



SITE ADJACENT TO QUEEN VICTORIA HOSPITAL EAST GRINSTEAD

PART 1: HABITAT MANAGEMENT AND MONITORING PLAN (HMMP)

MACAR
PARTNERSHIPS
(QVH) LIMITED

Written By:	JC
Checked By:	LD
Date:	08/01/2026
Document File Ref:	*
Revision:	
Date of last revision:	
Revised by:	

QUALITY ASSURANCE

This report has been prepared in accordance with the Chartered Institute of Ecology and Environmental Management (CIEEM) Guidelines for Ecological Report Writing (2nd Edition, December 2017).

The facts stated in this report are true to the best of our knowledge and belief, and any opinions expressed are held genuinely and in accordance with the accepted standards of the profession. ACD Environmental Ltd is a CIEEM Registered Practice.

Client:	Macar Partnerships (QVH) Limited
Site/job:	Site adjacent to Queen Victoria Hospital, East Grinstead.
Author:	Jake Cranston
Technical review:	Lisa Durrant



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1 INTRODUCTION

- 1.1. ACD Environmental Ltd was instructed to produce a Habitat Management and Monitoring Plan (HMMP) for the Land adjacent to Queen Victoria Hospital, East Grinstead, RH19 3DZ (OS Grid Reference: TQ 39793 39402). This land is hereafter referred to as the 'Approved Development Site'.
- 1.2. This report refers to the On-site Biodiversity Areas of the Approved Development Site. A Part 2 HMMP report forms a separate document which focuses on the Off-Site Biodiversity Areas.
- 1.3. Mid Sussex District Council has granted planning permission for: "*Erection of 36 dwellings along with access from Oakfield Way along with parking and landscaping.*". Relating to planning **DM/24/2704**, granted on 18th November 2025.
- 1.4. This report has been produced to address **Condition 7** and the S106 Sch 3 requirements relating to Biodiversity Net Gain. **Condition 7** states:

"If significant on-site enhancements are included within the approved Biodiversity Gain Plan, a Habitat Management and Monitoring Plan (HMMP), prepared in accordance with the approved Biodiversity Gain Plan, shall be submitted to, and approved in writing by the local authority, prior to commencement of development, including:

- a) the roles and responsibilities of the people or organisation(s) delivering the HMMP;*
- b) the planned habitat creation and enhancement works to create or improve habitat to achieve the on-site significant enhancements in accordance with the approved Biodiversity Gain Plan;*
- c) the management measures to maintain habitat in accordance with the approved Biodiversity Gain Plan for a period of 30 years from the completion of development;*
- d) the monitoring methodology in respect of the created or enhanced habitat to be submitted to the local planning authority; and*
- e) details of the content of monitoring reports to be submitted to the LPA including details of adaptive management which will be undertaken to ensure the aims and objectives of the Biodiversity Gain Plan are achieved.*

Notice in writing shall be given to the Council when the:

- o initial enhancements, as set in the HMMP, have been implemented; and*
- o habitat creation and enhancement works, as set out in the HMMP, have been completed after 30 years.*

The created and/or enhanced habitat specified in the approved HMMP shall be managed and maintained in accordance with the approved HMMP.

Unless otherwise agreed in writing, monitoring reports shall be submitted in years 1, 2, 5, 10, 15, 20, 25, and 30 to the Council, in accordance with the methodology specified in the approved HMMP.

Reason: To satisfy the requirement of Schedule 7A, Part 1, section 9(3) of the Town and Country Planning Act 1990 that significant on-site habitat is delivered, managed, and monitored for a period of at least 30 years from completion of development.”

1.5. The S106 Sch 3 requirements share most of the above conditions as the HMMP but also states:

1.6. *“The HMMP shall include the following habitats based on the submitted post-intervention values:*

On site other woodland: mixed

On site pond – non priority

Offsite other woodland: mixed.”

1.7. This report should be read in conjunction with the Ecological Survey Report dated January 2021¹ and the Preliminary Ecological Appraisal Update dated December 2022² both produced by PJC Consultancy. As well as the UK Habs and BNG Assessment³, the Construction Environmental Management Plan: Biodiversity⁴ and the Soft Landscape Plan all produced by ACD Environmental⁵.

Competence

1.8. This report has been written by Jake Cranston, Ecologist at ACD Environmental Ltd and Qualifying member of the Chartered Institute of Ecology and Environmental Management (CIEEM). Jake has undertaken various surveys, ranging from Habitat Surveys to Phase 2 surveys for protected species, including bats, badgers and dormice. Jake has written various reports, including Badger Technical Notes, and Landscape and Ecological Management Plans. Jake holds Natural England Class licences to survey for dormouse *Muscardinus avellanarius* and great crested newt *Triturus cristatus*. Is working on his bat licence.

¹ PJC Consultancy (29th November 2019). *Ecological Survey Report: Woodland parcel at Queen Victoria Hospital, Holtye Road, East Grinstead, RH19 3DZ*. PDF. Kent.

² PJC Consultancy (20th January 2021). *‘Preliminary Ecological Appraisal.’* PDF. Kent

³ PJC Consultancy (13th December 2022). *‘Preliminary Ecological Appraisal Update – Land at Queen Victoria Hospital, Holtye Road, East Grinstead, West Sussex’* Kent. PDF.

