera dysodea</i>	Small Ranunculus	X	X	✓	X	✓	1.71km SW	2020	1.71km SW	2020
<i>Hemistola chrysoprasaria</i>	Small Emerald	X	✓	X	X	✓	1.79km E	2020	1.79km E	2020
<i>Hoplodrina blanda</i>	Rustic	X	✓	X	X	✓	1.79km E	2020	1.79km E	2020
<i>Hydraecia micacea</i>	Rosy Rustic	X	✓	X	X	✓	1.79km E	2020	1.79km E	2020
<i>Hypomecis roboraria</i>	Great Oak Beauty	X	X	X	X	✓	1.71km SW	2020	1.71km SW	2020
<i>Leucania comma</i>	Shoulder-striped Wainscot	X	✓	X	X	✓	1.67km SW	2020	1.67km SW	2020
<i>Litologia literosa</i>	Rosy Minor	X	✓	X	X	✓	1.71km SW	2020	1.71km SW	2020
<i>Lycia hirtaria</i>	Brindled Beauty	X	✓	X	X	✓	1.71km SW	2020	1.71km SW	2020
<i>Malacosoma neustria</i>	Lackey	X	✓	X	X	✓	1.79km E	2020	1.71km SW	2020
<i>Meganola albula</i>	Kent Black Arches	X	X	X	X	✓	1.71km SW	2020	1.71km SW	2020
<i>Melanchra persicariae</i>	Dot Moth	X	✓	X	X	✓	1.79km E	2018	1.79km E	2018
<i>Mythimna l-album</i>	L-album Wainscot	X	X	X	X	✓	1.79km E	2020	1.79km E	2020
<i>Mythimna pallens</i>	Common Wainscot	X	X	X	X	✓	1.79km E	2020	1.71km SW	2020
<i>Pareulype berberata</i>	Barberry Carpet	✓	✓	✓	X	✓	1.71km SW	2020	1.71km SW	2020
<i>Spilosoma lubricipeda</i>	White Ermine	X	✓	X	X	✓	1.79km E	2020	1.71km SW	2020
<i>Spilosoma lutea</i>	Buff Ermine	X	✓	X	X	✓	1.79km E	2020	1.71km SW	2020
<i>Synanthedon vespiformis</i>	Yellow-legged Clearwing	X	X	X	X	✓	1.79km E	2020	1.79km E	2020
<i>Thera cupressata</i>	Cypress Carpet	X	X	X	X	✓	1.79km E	2018	1.79km E	2018
<i>Tholera decimalis</i>	Feathered Gothic	X	✓	X	X	✓	1.79km E	2020	1.71km SW	2019

<i>Timandra comae</i>	Blood-vein	X	✓	X	X	✓	1.07km ESE	2023	1.07km ESE	2023
<i>Tyria jacobaeae</i>	Cinnabar	X	✓	X	X	✓	1.79km E	2020	1.68km SSE	2014
<i>Watsonalla binaria</i>	Oak Hook-tip	X	✓	X	X	✓	1.79km E	2020	1.71km SW	2020
<i>Xylena exsoleta</i>	Sword-grass	X	✓	X	X	✓	1.13km NNW	2019	1.13km NNW	2019
Invertebrates – Spiders										
<i>Argiope bruennichi</i>	Wasp Spider	X	X	X	X	✓	1.01km E	2015	1.01km E	2015
Invertebrates – True Bugs										
<i>Peribalus strictus</i>	Vernal Shieldbug	X	X	✓	X	✓	1.01km E	2015	1.01km E	2015
Invertebrates – True Flies										
<i>Volucella inanis</i>	A True Fly	X	X	X	X	✓	1.92km SSE	2023	1.92km SSE	2023
<i>Volucella zonaria</i>	Hornet Hoverfly	X	X	X	X	✓	1.74km W	2022	1.74km W	2022
Lower Plants – Mosses										
<i>Syntrichia papillosa</i>	Marble Screw-moss	X	X	X	X	✓	1.28km SE	2017	1.28km SE	2017
Mammals - Terrestrial (excl. bats)										
<i>Erinaceus europaeus</i>	West European Hedgehog	X	✓	✓	X	✓	0.51km SSW	2023	0.42km SW	2017
<i>Muscardinus avellanarius</i>	Hazel Dormouse	✓	✓	✓	X	✓	0.94km ENE	2021	0.54km NE	2015
<i>Oryctolagus cuniculus</i>	European Rabbit	X	X	✓	X	✓	1.89km SW	2022	0.33km E	2015
Reptiles										
<i>Anguis fragilis</i>	Slow-worm	✓	✓	X	X	✓	1.34km SW	2019	0.78km SE	2016
<i>Natrix helvetica</i>	Grass Snake	✓	✓	X	X	✓	1.9km ESE	2021	1.64km WSW	2016
Mammals – Terrestrial (bats)										
<i>Chiroptera</i>	Bat	✓	✓	✓	X	✓	1.41km SW	2021	1.41km SW	2020
<i>Myotis daubentonii</i>	Daubenton's Bat	✓	X	✓	X	✓	1.84km SSE	2015	1.84km SSE	2015
<i>Myotis nattereri</i>	Natterer's Bat	✓	✓	✓	X	✓	1.79km NW	2020	1.79km NW	2020
<i>Pipistrellus pipistrellus</i>	Common Pipistrelle	✓	✓	X	X	✓	1.92km NW	2022	0.480km NW	2018
<i>Pipistrellus pygmaeus</i>	Soprano Pipistrelle	✓	✓	X	X	✓	0.81km N	2018	0.48km NW	2018
<i>Plecotus auritus</i>	Brown Long-eared Bat	✓	✓	X	X	✓	1.84km NW	2017	1.44km ESE	2014
Birds										
<i>Alauda arvensis</i>	Skylark	X	✓	X	X	✓	Within 2km	2020	1.48km SSE	2015
<i>Alcedo atthis</i>	Kingfisher	✓	X	✓	X	✓	Within 2km	015	Within 2km	2015
<i>Anas platyrhynchos</i>	Mallard	X	X	X	X	✓	0.89km WSW	2022	0.45km SSE	2019
<i>Apus apus</i>	Swift	X	X	X	X	✓	1.85km SE	2022	1.41km S	2019
<i>Asio otus</i>	Long-eared Owl	X	X	✓	X	✓	Within 2km	2015	Within 2km	2015
<i>Coccothraustes coccothraustes</i>	Hawfinch	X	✓	X	X	✓	Within 2km	2020	1.27km ESE	2018