⁴ ACD Environmental (15th September 2023) *‘UK Habs and BNG Assessment’*. Malmesbury. PDF.

⁵ ACD Environmental (June 2024). *‘Soft Landscape Proposal.’* Malmesbury. PDF.

- 1.9. A Technical Review of this report has been undertaken in line with ACD Environmental Ltd's Quality Assurance procedures. The Technical Review was undertaken by Lisa Durrant. Lisa is a Senior Ecologist at ACD Environmental Ltd. She has 13 years' experience in ecological consultancy and holds Natural England Class License for bats (Level 2), great crested newts *Triturus cristatus*, dormice *Muscardinus avellanarius*, and barn owl *Tyto alba*. She is a Full Member of the Chartered Institute of Ecology and Environmental Management (MCIEEM).

2 AIMS AND OBJECTIVES

Aims

- 2.1. The aims of this HMMP and how this relates to specific sections of this report are as follows:
- Provide a summary of the previous ecology surveys and results in order to provide the context to subsequent recommendations (**Section 3.0, Appendix 1**).
 - Provide details of the roles and responsibilities for future actions (**Section 4.0**).
 - Provide details of habitat creation (**Section 5.0, Appendix 2**).
 - Provide details on habitat management and enhancement (**Section 6.0, Appendix 5**).
 - Provide details on monitoring and review (**Section 7.0**).
 - Provide details of a schedule of works for implementation and subsequent management, maintenance and monitoring (**Section 8.0**).
 - Provide conclusions to the points raised (**Section 9.0**).

Objectives

- 2.2. To ensure the success of the landscape and ecological design in perpetuity, the programme of maintenance and management within this report will aim to achieve the following objectives:
- Ensure features of ecological value are protected and managed in a way that ensures their ecological value is maintained.
 - Create new habitats of ecological value.
 - Create and maintain ecological corridors for commuting wildlife across the completed development to ensure connectivity of habitats is maintained.
 - To ensure that the required protected species enhancement measures remain in place in perpetuity and are not disturbed.

3 BASELINE ECOLOGICAL CONDITIONS

- 3.1. The Approved Development Site consists of c. 2.0 hectares of mixed broadleaved woodland, classified as priority deciduous woodland within the Priority Habitat Inventory⁶, with a non-priority pond adjacent the southern boundary.
- 3.2. The Approved Development Site borders north-east of East Grinstead town centre and south of the Surrey border. The wider landscape predominantly consists of residential development from southeast to southwest with the Queen Victoria Hospital neighbouring the eastern boundary. The northeastern boundary of the Approved Development Site connects to ancient woodland, designated as Ancient- Semi Natural woodland⁴. **Figure 1** below indicates an approximate boundary of the Approved Development Site.



Figure 1: Approximate boundary of the Approved Development Site (red). The blue boundary indicates off-site ancient woodland habitat. Map data (2025): Google. Google maps.

- 3.3. The Baseline Habitat Map and Habitat Creation Plan which were used to inform the metric have been included within **Appendix 1** and **Appendix 2** respectively.

Designated Sites

- 3.4. The Approved Development Site is located within the 'zone of influence' (ZOI) of Ashdown Forest Special Area of Conservation (SAC) and Special Protection Area (SPA)⁶. The ZOI is 7km from the boundary of Ashdown Forest, the Approved Development Site is approximately 5.7km away. The planning consultant report, produced by Natural England states that the development of the Approved Development Site is likely to have significant effect on Ashdown Forest due to increased recreational pressure⁷. The council authority has local measures in place to manage potential recreational impacts; these mitigation measures take the form of contributions to Suitable Alternative Natural Greenspaces (SANG) provisions and financial payment to Strategic Access Management and Monitoring (SAMM)⁸.
- 3.5. The Approved Development Site is within the Zone of Influence (ZOI) for two non-statutory sites; Worth Way and Ashplatts, both Local Wildlife Sites. Under the Mid-Sussex District 2014-2031 Plan⁹, Policy DP22 Rights of Way and other Recreational Routes, Worth Way constitutes as a Recreational Route and is protected to ensure development does not result in the loss or adversely effect the recreational route. Mitigation for Worth Way includes ensuring development provides convenient, safe links to other recreational routes, and/or supporting additional routes between settlements⁹.
- 3.6. Ashplatts is a SANG created to alleviate recreational pressure for Ashdown Forest SPA and SAC. The Approved Development falls within the 7km radius of Ashdown Forest and is c. 560m southeast of Ashplatts. Mitigation for Ashplatts will be included under the mitigation for Ashdown Forest, discussed above in paragraph 3.2.

Baseline

- 3.7. Habitats identified within the Approved Development Site are based on the updated UK Habs Survey walkover on the 1st of July 2024 and the UK Hab and BNG Assessment Survey on 16th August 2023.
- w1h5, Other woodland mixed – mainly broadleaved
 - 41, Pond (non-priority).

⁶ Multi-Agency Geographical Information for the Countryside (2024). *MAG/IC*. [Online]. Available from: <https://magic.defra.gov.uk/magicmap.aspx>

⁷ Natural England (4th December 2023) '*Planning Consultation Ref; DM.21.1842*'. PDF. Cheshire.

⁸ Mid-Sussex District Council (21st August 2023) '*Protecting Ashdown Forest*'. [Online]. Available from: <https://www.midsussex.gov.uk/planning-building/protecting-ashdown-forest/>

⁹ Mid-Sussex District Council (March 2018) '*Mid Sussex District Plan 2014-2031*'. [Online]. Available from: <https://www.midsussex.gov.uk/media/2367/district-plan-adoption-version.pdf>

W1h5 Other woodland mixed – mainly broadleaved.

- 3.8. The mixed woodland comprises of European Ash *Fraxinus excelsior*, blackthorn *Prunus spinosa*, common holly *Ilex aquifolium*, dog rose *Rosa canina*, English oak *Quercus robur*, hawthorn *Crataegus monogyna*, field maple *Acer campestre*, sycamore *Acer pseudoplatanus*, hazel *Corylus avellana* two Lawson cypress's *Chamaecyparis lawsoniana*, goat willow *Salix caprea*, one western red cedar *Thuja plicata* and yew *Taxus baccata*. The BNG assessment survey⁴ references a further two species: bamboo *Poaceae sp* and bird cherry *Prunus padus*.
- 3.9. In addition, Cherry laurel *Prunus laurocerasus* was established within glades of the woodland and appears to be spreading.
- 3.10. Ground flora present within the woodland consist of bramble *Rubus fruticosus*, herb Roberts *Geranium robertianum*, creeping buttercup *Ranunculus repens*, false oat grass *Arrhenatherum elatium*, hedge bindweed *Calystegia sepium*, false brome *Brachypodium sylvaticum*, common ivy *Hedera helix*, wood melic *Melica uniflora*, pendulous sedge *Carex pendula*, common nettle *Urtica dioica*, cocksfoot *Dactylis glomerata*, tufted hair grass *Deschampsia cespitosa*, Yorkshire fog *Holcus lanatus*, male fern *Dryopteris filix-mas*, willow herb *Epilobium sp* and creeping jenny *Lysimachia nummularia*.
- 3.11. Desire lines were present within in the woodland which were found to be well used, with areas of trampling and bare ground footpaths, in addition to dirt tracks for transport to the hospital.

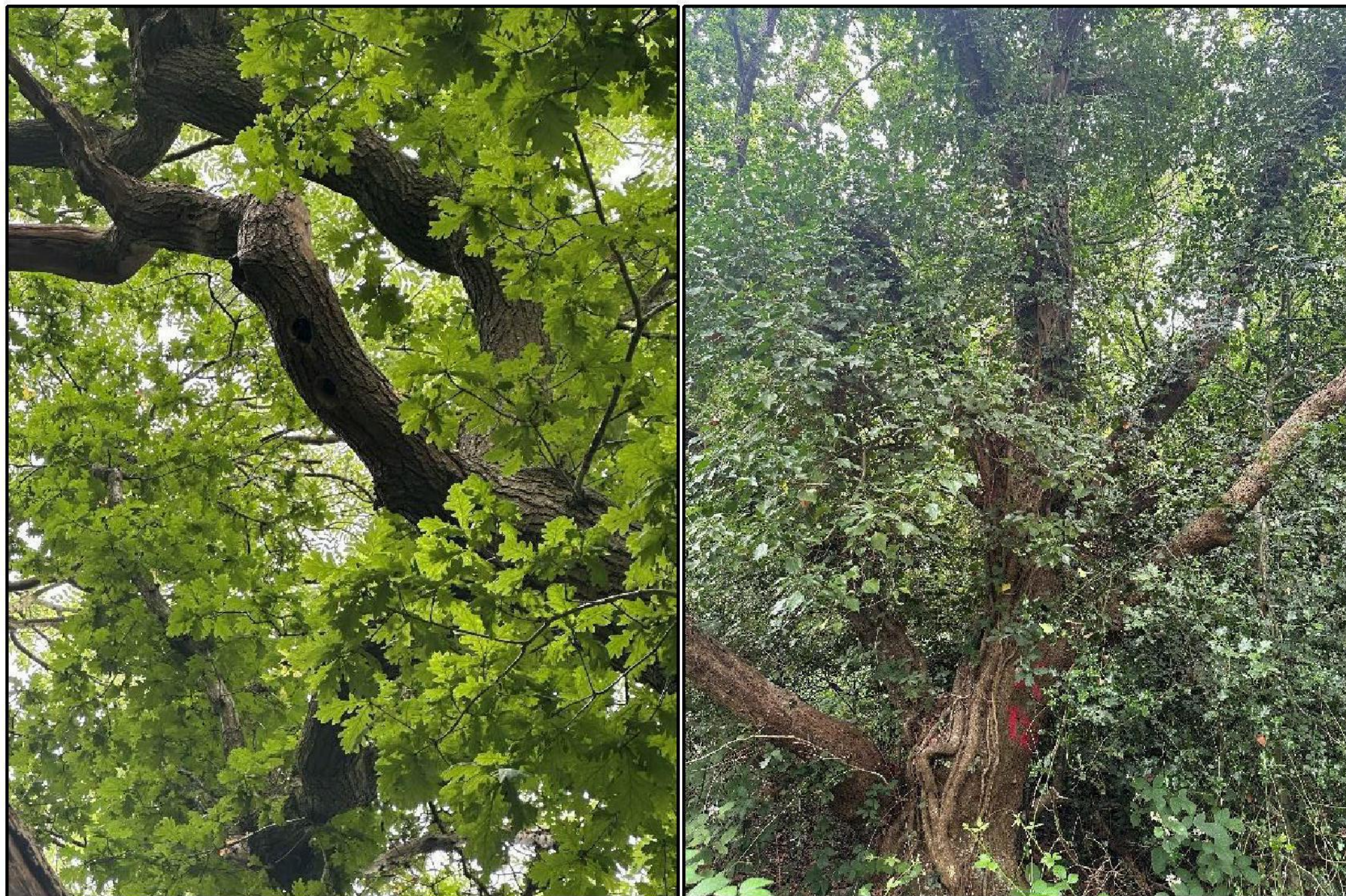
41 Pond (non-priority).