<i>Columba oenas</i>	Stock Dove	X	X	X	X	✓	Within 2km	2021	0.45km SSE	2019
<i>Cuculus canorus</i>	Cuckoo	X	✓	X	X	✓	0.45km SSE	2019	0.45km SSE	2019
<i>Delichon urbicum</i>	House Martin	X	X	X	X	✓	1.85km SE	2022	0.45km SSE	2018
<i>Egretta garzetta</i>	Little Egret	X	X	✓	X	✓	1.83km SSW	2014	1.83km SSW	2014
<i>Emberiza citrinella</i>	Yellowhammer	X	✓	X	X	✓	Within 2km	2020	1.27km ESE	2020
<i>Emberiza schoeniclus</i>	Reed Bunting	X	✓	X	X	✓	Within 2km	2020	Within 2km	2020
<i>Falco subbuteo</i>	Hobby	✓	X	X	X	✓	0.89km WSW	2022	0.89km WSW	2022
<i>Falco tinnunculus</i>	Kestrel	X	X	X	X	✓	0.45km SSE	2022	0.45km SSE	2022
<i>Haliaeetus albicilla</i>	White-tailed Eagle	✓	X	✓	X	✓	Within 2km	2020	Within 2km	2020
<i>Hirundo rustica</i>	Swallow	X	X	X	X	✓	1.85km SE	2020	0.45km SSE	2018
<i>Larus argentatus</i>	Herring Gull	X	✓	X	X	✓	Within 2km	2020	1.70km S	2015
<i>Larus canus</i>	Common Gull	X	X	X	X	✓	Within 2km	2022	0.45km SSE	2019
<i>Linaria cannabina</i>	Linnet	X	✓	X	X	✓	0.45km SSE	2017	0.45km SSE	2017
<i>Luscinia megarhynchos</i>	Nightingale	X	X	X	X	✓	1.97km SW	2022	0.45km SSE	2022
<i>Milvus milvus</i>	Red Kite	✓	X	✓	X	✓	1.03km ESE	2022	0.45km SSE	2016
<i>Motacilla cinerea</i>	Grey Wagtail	X	X	X	X	✓	0.89km WSW	2022	0.45km SSE	2018
<i>Muscicapa striata</i>	Spotted Flycatcher	X	✓	✓	X	✓	Within 2km	2020	Within 2km	2020
<i>Passer domesticus</i>	House Sparrow	X	✓	X	X	✓	1.85km SE	2020	0.45km SSE	2018
<i>Phylloscopus trochilus</i>	Willow Warbler	X	X	X	X	✓	0.45km SSE	2016	0.45km SSE	2016
<i>Picus viridis</i>	Green Woodpecker	X	X	X	X	✓	1.27km ESE	2020	0.45km SSE	2018
<i>Poecile palustris</i>	Marsh Tit	X	✓	X	X	✓	0.45km SSE	2019	0.45km SSE	2019
<i>Prunella modularis</i>	Dunnock	X	✓	X	X	✓	Within 2km	2022	0.45km SSE	2020
<i>Pyrrhula pyrrhula</i>	Bullfinch	X	✓	X	X	✓	0.45km SSE	2018	0.45km SSE	2018
<i>Regulus ignicapilla</i>	Firecrest	X	X	X	X	✓	1.59km N	2022	1.59km N	2022
<i>Strix aluco</i>	Tawny Owl	X	X	X	X	✓	1.85km SE	2020	1.85km SE	2020
<i>Sturnus vulgaris</i>	Starling	X	✓	X	X	✓	1.85km SE	2020	0.45km SSE	2015
<i>Turdus philomelos</i>	Song Thrush	X	✓	X	X	✓	0.45km SSE	2018	0.45km SSE	2018
<i>Turdus viscivorus</i>	Mistle Thrush	X	X	X	X	✓	1.27km ESE	2020	0.45km SSE	2018
<i>Tyto alba</i>	Barn Owl	✓	X	X	X	✓	0.71km N	2020	0.71km N	2020
Invasive non-native species										
<i>Aix galericulata</i>	Mandarin Duck	X	X	✓	X	✓	Within 2km	2020	Within 2km	2020

<i>Branta canadensis</i>	Canada Goose	X	X	✓	X	✓	Within 2km	2022	0.45km SSE	2019
<i>Allium triquetrum</i>	Three-cornered Garlic	X	X	✓	X	✓	0.43km SE	2023	0.43km SE	2023
<i>Centranthus ruber</i>	Red Valerian	X	X	✓	X	✓	0.78km SE	2015	0.78km SE	2015
<i>Cotoneaster horizontalis</i>	Wall Cotoneaster	X	X	✓	X	✓	Within 2km	2016	1.61km SSW	2014
<i>Fallopia japonica</i>	Japanese Knotweed	X	X	✓	X	✓	0.54km ESE	2023	0.54km ESE	2023
<i>Hyacinthoides non-scripta</i> x <i>hispanica</i> = <i>H. x massartiana</i>	Bluebell	X	X	X	X	✓	0.45km ESE	2023	0.45km ESE	2023
<i>Impatiens glandulifera</i>	Himalayan Balsam	X	X	✓	X	✓	Within 2km	2016	Within 2km	2016
<i>Parthenocissus quinquefolia</i>	Virginia-creeper	X	X	✓	X	✓	1.21km E	2022	1.21km E	2022
<i>Petasites fragrans</i>	Winter Heliotrope	X	X	X	X	✓	1.41km E	2022	1.41km E	2022
<i>Prunus laurocerasus</i>	Cherry Laurel	X	X	X	X	✓	1.17km E	2022	1.17km E	2022
<i>Rhododendron ponticum</i>	A Flowering Plant	X	X	✓	X	✓	1.16km ENE	2022	1.16km ENE	2022
<i>Harmonia axyridis</i>	Harlequin Ladybird	X	X	X	X	✓	0.96km SW	2018	0.95km SE	2018
<i>Lilioceris lili</i>	Lily Beetle	X	X	✓	X	✓	0.80km ESE	2022	0.80km ESE	2022
<i>Cameraria ohridella</i>	Horse-Chestnut Leaf-miner	X	X	X	X	✓	1.3km SW	2022	1.3km SW	2022
<i>Neovison vison</i>	American Mink	X	X	✓	X	✓	1.92km SSE	2023	1.71km SW	2019
<i>Sciurus carolinensis</i>	Eastern Grey Squirrel	X	X	✓	X	✓	1.92km SSE	2023	1.27km NE	2021

Key to symbols: ✓ = yes, ? = possibly see Supporting Comments for further rationale

Legally protected species are those listed under Schedules 1, 5 and 8 of the Wildlife and Countryside Act 1981 (as amended); and, Schedules 2 and 4 of The Conservation of Habitat & Species Regulations 2017 (as amended).

Species of Principal Importance as those listed under Section 41 of the NERC Act 2006. Planning Authorities have a legal duty under Section 40 of the same Act to consider such species when determining planning applications.

Other notable species include native species of conservation concern listed in the LBAP (except species that are also of Principal Importance), those that are Nationally Rare, Scarce or Red Data List, and non-native controlled weed species listed under Schedule 9 of the Wildlife and Countryside Act 1981 (as amended) or the Sussex Invasive Non-native Species list
Coarse resolution records are not included to reduce discrepancies in data.