- 3.12. An attempt was made to survey the non-priority pond, however there was difficulty in visibility due to dense growth of vegetation. According to the UK Hab and BNG Assessment Survey, the pond is described as; "...surrounded by w1h5 woodland and so is shaded by native trees along the banks. The water is clear with low turbidity and <10% duckweed or filamentous algae on the pond surface. It does not appear fish are present in large densities, coots were seen during the time of the survey. The banks surrounding the pond were gently sloping and boggy with low vegetation. No aquaflora was present in the pond or along the banks. No artificial dams, pumps, connections to other water bodies or pipework were preset and no non-native plant or animal species were identified". As the UK Hab assessment took place a year ago, it is considered the habitat remains the same, as described.

Fauna

Bats

- 3.13. The woodland provides suitable habitat for a variety of bat species.
- 3.14. A Phase 2 Ecological Survey for bats was conducted within the Approved Development Site between April to October 2019, using static detectors and transect activity surveys. Results from the surveys recorded six species of bats within the woodland; common pipistrelle *Pipistrellus pipistrellus*, soprano pipistrelle *Pipistrellus pygmaus*, nathusius pipistrelle *Pipistrellus nathusii*, *Plecotus sp* such as brown-long eared *Plecotus auritus*, noctule *Nyctalus noctula* and *myotis sp*.
- 3.15. Of the 6 species recoded, 88% of the recordings were common pipistrelle, followed by soprano pipistrelle making up 9% of the recordings, with the most activity levels recorded in May, July and September 2019.
- 3.16. During the Updated Walkover Survey, eight mature oaks, one mature ash and one red cedar had potential bat roosting features such as wounds, lifted bark, butt rot and knotholes. However, we were unable to survey all trees present within the woodland due to timing limitation, as well as visible limitations; majority of mature trees have thick ivy present, making it difficult to fully view the body of the tree, as well as the dense nettle ground flora.



Photograph 1 (left): Oak with wood-pecker cavities.

Photograph 2 (right): Oak with dense ivy cover.

Amphibians

- 3.17. A non-priority pond is present within the south of the Application Site, which has the potential to support amphibians. The pond onsite was subjected to a Habitat Suitability Index (HSI) survey on the 11th April 2019. A HSI survey is used to assess the potential for a habitat to support great crested newts *Triturus cristatus*; the outcome of this assessment found the pond to have 'poor' suitability for great crested newts, primarily due to poor water quality, as well as lack of suitable aquatic vegetation and waterfowl present. In addition to this an eDNA survey was carried out at the same time, with a negative result indicating great crested newts as absent.
- 3.18. However, the Approved Development Site did support other amphibians, such as the common frog and smooth newt; four juvenile common frogs and a single juvenile smooth newt were recorded during the reptile surveys between April – August 2019.
- 3.19. The pond and its immediate surrounding habitat are to remain and be protected during construction. As the surrounding habitat remains largely unchanged, and with visible limitations to the pond during the Updated Walkover on July 1st, it is believed the Approved Development remains similar in ability to support amphibians, with the possibility of commuting amphibians within the wider landscape of the Approved Development Site and possibility of amphibians within the vicinity of the southern pond.



Birds

- 3.22. The woodland provides suitable habitat for nesting birds, with many suitable opportunities within the dense canopy. During the Updated Walkover Survey there was presence of nesting birds, as fledglings could be heard, and a nesting black bird was recorded within a forked hazel tree.

Reptiles

- 3.23. A reptile survey was undertaken by PJC Consultancy between 29th April to 1st August 2019, with a peak count of one adult slow worm *Anguis fragilis* and one sub-adult grass snake *Natrix natrix*. Woodland composition and habitat has not altered since the 2019 survey, as described in the preliminary ecological appraisal² as “...comprises predominantly semi-natural deciduous woodland which for the majority is considered to be less than 50 years old. This determination was estimated using historical satellite imagery A large duck pond (P1) is present within the southern portion of the Site and a dirt access track intercepts the centre of the Site...”.
- 3.24. Hibernacula are present within the woodland due areas of dead wood log piles. However, the woodland is heavily shaded, with footpaths in frequent use by dogwalkers, pedestrians and vehicles to Queen Victoria Hospital, therefore most likely used for commuting and foraging purposes only.
- 3.25. Due the unstable features of the woodland, i.e. heavy shading and frequent pedestrian use and the results of the April 2019 reptile survey, the woodland is considered likely to support reptiles commuting across the Application Site.

Invertebrates

- 3.26. Deadwood was present within the Approved Development Site due to fallen trees within the woodland habitat. This provides suitable habitat to support stag beetle and other notable invertebrate species.

Other species

- 3.27. In addition to the species above, the Approved Development Site provides suitable habitat for hedgehog *Erinaceus europaeus*.

4 ROLES AND RESPONSIBILITIES

- 4.1. This report should be read in conjunction with other environmental reports for the Site adjacent to Queen Victoria Hospital, East Grinstead.
- 4.2. The overall responsibility for the design of the scheme under The Construction (Design and Management) Regulations 2015 is with the Principal Designer.
- 4.3. The implementation of this HMMP (including habitat creation) during site preparation and construction is the collective responsibility of the appointed Project Manager, and the Developer. This collective will ensure that all appointed contractors are aware of the ecological requirements of the Approved Development Site and will distribute this HMMP to relevant parties.
- 4.4. All materials, workmanship, quality and operations should be in accordance with all relevant British Standards, Codes of Practice and legislation including relevant Health and Safety legislation.
- 4.5. Once the construction phase is complete, the maintenance and management of the habitats on the Application Site and associated funding will be the responsibility of a private management company appointed by the Developer. Once a management company is appointed, their details should be inserted here:

Name:

Company:

Telephone:

Personnel responsible for implementation of the plan:

Main contact:

Developer contact details:

Length of agreement

- 4.6. The minimal length of the initial agreement with the management company will be five years. Following the five years, management practices will be reviewed, and a new contract drawn up as necessary, to ensure the Approved Development Site is managed in line with the aims and objectives of this HMMP for a minimum of 30 years, as proposed in **Condition 7** and the S106 Sch 3 requirements. Management should continue in perpetuity.

5 HABITAT CREATION

5.1. The following habitats will be created:

- Ornamental hedgerow
- Mixed Native hedgerow
- Native shrub mix
- Scattered trees
- Ornamental shrub
- Amenity grass
- Bulb Mix
- Wildflower meadow
- Modified grassland

5.2. This section details the measures taken to create new ecologically valuable habitats and to enhance existing habitats in order to enhance the biodiversity within the Approved Development Site.

5.3. The Soft Landscape Proposal plan produced by ACD Environmental⁵ as seen in **Appendix 4**, indicates the approximate location of the new habitats and the artificial enhancements within the Approved Development Site.

5.4. Under the Environment Act 2021, all developments are required to carry out a Statutory Biodiversity Net gain with the objective of the legislation to deliver a 10% increase in biodiversity value relative to the predevelopment value. The 10% increase in biodiversity can be achieved through onsite creation or off-site biodiversity gains. The Approved Development has a biodiversity net gain of 27.35% according to the UK Hab and BNG Assessment⁴, therefore surpassing the statutory requirement. Predominantly the net gain is produced by off-site enhancements. The Part 2- Off-site HMMP provides further details on biodiversity net gain.

Habitat Creation

Ornamental hedgerow

5.5. Ornamental hedgerow is to be planted across the Approved Development Site, to act as screening between residential dwellings and the main access road. The ornamental hedgerow is a single

species hedgerow consisting of common beech *Fragus sylvatica*.

Mixed native hedgerow

- 5.6. Three native mixed hedgerows are to be planted within the southeastern section of the Approved Development Site. Native species proposed are hazel *Corylus avellana*, dogwood *Cornus sanguinea*, hawthorn *Crataegus monogyna*, blackthorn *Prunus spinosa* and guelder-rose *Viburnum opulus*. The native mixed hedgerow will provide opportunities for nesting birds as well as provide valuable pollen sources for invertebrates.

Native Scrub Mix

- 5.7. There are a number of native mixed shrub areas to be planted across the Approved Development Site. The native shrub mixed, is known as the proposed woodland mix within the Soft- Landscape Proposal Plan; the woodland mix is to be planted in groups 5-7 species. Species proposed include common dogwood, hazel, common holly, wild privet *Ligustrum vulgare*, dog rose, elder and guelder rose.
- 5.8. The Native mixed shrub will act as a buffer zone between the Approved Development Site and the remaining onsite and offsite woodland boundary. These buffer zones will provide corridor opportunities for variety of wildlife such as bats and nesting birds, as well as providing further foraging opportunities.

Scattered trees

- 5.9. A total of 45 tree's are to be planted within the Approved Development Site. Tree species comprise of field maple, European hornbeam *Carpinus betulus*, silver birch *Betula pendula*, common beech, common dogwood, common hazel and hawthorn. The tree species proposed are in keeping with the wider woodland landscape and provide opportunities for nesting birds.

Ornamental Shrub

- 5.10. Proposed ornamental plant beds are to be located surrounding a majority of the residential dwellings.
- 5.11. There are a total seven species of ornamental and native plants proposed for the ornamental plant beds. The species consist of *Skimmia japonica* 'Kew White', wayfaring Tree *Viburnum lantana*, English lavender *Lavandula angustifolia* 'Hidcote', Tutsan *Hypericum androsaemum*, *Euonymus japonicus* 'Jean Hugues', European beech and Fortunes spindle *Euonymus fortunei* 'Silver Queen'.
- 5.12. The ornamental shrub will provide pollinator opportunities as *Skimmia japonica*, wayfaring and English lavender are credited as RHS Plants for Pollinators. In addition, the wayfaring tree is a food

resources for various moth larval, hoverflies and birds¹⁰. The beech will also provide further nesting opportunities for a variety of bird species.