Appendix B Bat Roost Suitability of Trees

Table 12. Bat Roost Suitability of Trees

Tree no.	Tree species	Diameter at breast height (DBH) (m)	Feature ref						Description of feature	Height of feature (m)	Direction of feature	Uncluttered drop zone (Y/N)	Signs	Position in landscape	Summary of potential				Hibernation suitability	Recommendations/ Additional Comments
			Loose bark	Trunk cavity	Branch cavity	Ivy	Callus rolls	Other							Confirmed	Likely PRF-M	Likely PRF-I	Negligible		
3	Oak	1.0	a				x		N/A	All	Y	N	Within hedgerow			X	N	N/A tree retained		
4	Field maple	0.6	a		X				3	S	N	N	Edge of hedgerow by gate		X		N	N/A tree retained		
			b		X					4.5	E	Y		N		X			N	
7	Oak	0.9	a	X					6	E	Y	N	Within hedgerow			X	N	N/A tree retained		
13	Oak	0.8	A				X		N/A	All	Y	N	Within hedgerow			X	N	N/A tree retained		

Appendix C eDNA Survey Results



Folio No: E12980
Report No: 1
Purchase Order: 1520551
Client: AECOM INFRASTRUCTURE
AND ENVIRONMENT
Contact: Rosie Walton, Amelia Kent

TECHNICAL REPORT

ANALYSIS OF ENVIRONMENTAL DNA IN POND WATER FOR THE DETECTION OF GREAT CRESTED NEWTS (*TRITURUS CRISTATUS*)

SUMMARY

When great crested newts (GCN), *Triturus cristatus*, inhabit a pond, they continuously release small amounts of their DNA into the environment. By collecting and analysing water samples, we can detect these small traces of environmental DNA (eDNA) to confirm GCN habitation or establish GCN absence.

RESULTS

Date sample received at Laboratory: 26/04/2022
Date Reported: 28/04/2022
Matters Affecting Results: None

Lab Sample No.	Site Name	O/S Reference	SIC	DC	IC	Result	Positive Replicates
2431	Burgess Hill/Northern Arc Pond 26	TQ30711 20553	Pass	Pass	Pass	Negative	0
2435	Burgess Hill/Northern Arc Pond 15	TQ30601 20683	Pass	Pass	Pass	Negative	0



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If you have any questions regarding results, please contact us: ForensicEcology@surescreen.com

Reported by: Chris Troth

Approved by: Esther Strafford

METHODOLOGY

The samples detailed above have been analysed for the presence of GCN eDNA following the protocol stated in DEFRA WC1067 'Analytical and methodological development for improved surveillance of the Great Crested Newt, Appendix 5.' (Biggs et al. 2014). Each of the 6 sub-sample tubes are first centrifuged and pooled together into a single sample which then undergoes DNA extraction. The extracted sample is then analysed using real time PCR (qPCR), which uses species-specific molecular markers to amplify GCN DNA within a sample. These markers are unique to GCN DNA, meaning that there should be no detection of closely related species.

If GCN DNA is present, the DNA is amplified up to a detectable level, resulting in positive species detection. If GCN DNA is not present then amplification does not occur, and a negative result is recorded.

Analysis of eDNA requires scrupulous attention to detail to prevent risk of contamination. True positive controls, negative controls and spiked synthetic DNA are included in every analysis and these have to be correct before any result is declared and reported. Stages of the DNA analysis are also conducted in different buildings at our premises for added security.

SureScreen Scientifics Ltd is ISO9001 accredited and participate in Natural England's proficiency testing scheme for GCN eDNA testing. We also carry out regular inter-laboratory checks on accuracy of results as part of our quality control procedures.

INTERPRETATION OF RESULTS



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SIC:	Sample Integrity Check [Pass/Fail] When samples are received in the laboratory, they are inspected for any tube leakage, suitability of sample (not too much mud or weed etc.) and absence of any factors that could potentially lead to inconclusive results.
DC:	Degradation Check [Pass/Fail] Analysis of the spiked DNA marker to see if there has been degradation of the kit or sample between the date it was made to the date of analysis. Degradation of the spiked DNA marker may lead indicate a risk of false negative results.
IC:	Inhibition Check [Pass/Fail] The presence of inhibitors within a sample are assessed using a DNA marker. If inhibition is detected, samples are purified and re-analysed. Inhibitors cannot always be removed, if the inhibition check fails, the sample should be re-collected.
Result:	Presence of GCN eDNA [Positive/Negative/Inconclusive] Positive: GCN DNA was identified within the sample, indicative of GCN presence within the sampling location at the time the sample was taken or within the recent past at the sampling location. Positive Replicates: Number of positive qPCR replicates out of a series of 12. If one or more of these are found to be positive the pond is declared positive for GCN presence. It may be assumed that small fractions of positive analyses suggest low level presence, but this cannot currently be used for population studies. In accordance with Natural England protocol, even a score of 1/12 is declared positive. 0/12 indicates negative GCN presence. Negative: GCN eDNA was not detected or is below the threshold detection level and the test result should be considered as evidence of GCN absence, however, does not exclude the potential for GCN presence below the limit of detection.



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Appendix D Biodiversity Net Gain Report

Brookleigh Pumping Station

Biodiversity Net Gain Assessment

Homes England

Project number: 60610807

July 2024

Quality information

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1. Introduction

AECOM was commissioned by Homes England (hereafter referred to as the 'Client') to undertake a Biodiversity Net Gain (BNG) assessment at the proposed Brookleigh Pumping Station (hereafter referred to as the 'Site'). The assessment is intended to inform the planning application for the land to the east of A273, Isaac's Lane, Burgess hill, RH158RY (hereafter referred to as the 'Proposed Development'). The Central Ordnance Survey National Grid Reference for the Site is TQ 30858 20658.

The BNG assessment has been undertaken to quantify the overall effect of the Proposed Development on the Site's biodiversity value; this is achieved by comparing the Site's baseline habitat value with the Proposed Development's. Calculations consider the level of proposed habitat loss, retention, enhancement and/or creation delivered by the Proposed Development and are measured using the Biodiversity Metric 2.0¹ in accordance with associated guidance documents² and good practice principles³. Biodiversity Metric 2.0¹ has been used to reflect an original assessment completed in 2020⁴ and to identify how the design change has impacted the BNG calculations. The report sets out the results of the BNG assessment including the methodology in Section 2, the results in Section 3, and the conclusions in Section 5.

1.1 Site Description

The Site, indicated by the red line boundary on the 'Baseline Habitat Plan' (Appendix A), is approximately 2.85 ha in size and comprises managed grassland, bracken, mixed scrub and tall ruderal vegetation.

Directly surrounding the Site to the east is dense woodland and residential property. To the north and west of the Site are arable land parcels and other managed grassland areas with interspersed woodland parcels.

1.2 Proposed Development

The Proposed Development involves the creation of a pumping station with below ground storage tanks.

1.3 Policy Context

1.3.1 National Legislation

It is government policy that *"planning decisions should minimise impacts on and provide net gain for biodiversity"*⁵. As of 12 February 2024, BNG is mandatory under Schedule 7A of the Town and Country Planning Act 1990⁶ (as inserted by Schedule 14 of the Environment Act 2021⁷). This requires all relevant developments (with a few exemptions⁸) to achieve a minimum 10% net gain in biodiversity units relative to the Site's baseline biodiversity value.