Amenity grass

5.13. Amenity grass is to be located between the ornamental hedgerow and residential units.

Bulb Mix

5.14. The bulb mix consist of five species of spring bulbs that are typically characteristic of woodland glades and borders: snakes-head fritillary *Fritillaria meleagris*, snowdrop *Galanthus nivalis*, common bluebell *Hyacinthoides non-scripta*, wood anemone *Anemone nemorosa* and primrose *Primular vulgaris*.

5.15. The species proposed will provide valuable pollinator resources, with snakes-head fritillary a resource for bumblebees, specifically bumblebee queens, as well as sources for wasps, hoverflies and butterflies¹¹. Common bluebell is an early flowering plant, in comparison to other floral species mentioned above, the species provides early nectar sources for variety of invertebrates¹². Similar to the common bluebell, primrose is an early nectar source for butterflies, specifically pollinators such as brimstone *Gonepteryx rhamni* and small tortoiseshell butterfly *Aglais urticae*¹³.

Wildflower meadow

5.16. The proposed wildflower meadows are to be located in the middle of the Approved Development Site and adjacent to the western boundary within the retained woodland boundary.

5.17. Proposed Wildflower mixture is Emorsgate EM1 General Purpose Meadow Mixture¹⁴ to be sown at 4g per msq. The EM1 mixture is composed of 10% native wildflowers comprised of nine native species and 80% slow growing grasses containing five native species.

Modified grassland

5.18. Modified grassland will be present within several sections of the Approved Development Site; proposed by seeding of EL1 Flowering lawn, a variety of grassland and wildflowers that respond well to regular mowing. The seed mix consists of 20% wildflowers including 17 native species, 80%

¹⁰ Woodland Trust (2024) 'Wayfaring Tree' Online. Available from: <https://www.woodlandtrust.org.uk/trees-woods-and-wildlife/british-trees/a-z-of-british-trees/wayfaring-tree/#:~:text=Value%20to%20wildlife,routes%20between%20Wiltshire%20and%20London>.

¹¹ Tatarenko, I and Dyson, M (March 2022). 'Biological flora of Britian and Ireland: *Fritillaria meleagris*'. Journal of Ecology 10 (7). [Online]. Available from: <https://besjournals.onlinelibrary.wiley.com/doi/full/10.1111/1365-2745.13886#:~:text=Fritillaria%20meleagris%20produces%20nectar%20and,particularly%20bumblebees%2C%20hoverflies%20and%20butterflies>.

¹² Woodland Trust (2024) 'Bluebell' [Online]. Available from: <https://www.woodlandtrust.org.uk/trees-woods-and-wildlife/plants/wild-flowers/bluebell/>

¹³ Woodland Trust (2024) 'Primrose'. [Online]. Available from: <https://www.woodlandtrust.org.uk/trees-woods-and-wildlife/plants/wild-flowers/primrose/>

¹⁴ Emorsgate Seeds (2023) 'EM1 Basic General Purpose Meadow Mixture'. [online] Available from: <https://wildseed.co.uk/product/mixtures/complete-mixtures/general-purpose-meadow-mixtures/basic-general-purpose-meadow-mixture/>

grasses formed by five native species.

5.19. The proposed modified grassland mixture is Emosrgate EL1 Flowers Lawn Mixture to be sown at 4g per square meter (sqm).

6 HABITAT MANAGEMENT AND SPECIES MITIGATION

Management prescriptions

General management

6.1. The following general management measures will be followed throughout the Approved Development Site. These measures are outlined below:

- Small loose objects of litter (e.g. plastic bottles, food packets etc.) should be removed regularly;
- Should planting be found to be in poor health, professional help will be sought and appropriate remedial/replacement measures taken;
- If invasive plant species are discovered, these must be removed using a species appropriate method; and
- Herbicide and pesticide use will be avoided, except where required for removal of invasive species.

Habitat prescriptions

Trees; Scattered trees and Native Mixed Scrub

6.2. Approximately 56 trees are to be planted across the Development Site in the form of scattered trees and native mixed shrub.

6.3. All new planted trees are to be planted between October and April and are to be well watered immediately after planting. Post planted trees are to be watered following 10 days without rain.

6.4. Trees will be regularly inspected to ensure the following:

- Trees and stakes are wind-firmed and ties are in good condition (monthly);
- No trees show signs of external damage (e.g. damage by mammals, vandalism by people);
- There is no compaction of the soil or soil capping around the trees; and
- That all grilles, grids, guards and other protective furniture are inspected annually and removed as soon as it is no longer needed to protect the tree or where it is causing damage to the tree.

6.5. Post-planting management and maintenance of trees will be undertaken in accordance with British

Standards Institute BS8545:2014 section 11 'Trees: from nursery to independence'¹⁵ recommendations, in year five before hand over to the private management company.

- 6.6. A formal assessment of young tree health and development will be undertaken annually. This assessment will include foliar appearance, leaf size and leaf canopy density, extension growth and incremental girth development. Trees will also be assessed continually throughout the year on an ad hoc basis. Wherever practicable the performance of young trees shall be assessed by testing leaf fluorescence and leaf chlorophyll content.
- 6.7. Formative tree pruning is to be undertaken until a permanent structurally sound scaffold system of branches typical of the species and appropriate to the site circumstances is produced. Minor pruning of dead or damaged wood will be carried out annually.
- 6.8. All stakes and ties will be removed as soon as the developing root system is strong enough to support the tree, usually after two full growing seasons.

Hedgerow maintenance

- 6.9. This section includes recommendations for the three different types of hedgerows to be planted in the Approved Development Site; Ornamental hedgerow and Mixed Native hedgerow.
- 6.10. Both hedgerows are to be planted in double staggered rows, 300mm apart and 400mm centres in each row, with the mixed native hedgerow to be planted in groups of 6 plants per meter, as seen in the diagram below.

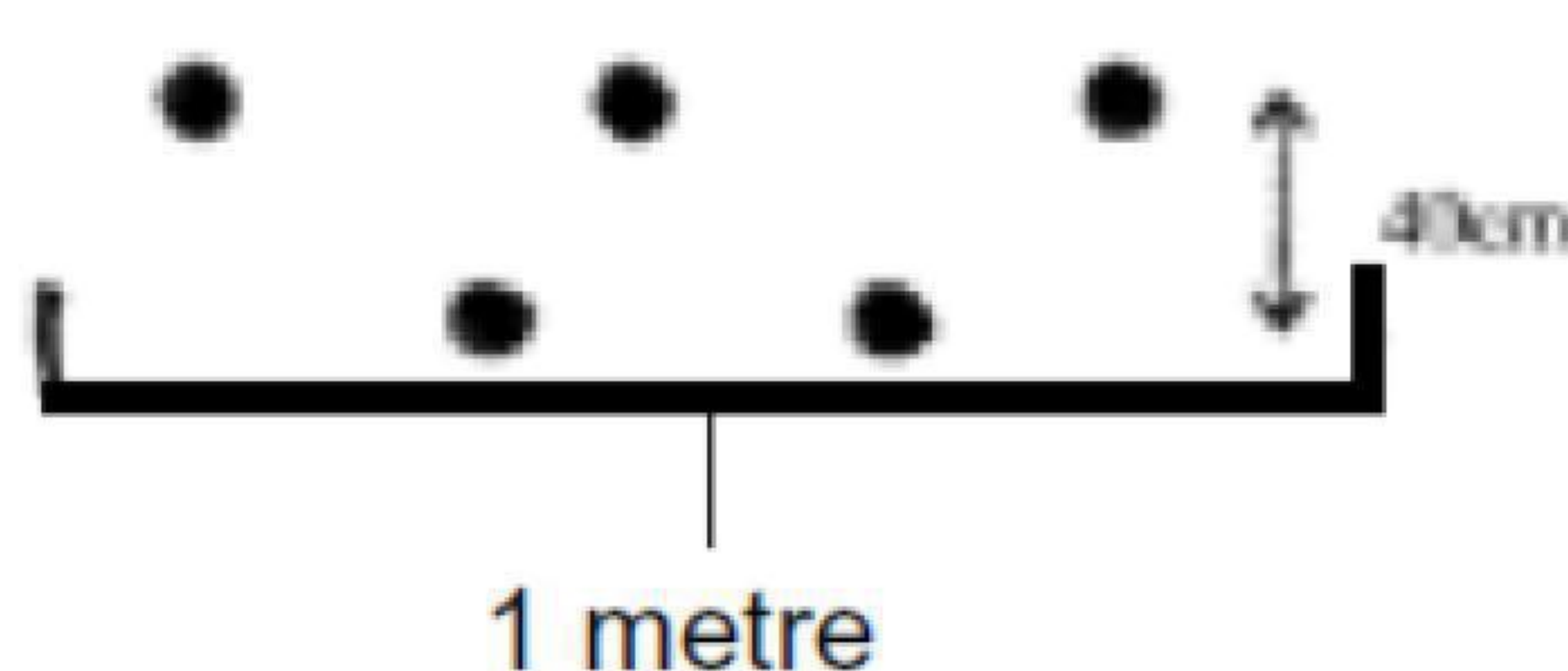


Figure 1: Diagram of double staggered row planting.

- 6.11. The ornamental hedgerow is to be maintained at a height of 1m. The Mixed Native hedgerow is to be maintained at 1m height within the Approved Development Site but 1.8m adjacent to site boundaries.

¹⁵ British Standards Institute (February 2014). 'BS 8545:2014 Trees: From Nursery to Independence in The Landscape- Recommendations'. PDF. Available from: <https://e-planning.worcestershire.gov.uk/swift/MediaTemp/1250-32912.pdf>

- 6.12. Hedgerow maintenance, which will only be applicable to hedgerows outside private ownership, will predominantly include litter removal, trimming, removal of dead plants and reinstatement of plant materials, this will be undertaken outside the nesting bird season (February to August inclusive). Chemicals must not be used on the hedgerows.
- 6.13. All new hedgerows are to be planted between the end of October to the end of March when the weather is not freezing, and the ground is not waterlogged (preferably before January). If the soil is heavy clay, then it is best to wait until beginning of March as heavy frost can cause frost heave and expose roots. In the circumstances that planting is outside of this period, regular watering is required, and plantings checked monthly for signs of wilting.
- 6.14. During the first three years of the new hedgerow planting, annual cutting will be needed to ensure the development of bushy growth low down in the hedgerow. Dead plants should be replaced in autumn over the first few years.
- 6.15. After the first three years, it is optional to cut the new hedgerow on a two or preferably three-year cycle, the optimal time is January or February (subject to climate change). The bird breeding season is to be avoided. It is recommended that the native mixed hedgerow is to be cut in targeted sections on a two-three-year cycle enabling more foraging opportunities for wildlife.
- 6.16. The hedgerow planting is to be regularly watered in its first summer and weeds controlled by spreading a layer of mulch.
- 6.17. When cutting hedgerow annually allow the height of the trip to increase a little each time (e.g. 10 centimetres), if a hedgerow is cut back at the same height repeatedly after some years it hard knuckle start form.