1.3.2 Local Planning Policy

The Mid Sussex District Plan⁹ includes the Policy DP38: Biodiversity, which states:

"Biodiversity will be protected and enhanced by ensuring development:

- *Contributes and takes opportunities to improve, enhance, manage and restore biodiversity and green infrastructure, so that there is a net gain in biodiversity, including through creating new designated sites and locally relevant habitats, and incorporating biodiversity features within developments; and*
- *Protects existing biodiversity, so that there is no net loss of biodiversity. Appropriate measures should be taken to avoid and reduce disturbance to sensitive habitats and species. Unavoidable damage to biodiversity must*

¹ Natural England (2019) [Biodiversity Metric 2.0](#)

² Natural England (2019). [Technical Supplement & User Guide](#)

³ CIEEM, IEMA & ciria (2019). [Biodiversity Net Gain: Good Practice Principles for Development, A Practical Guide](#)

⁴ AECOM (2020.) Northern Arc Biodiversity Net Gain Assessment.

⁵ UK Government (2023). [National Planning Policy Framework](#)

⁶ UK Government (2024). [Environment Act – Schedule 14.](#)

⁷ UK Government (2021). [Environment Act 2021](#)

⁸ UK Government (2024). [Biodiversity Net Gain: Exempt Developments.](#)

⁹ Mid Sussex District Council (2014) [Mid Sussex District Plan 2014-2031](#)

be offset through ecological enhancements and mitigation measures (or compensation measures in exceptional circumstances); and

- *Minimises habitat and species fragmentation and maximises opportunities to enhance and restore ecological corridors to connect natural habitats and increase coherence and resilience; and*
- *Promotes the restoration, management and expansion of priority habitats in the District; and*
- *Avoids damage to, protects and enhances the special characteristics of internationally designated Special Protection Areas, Special Areas of Conservation; nationally designated Sites of Special Scientific Interest, Areas of Outstanding Natural Beauty; and locally designated Sites of Nature Conservation Importance, Local Nature Reserves and Ancient Woodland or to other areas identified as being of nature conservation or geological interest, including wildlife corridors, aged or veteran trees, Biodiversity Opportunity Areas, and Nature Improvement Areas.*

Designated sites will be given protection and appropriate weight according to their importance and the contribution they make to wider ecological networks.

1.3.3 Client BNG Commitments

There is a planning condition that the wider Brookleigh Proposed Development must align with. This means that each plot (P1.8 and OS1.7) must meet or exceed the BNG score was achieved in the original calculation⁴. However, there a slight reduction in anticipated units for the updated design. Although a reduction in units expected, it is predicted to be minimal. It is predicted that when the updated designs are incorporated into the wider Brookleigh Proposed Development, that the wider Proposed Development will still exceed a +10% BNG score.

2. Methodology

2.1 Biodiversity Metric 2.0

A BNG assessment involves making a comparison between the biodiversity value of habitats present within the Site prior to development (i.e., the 'baseline') and the predicted biodiversity value of habitats following the completion of the development (i.e., 'post-development'). The comparison is made in terms of 'biodiversity units', with a 'biodiversity metric' providing the mechanism to allow biodiversity values to be calculated and compared.

The Biodiversity Metric 2.0¹ (hereafter referred to as the 'Metric') calculates the overall loss or gain of biodiversity of development projects by assessing the distinctiveness (i.e., type of habitat and its value), condition, extent, and strategic significance of habitats on site pre- and post-development, including both permanent and temporary land-take areas. Biodiversity Metric 2.0¹ has been used to align with the original assessment completed in 2020 and to allow for the impact of design change to be assessed. To achieve a BNG, the biodiversity unit score must have a post-development score higher than the baseline score.

When calculating the post-development biodiversity units, the Metric includes a series of standard 'risk multipliers' to account for the inherent risk of creating and restoring habitats, the time taken to establish habitats and the location of the mitigation in relation to the habitats lost on site. The risk multipliers have the effect of reducing the value of the proposed habitats, which means larger areas, habitats of higher distinctiveness, and/or conditions are required to mitigate losses and achieve net gain.

The information required to undertake the BNG calculation is described below.

2.1.1 Baseline Data

Phase 1 Habitat Data¹⁰ collected by AECOM in August 2018¹¹ (hereafter referred to as the 'baseline') have been utilised to determine the Sites baseline area and hedgerow habitats. The baseline habitats were converted from standard Phase 1 Habitat types¹⁰ to UK Habitat (UKHab) Classification categories¹², see Appendix B.1. This data

¹⁰ JNCC (2016). [Handbook for Phase 1 habitat survey - a technique for environmental audit.](#)

¹¹ AECOM (2018). Northern Arc Preliminary Ecological Assessment.

¹² UKHab Ltd (2018 – 2023). [UK Habitat Classification.](#)

has been digitised in Geographic Information System (GIS) to provide area and length measurements of each habitat type.

All baseline habitats defined within the Site were assigned a condition using the condition assessment criteria outlined in the Metric guidance documents², by a qualified ecologist. Further justifications of habitat condition scores are provided in Appendix C. The data was aggregated and entered into the Metric to calculate the baseline biodiversity units.

2.1.2 Post-Development Data

The General Arrangement (GA) Plan¹³ has been used to determine the extent and type of habitats to be retained, created and enhanced post-development. Habitats in the GA Plan¹³ were converted to UKHab Classification categories, see Appendix B.2.

Target condition scores for the proposed habitats were selected in accordance with the Metric User Guide², and Condition Assessment Sheets² using professional judgement to ensure the condition scores selected were realistic. The rationale behind target conditions assigned is provided in Appendix C.2. This data was utilised to predict the post-development biodiversity units.

2.1.3 Habitat Distinctiveness

Habitat distinctiveness is a measure based on the type of habitat and its distinguishing features. Habitats of higher distinctiveness are typically rarer, more valuable, harder to recreate if impacted and are typically considered priority habitats. Habitats of lower distinctiveness are more common and are easier to recreate if impacted. Habitat distinctiveness ranges from 'Very High', 'High', 'Medium', 'Low' and 'Very Low'.

2.1.3.1 Trading Rules

DEFRA define the trading rules as: *"minimum habitat creation and enhancement requirements to compensate for specific habitat losses, up to the point of no net loss. They are based on the habitat type and distinctiveness of the lost habitat"*. Trading rules apply to all area-based habitat modules, with the offsetting requirements differing for each. See Table 1 for a summary of these requirements.

Table 1. Trading Rules Summary

Habitat Distinctiveness Area Habitats

Very High	Priority should be given to replacing losses with area habitat units of the same habitat type
High	Losses must be replaced with area habitat units of the same habitat type
Medium	Losses must be replaced by area habitat units of either: • 'Medium' distinctiveness habitat within the same broad habitat type or, • any habitat of higher distinctiveness.
Low	Losses must be replaced with area habitat units of the same or higher band
Very Low	Not applicable

2.1.4 Strategic Significance

The Metric requires that the strategic significance (hereafter referred to as 'SS') of all baseline and post-development habitats be analysed, defined, and justified. SS is the local significance of a habitat based on its location. SS has been assigned in alignment with the original BNG assessment completed in 2020⁴ to allow for direct comparison between the different post-development designs.

¹³ AECOM (2024) EBLR Foul Water Pumping Station General Arrangement. 60610807-ACM-ZZ-XX-DR-UT-000500.

2.1.5 Connectivity

The Metric requires that the Connectivity of all baseline and post-development habitats be analysed, defined and justified. Connectivity is a score based on the proximity of the habitat patch to similar or related habitats.

Connectivity has been assigned on distinctiveness according to Biodiversity Metric 2.0 methodology². Connectivity scores have been assigned based on the following criteria:

- 'Very High' and 'High' distinctiveness assigned 'Medium' Connectivity;
- 'Medium' and 'Low' distinctiveness assigned 'Low' Connectivity.

2.1.6 BNG Good Practice Principles for Development

The BNG Good Practice Principles for Development are a set of ten principles which “*set out good practice for achieving Biodiversity Net Gain and must be applied all together, as one approach*”³. These principles are as follows:

- Principle 1. Apply the Mitigation Hierarchy
- Principle 2. Avoid losing biodiversity that cannot be offset by gains elsewhere
- Principle 3. Be inclusive and equitable
- Principle 4. Address risks
- Principle 5. Make a measurable Net Gain contribution
- Principle 6. Achieve the best outcomes for biodiversity
- Principle 7. Be additional
- Principle 8. Create a Net Gain legacy
- Principle 9. Optimise sustainability
- Principle 10. Be transparent

This assessment has adhered to this step-by-step process to ensure that best practices are followed. A comprehensive breakdown is provided in Appendix D.

2.2 Assumptions

In undertaking the calculation, the following assumptions have been made:

- The Local Authority have granted permission to use Biodiversity Metric 2.0 for this assessment. Currently the Statutory Biodiversity Metric (SBM) is the most up to date BNG guidance¹⁴.
- All habitat areas and lengths have been measured manually using ArcGIS based on the Phase 1 Habitat Plan and the GA Plan¹³, as such habitat areas are approximations only.

3. Results

Baseline habitats were surveyed originally as separate land parcels named P1.8 and OS1.7 these have been reported and calculated individually below.

3.1 Baseline Habitats P1.8

The Site covers a total area of 2.17 ha. The 'Baseline Habitat Plan' is provided in Appendix A.

Detailed descriptions of each baseline habitat are present in Appendix E.

¹⁴ <https://www.gov.uk/government/publications/statutory-biodiversity-metric-tools-and-guides>

3.2 Baseline Habitats OS1.7

The Site covers a total area of 0.68 ha. The 'Baseline Habitat Plan' is provided in Appendix A.

Detailed descriptions of each baseline habitat are present in Appendix E.

3.3 Baseline Habitats – SS

As outlined in Section 2.1.4, SS has been assigned to all baseline habitats present within the Site:

'Low' SS – assigned to 'Grassland – Modified grassland', 'Sparsely vegetated land – Ruderal/Ephemeral', 'Grassland – Bracken', 'Heathland and shrub – Mixed scrub', 'Native Hedgerow' and 'Native Species Rich Hedgerow with trees' because this habitat is medium distinctiveness or lower. Baseline Habitats – Connectivity

As outlined in Section 2.1.5, Connectivity has been assigned to all baseline habitats present within the Site:

- **'Low' Connectivity** – assigned to Grassland – Modified grassland', 'Sparsely vegetated land – Ruderal/ephemeral', 'Grassland – Bracken', 'Heathland and shrub – Mixed scrub', 'Native Hedgerow' and 'Native Species Rich Hedgerow with trees' as these habitats have 'Low' or 'Medium distinctiveness.

3.3.1 P1.8 Baseline Habitats – Units

The value of baseline habitats present on the Site are presented in Table 22 and 3.

Table 2. Baseline Area Habitats

Broad Habitat	Habitat Type	Irreplaceable habitat	Area (ha)	Distinctiveness (Dist.)	Condition	SS	Habitat Units
Grassland	Modified grassland	No	2.16	Low	Poor	Low	4.32
Sparsely vegetated land	Ruderal/Ephemeral	No	0.01	Low	Poor	Low	0.02
Total	-		2.17				4.34

Table 3. Baseline Hedgerow Habitats

Habitat type	Length (km)	Dist.	Condition	SS	Hedgerow Units
Native Species Rich Hedgerow with trees	0.03	Medium	Moderate	Low	0.26
Total	0.03				0.26

3.3.2 OS1.7 Baseline Habitats – Units

The value of baseline habitats present on the Site are presented in

Table 34 and 5.

Table 4. Baseline Area Habitats

Broad Habitat	Habitat Type	Irreplaceable habitat	Area (ha)	Distinctiveness (Dist.)	Condition	SS	Habitat Units
Grassland	Bracken	No	0.02	Medium	Poor	Low	0.08
Grassland	Modified grassland	No	0.63	Low	Poor	Low	1.26
Heathland and shrub	Mixed scrub	No	0.01	Medium	Moderate	Low	0.08
Sparsely vegetated land	Ruderal/Ephemeral	No	0.02	Low	Poor	Low	0.04
Total	-		0.68				1.46

Table 5. Baseline Hedgerow Habitats

Habitat type	Length (km)	Dist.	Condition	SS	Hedgerow Units
Native Hedgerow	0.00 (<0.005)	Low	Moderate	Low	0.02
Native Species Rich Hedgerow with trees	0.31	Medium	Moderate	Low	2.46
Total	0.31				2.48

3.3.3 Baseline Habitats – Limitations

The following limitations apply to the baseline habitat data:

- The Phase 1 habitat survey was carried out prior to the instruction to undertake the BNG calculation to support the application; therefore, habitat condition assessments were not carried out during the field survey. As a result, baseline condition scores have been assigned retrospectively to habitats based on informed assumptions drawn from the information collated through the Phase 1 habitat survey and subsequent site visits.
- Baseline conditions have been selected in accordance with the Natural England Biodiversity Metric 2.0 Use Guide and Technical Supplement². This guidance recommends attributing Low SS to all habitats of Medium distinctiveness and below, and Medium ecological connectivity to those with High or Very High distinctiveness.

3.4 Post-Development Habitats

The GA Plan¹³ proposes the development of a pumping station to take place on site.

3.4.1 Post-Development Habitats - SS

As outlined in Section 2.1.3, SS has been assigned to all post-development habitats proposed within the GA Plan¹³:

- ‘Low’ SS** – assigned to ‘Urban – Developed land; sealed surface’, ‘Urban – suburban/ mosaic of developed/ natural surface’ and ‘Line of Trees’ because this habitat is Medium distinctiveness or lower.

3.4.2 P1.8 Retained and Lost Habitats

Habitats that are due to be retained or lost within the Proposed Development are detailed in Table 6.

Table 6. Retained and Lost Area Habitats

Broad Habitat	Habitat type	Irreplaceable Habitat	Area (ha)		Dist.	Condition	SS	Habitat Units	
			Retained	Lost				Retained	Lost
Grassland	Modified grassland	No	0.00	2.16	Low	Poor	Low	0.00	4.32
Sparsely vegetated land	Ruderal/Ephemeral	No	0.00	0.01	Low	Poor	Low	0.00	0.02
Total			0.00	2.17				0.00	4.34

3.4.3 OS1.7 Retained and Lost Habitats

Habitats that are due to be retained or lost within the Proposed Development are detailed in Table 7.

Table 7. Retained and Lost Area Habitats

Broad Habitat	Habitat type	Irreplaceable Habitat	Area (ha)		Dist.	Condition	SS	Habitat Units	
			Retained	Lost				Retained	Lost
Grassland	Bracken	No	0.02	0.00	Medium	Poor	Low	0.08	0.00

Sparsely vegetated land	Ruderal/Ephemeral	No	0.02	0.00	Low	Poor	Low	0.04	0.00
Total			0.04	0.00				0.12	0.00

3.4.4 P1.8 Enhanced Habitats

Habitats that are due to be enhanced within the Proposed Development are detailed in Table 8.

Table 8. Enhanced Hedgerow Habitats

Baseline		Post-Development		Area (ha)	Distinctiveness Change		Condition Change		SS Change		Unit Change
Broad Habitat	Habitat Type	Broad Habitat	Habitat Type								
Hedgerow	Native Species Rich Hedgerow with trees	Hedgerow	Native Species Rich Hedgerow with trees	0.03	Medium	Medium	Moderate	Good	Low	Low	0.04
Total				0.03							0.04

3.4.5 OS1.7 Enhanced Habitats

Habitats that are due to be enhanced within the Proposed Development are detailed in Tables 9 and 10.

Table 9. Enhanced Area Habitats

Baseline		Post-Development		Area (ha)	Distinctiveness Change		Condition Change		SS Change		Unit Change
Broad Habitat	Habitat Type	Broad Habitat	Habitat Type								
Grassland	Modified grassland	Grassland	Modified grassland	0.63	Low	Low	Poor	Moderate	Low	Low	0.88
Heathland and shrub	Mixed scrub	Heathland and shrub	Mixed scrub	0.01	Medium	Medium	Moderate	Good	Low	Low	0.04
Total				0.64							0.92

Table 10. Enhanced Hedgerow Habitats

Baseline		Post-Development		Area (ha)	Distinctiveness Change		Condition Change		SS Change		Unit Change
Broad Habitat	Habitat Type	Broad Habitat	Habitat Type								
Hedgerow	Native Species Rich Hedgerow with trees	Hedgerow	Native Species Rich Hedgerow with trees	0.30	Medium	Medium	Moderate	Good	Low	Low	0.40
Hedgerow	Native Hedgerow	Hedgerow	Native Hedgerow	<0.005	Low	Low	Moderate	Good	Low	Low	<0.005
Total				0.31							0.40

3.4.6 P1.8 Created Habitats

Habitats that are due to be created within the Proposed Development are detailed in Table 11 and 12.

Table 11. Created Area Habitats

Broad Habitat	Habitat type	Area (ha)	Dist.	Target Condition	SS	Time to target condition (yrs)	Habitat Units
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Urban	Suburban/ mosaic of developed/ natural surface	2.17	Low	Moderate	Low	3	7.80
Total		2.17					

Table 12. Created Hedgerow Habitats

Habitat type	Length (km)	Dist.	Target Condition	SS	Time to target condition (yrs)	Hedgerow Units
Line of Trees	0.35	Low	Poor	Low	1	0.68
Total		0.35				

3.4.7 OS1.7 Created Habitats

Habitats that are due to be created within the Proposed Development are detailed in Table 113.

Table 13. Created Area Habitats

Broad Habitat	Habitat type	Area (ha)	Dist.	Target Condition	SS	Time to target condition (yrs)	Habitat Units
Urban	Developed land; sealed surface	0.01	Low	N/A	Low	0	0.00
Total		0.01					0.00

3.5 Summary of Results P1.8

A summary of the results for P1.8 is shown in Table 14.

Table 14. Summary of Results

Habitat Type	Baseline	Post-Development	Total Net Unit Change	Total Net % Change	Total Net % Change in 2020 assessment
Area Units	4.34	7.80	+3.46	+79.73%	+79.73%
Hedgerow Units	0.26	0.98	+0.72	+281.05% ¹⁵	+284.48%

3.6 Summary of Results OS1.7

A summary of the results for OS1.7 is shown in Table 15.

Table 15. Summary of Results

Habitat Type	Baseline	Post-Development	Total Net Unit Change	Total Net % Change	Total Net % Change in 2020 assessment
Area Units	1.46	2.38	+0.92	+62.90%	+67.45%
Hedgerow Units	2.48	2.84	+0.36	+14.67%	+16.55%

¹⁵ There are no changes in the hedgerows in the updated design. However, the BNG score is different to that of the original assessment in 2020, due to the rounding of 3 decimal places within the Metric 2.0 tool.

3.6.1 Trading Rules P1.8

3.6.1.1 Area Habitats

For Area habitats, the trading rules within the Metric are currently satisfied for each distinctiveness level.

Table 16. Trading Rules – Area Habitats

Broad Habitat	Habitat Type	Distinctiveness Group	Trading Rule	Unit Change per habitat	Unit change per habitat group ¹⁶	Trading Satisfied?
Grassland	Modified grassland	Low	Same distinctiveness or better habitat required	-4.32	+3.46	Yes
Sparsely vegetated land	Ruderal/Ephemeral			-0.02		
Urban	Suburban/ mosaic of developed/ natural surfaces			+7.80		
Total				+3.46	+4.46	

3.6.2 Trading Rules OS1.7

3.6.2.1 Area Habitats

For Area habitats, the trading rules within the Metric are currently satisfied for each distinctiveness level.

Table 17. Trading Rules – Area Habitats

Broad Habitat	Habitat Type	Distinctiveness Group	Trading Rule	Unit Change per habitat	Unit change per habitat group ¹⁷	Trading Satisfied?
Grassland	Bracken	Medium	Same broad habitat or a higher distinctiveness habitat required	+0.08	+0.20	Yes
Heathland and shrub	Mixed scrub			+0.12		
Grassland	Modified grassland	Low	Same distinctiveness or better habitat required	+2.14	2.18	Yes
Sparsely vegetated land	Ruderal/Ephemeral			+0.04		
Total				+2.38		

3.6.3 Conclusion

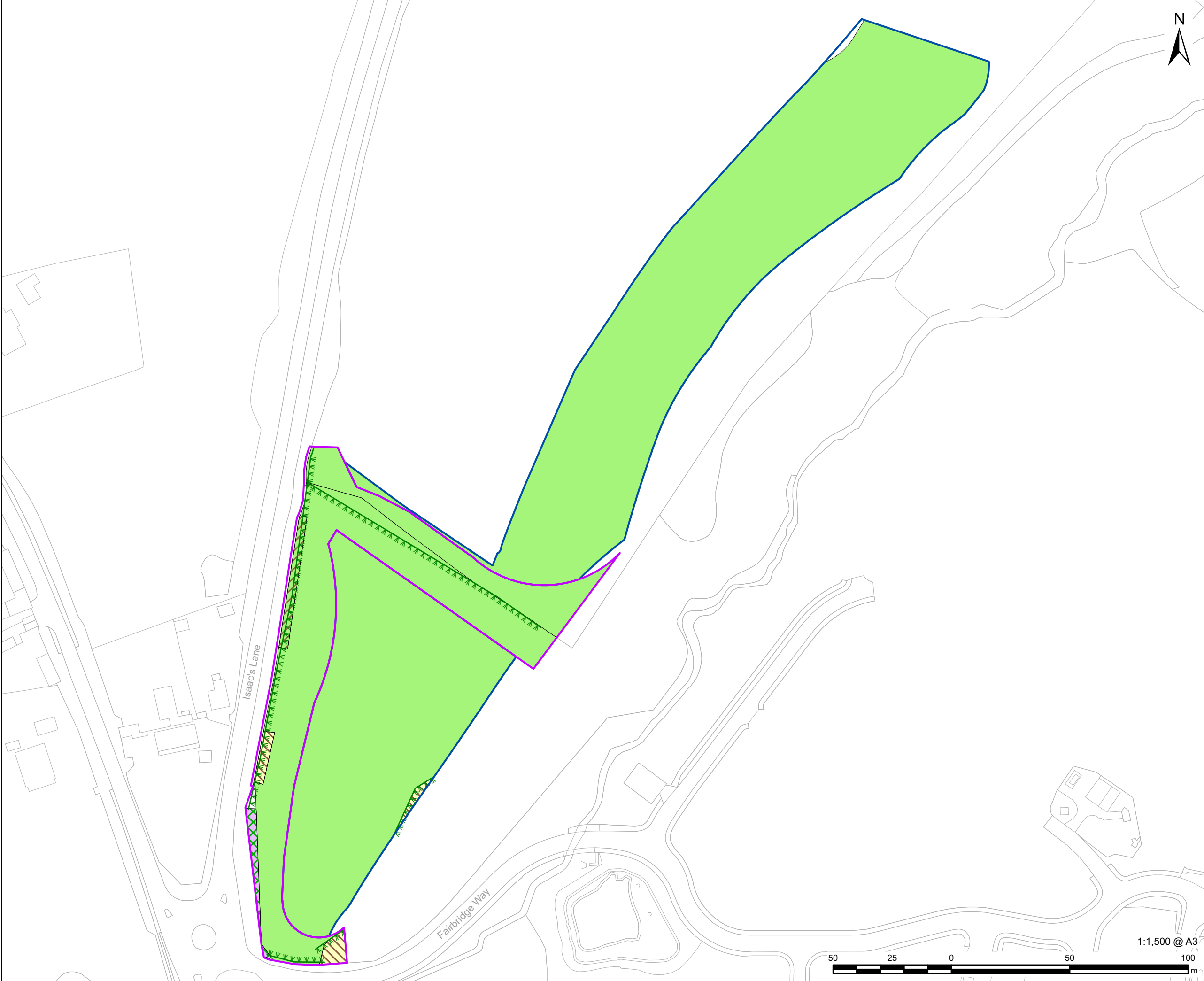
The Proposed Development is predicted to result in a net gain at P1.8 and OS1.7 of 79.73% and 62.90% respectively for area habitat units, and a net gain of 281.05% and 14.67% respectively for hedgerow units. The Proposed Developments, therefore, exceed the BNG target of +10% BNG for each habitat type to meet national targets and the Section 106 agreement. Although there is a slight reduction in the BNG scores from the 2020 assessment, it is minimal. It is predicted that when the updated designs are incorporated into the wider Brookleigh Proposed Development, that the wider Proposed Development will still exceed a +10% BNG score.

The outputs of the Metric depend on all retained and enhanced habitats meeting the target conditions, subject to the criteria outlined within Metric User Guide² (see Appendix F). A Habitat Management and Monitoring Plan (HMMP) should be created, detailing how habitats should be maintained and monitored. Habitats should be monitored to ensure correct establishment and growth, and remedial action should be taken if this does not proceed as expected. Otherwise, the target conditions used in the calculations may not be met, and the predicted biodiversity units might not be achieved.

¹⁶ This only applies to 'Medium' (same broad habitat) and 'Low' (all habitats of equal value) distinctiveness habitats. Habitats of 'High' and above distinctiveness are not grouped together and instead the impact upon these habitats needs to be considered and mitigated for in isolation.

¹⁷ This only applies to 'Medium' (same broad habitat) and 'Low' (all habitats of equal value) distinctiveness habitats. Habitats of 'High' and above distinctiveness are not grouped together and instead the impact upon these habitats needs to be considered and mitigated for in isolation.

Appendix A Baseline Habitat Plan



AECOM

PROJECT

Brookleigh Foul Sewer
Pumping Station

CLIENT

Homes England

CONSULTANT

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Basingstoke, Hampshire
RG21 7PP
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LEGEND

- Plot Boundary - P1.8
- OS Plot Boundary - OS1.7
- Native Hedgerow
- Species-Rich Native Hedgerow with Trees
- Grassland - Bracken
- Grassland - Modified Grassland
- Heathland and Shrub - Mixed Scrub
- Sparsely Vegetated Land - Ruderal/Ephemeral

NOTES

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Ordnance Survey 0100031673

ISSUE PURPOSE

Biodiversity Net Gain Report

PROJECT NUMBER

60610807

FIGURE TITLE

Biodiversity Net Gain
Baseline Habitats

FIGURE NUMBER

Appendix A

1:1,500 @ A3



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Appendix B Habitat Classification Conversions

B.1 Phase 1 Habitat to UKHab Conversion

Phase 1 Habitat Classification	UKHab Classification
Bracken - Continuous	Grassland - Bracken
Improved grassland and Poor Semi-Improved grassland	Grassland - Modified grassland
Scrub – Dense and continuous	Heathland and shrub - Mixed scrub
Other Tall Herb and Fern - Ruderal	Sparsely vegetated land - Ruderal/Ephemeral
Intact Hedgerow - Species-poor	Native Hedgerow
Hedge with trees - Species-rich	Native Species Rich Hedgerow with trees

B.2 General Arrangement Plan to UKHab Conversion

General Arrangement Plan Classification	UKHab Classification
Proposed pumping station	Urban - Developed land; sealed surface
Reinstated habitat, proposed pumping station and belowground tanks	Urban - Suburban/ mosaic of developed/ natural surface
Proposed trees	Line of Trees

Appendix C Habitat Condition Assessments

C.1 Baseline Habitat Condition Assessment

Habitat Ref.	Broad Habitat	Habitat Type	Condition Sheet	Condition Sheet Criteria													Score	Condition
				1 /	2 /	3 /	4 /	5 /	6 /	7 /	8 /	9 /	10 /	11	12	13		
				A1	A2	B1	B2	C1	C2	D1	D2	E1	E2					
OS1.7	Grassland	Bracken	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	0	Poor*
OS1.7	Grassland	Modified grassland	5	N	N	Y	N	N	Y	Y	-	-	-	-	-	-	3	Poor
OS1.7	Heathland and shrub	Mixed scrub	19	Y	N	Y	Y	N	-	-	-	-	-	-	-	-	3	Moderate
OS1.7	Sparsely vegetated land	Ruderal / Ephemeral	20	N	Y	Y	N	-	-	-	-	-	-	-	-	-	2	Poor
OS1.7	Hedgerow	Native Hedgerow	8	Y	Y	Y	N	Y	N	Y	N	-	-	-	-	-	5	Moderate
OS1.7	Hedgerow	Species Rich Native Hedgerow with trees	8	Y	Y	N	N	Y	N	Y	N	Y	Y	-	-	-	6	Moderate
P1.8	Grassland	Modified grassland	5	N	N	Y	N	N	Y	Y	-	-	-	-	-	-	3	Poor
P1.8	Sparsely vegetated land	Ruderal / Ephemeral	20	N	Y	Y	N	-	-	-	-	-	-	-	-	-	2	Poor
P1.8	Hedgerow	Species Rich Native Hedgerow with trees	8	Y	Y	Y	N	Y	N	Y	N	Y	Y	-	-	-	7	Moderate

*No condition assessment required. The condition is pre-set in the metric.

C.2 Post-Development Target Conditions

Habitat Ref.	Broad Habitat	Habitat Type	Condition Sheet	Condition Sheet Criteria													Score	Condition
				1 / A1	2 / A2	3 / B1	4 / B2	5 / C1	6 / C2	7 / D1	8 / D2	9 / E1	10 / E2	11	12	13		
OS1.7	Urban	Developed land; sealed surface	N/A	-	-	-	-	-	-	-	-	-	-	-	-	-	N/A	N/A - Other
OS1.7	Hedgerow	Native Hedgerow	8	Y	Y	Y	Y	Y	N	Y	Y	-	-	-	-	-	7	Good
OS1.7	Hedgerow	Species Rich Native Hedgerow with trees	8	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	-	-	-	9	Good
P1.8	Urban	Suburban/ mosaic of developed/ natural surface	21	N	Y	Y	-	-	-	-	-	-	-	-	-	-	2	Moderate
P1.8	Hedgerow	Line of Trees	15	Y	N	N	N	Y	-	-	-	-	-	-	-	-	3	Poor
P1.8	Hedgerow	Species Rich Native Hedgerow with trees	8	Y	Y	Y	Y	Y	N	Y	Y	Y	Y	-	-	-	9	Good

Appendix D BNG Good Practice Principles for Development

Principle	How has this been applied in the assessment
Principle 1: Apply the Mitigation Hierarchy	Most habitats present within the baseline habitats for the Site ranged from 'Low' to 'Medium' distinctiveness. With it not being possible to retain some of the habitats On-Site, mitigation for these habitat losses has been implemented focusing on On-Site provisions which has resulted in a net gain and the satisfaction of trading rules.
Principle 2: Avoid losing biodiversity that cannot be offset by gains elsewhere	There is no loss of irreplaceable habitat due to take place On-Site.
Principle 3: Be inclusive and equitable	Stakeholder engagement was not necessary for this project. However, the Client has discussed the Post-Development with landscape architects to create the largest gains On-Site.
Principle 4: Address risks	The target of +10% BNG has been surpassed for area-based habitats for the Proposed Development. Trading rules have also been satisfied.
Principle 5: Make a measurable Net Gain contribution	The area-based habitat net gain is currently >50% for both land parcels which exceeds the national and LPA mandate of +10%.
Principle 6: Achieve the best outcomes for biodiversity	For area-based habitats, the project has achieved the best outcomes for biodiversity by retaining a larger proportion of baseline habitat and then compensating for losses by enhancing exiting habitat and then creating a mosaic of habitat which will include a greater species richness than present at the baseline.
Principle 7: Be additional	The area-based habitat net gain is currently >50% for both land parcels which exceeds the national and LPA mandate of +10%.
Principle 8: Create a net gain legacy	A net gain legacy is to be achieved on this Site.
Principle 9: Optimise sustainability	The creation and enhancement of habitat will create more beneficial habitat across the Site, when compared to the baseline habitats currently present. This can be viewed as a sustainable societal impact, as it is anticipated that these increases in habitat quality.
Principle 10: Be transparent	Particular effort has been made to be communicate all BNG impacts on the Proposed Development, this has been communicated in this report.

Appendix E Baseline Habitat Descriptions

Habitat type	Habitat Description
P1.8	
Modified grassland	Mown field with rough margins. Species included False oat grass (<i>Arrentherum. eletius</i>), yorkshire fog (<i>Hocus lanata</i>), Timothy (<i>Phelum pratense</i>), cocks-foot grass (<i>Dictalys glomerata</i>), broadleaved dock (<i>Rumex obtusifolius</i>), and hogweed (<i>Heracleum sphondylium</i>).
Ruderal / Ephemeral	Nettle and spear thistle dominated
Species Rich Native Hedgerow with trees	Species Rich hedgerow with trees containing blackthorn (<i>Prunus spinosa</i>), elder (<i>Sambucus nigra</i>), honeysuckle (<i>Lonicera periclymenum</i>), oak (<i>Quercus sp.</i>), hawthorn (<i>Crataegus monogyna</i>), aspen (<i>Populus tremula</i>), hazel (<i>Crataegus monogyna</i>), dog rose (<i>Rosa canina</i>)
OS1.7	
Grassland – Modified grassland	Cattle pasture dominated by perennial rye grass (<i>Lolium perenne</i>) with 1m course grass margin.
Grassland - Bracken	Continuous bracken present along field margins
Heathland and shrub - Mixed scrub	2 to 3m in height containing hazel (<i>Corylus avellana</i>), Hawthorn (<i>Crataegus monogyna</i>), blackthorn (<i>Prunus spinosa</i>), bramble (<i>Rubus fruticosus</i>), and oak (<i>Quercus sp.</i>)
Ruderal / Ephemeral	Nettle dominated at field margins
Native Hedgerow	Blackthorn dominated hedgerow
Species Rich Native Hedgerow with trees	Species Rich Hedgerow with trees containing blackthorn (<i>Prunus spinosa</i>), hawthorn (<i>Crataegus monogyna</i>), hazel (<i>Crataegus monogyna</i>), holly (<i>Ilex aquifolium</i>), elder (<i>Sambucus nigra</i>), honeysuckle (<i>Lonicera periclymenum</i>), field maple (<i>Acer campestre</i>), and oak (<i>Quercus sp.</i>)

Appendix F Habitat Management Required to Achieve Target Condition

Habitat Type	Target Condition	Recommended Habitat Management
Urban - Developed land; sealed surface	N/A – Preset condition	N/A – Preset condition
Native Hedgerow	Enhancement to Good	- Plant additional native scrub species to reduce gaps in length - Reduce pruning practices
Species Rich Native Hedgerow with trees	Enhancement to Good	- Plant additional native scrub species to reduce gaps in length and at the base - Reduce pruning practices
Suburban/ mosaic of developed/ natural surface	Moderate	- Plant a diverse range of flowering species which supply nectar at different times of year - Monitor Invasive species and remove as appropriate
Line of Trees	Poor	- Plant native tree species - Reduce chance of impact from damage by use of tree guards

Appendix G Metric Calculations

Metrics to be included as an attachment.

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