Ornamental shrub

- 6.18. A variety of seven species are to be used for ornamental planting in the Approved Development Site. Additionally, two species of fern are to be present in each ornamental plant bed; lady fern *Athyrium filix-femina* and soft shield fern *Polystichum setiferum*.
- 6.19. Ornamental plant beds are to be maintained in a balanced shape and shall be annually pruned to allow for this. Any growth which will obscure windows, signs or site-lines shall be removed. Once established, any support canes shall be removed.
- 6.20. Bark mulch is to be maintained at an even spread of 75mm, as stated in the Proposed Soft Landscape Plan (**Appendix 4**). The bark mulch must be maintained as a consistent thickness to ensure its effectiveness of suppressing weeds and to conserve moisture.
- 6.21. No plant substitutions to be made without the prior written agreement of the Local Authority.

Bulb Mix

- 6.22. Bulb mix species are to be planted in groups of 6 per meter, between September to October,
- 6.23. The bulb mix should be planted at three times their depth, topped with fertiliser and 75mm of mulch to hold moisture.

Meadows

- 6.24. This section provides management details for amenity grassland, modified grassland comprised of EL1 Flowering Lawn seed mix, sourced by Emorsgate and wildflower meadow using EW1 General Purpose Meadow Mixture sourced by Emorsgate.
- 6.25. The successful establishment of wildflower grassland and amenity grasslands, it is essential that ground preparation is appropriate. To prepare seed beds, the area is to be weeded through repeated cultivation, followed by ploughing to bury the surface vegetation, then to be raked at a medium tilth and rolled to produce a firm surface.
- 6.26. Most sown meadow wildflower and grass species are slow to germinate and grow and will not usually flower in their first growing season. There will often be rapid growth of annual weeds in the first growing season which can shelter the seedlings. This annual weed growth is to be controlled by topping or mowing in early August. The wildflower meadow may be mown twice yearly or topped thereafter. Whereas, the amenity grassland and modified grassland, are to be mown regularly, as the flowering lawn mixture includes species that are encouraged by regular mowing.
- 6.27. Once established, the wildflower meadow will be cut twice per year, with one cut in mid-July with all arisings removed to prevent soil enrichment. Arisings are to be left in place to dry for three days to encourage seed setting. A second cut will follow in late October to imitate the effect autumn grazing, and the arisings must be removed to prevent soil enrichment. Ten percent of the sward will be left uncut after each cutting episode on rotation to act as an invertebrate refuge.
- 6.28. The use of fertilisers is to be strictly avoided on the wildflower grassland.

Fauna mitigation

- 6.29. Mitigation measures including a precautionary method of works during the clearance of suitable roosting bat and nesting bird habitat has been outlined within Construction Environment Management Plan (CEMP): Biodiversity produced by ACD Environmental.

Artificial Enhancements

Bat Boxes

6.30. To increase the bat roosting opportunities of the Approved Development Site, two types of Bat Box enhancements are to be included.

- Schwegler 1FF Bat Box is to be positioned in south/south easterly aspect on each residential dwelling. The 1FF Bat Box is to be positioned 4m above ground, ideally under the eaves and away from doors and windows to avoid conflict between new residents and wildlife.
- Schwegler 2F Bat Box is to be installed on the trees of the remaining woodland within the Approved Development Site. The bat boxes positioned on trees are to face different aspects to provide a variety of microclimates to encourage uptake, the boxes are to be positioned between 4-6m above the ground.

6.31. No artificial light is to be directed towards the bat boxes.

Bird boxes

6.32. A total of three types of bird boxes are to be incorporated in the Approved Development Site; Schwegler 1SP Sparrow Terrace, Vivira Pro Seville Bird Box and Vivara Pro Barcelona Bird Box.

- The Schwegler 1SP Sparrow Terrace is have three incorporated into each residential development, position 3-5m, ideally directly under the eaves, and out of prevailing weather conditions, between north and east aspects. House sparrows *Passer domesticus* are a Biodiversity Action Plan (BAP) species and red listed bird species, indicating a decline in the population, therefore these enhancements will encourage nesting opportunities.
- Vivara Pro Seville Bird Box is a nesting bird box suitable for blue tits *Cyanistes caeruleus*, tree sparrows *Passer montanus*, house sparrow, great tit *Parus major* and many more small passerine species. Five enhancements are to be positioned on various retained trees within the Approved Development Site, at 3-5m above ground level between north to east aspects.
- The Vivara Pro Barcelona Bird Box is an artificial enhancement for a range of birds including but not limited to wrens *Troglodytidae*, European robins *Erithacus rubecula*, spotted flycatchers *Muscicapa striata*, pied *Motacilla alba* and grey wagtails *Motacilla cinerea*, song thrushes *Turdus philomelos* and blackbirds. As a blackbird nest has been recorded in the updated walkover survey, this enhancement will provide further nesting opportunities for species known to nest in the woodland. A total of four of these enhancements are to be incorporated across the Approved Development Site, positioned a minimum of 3m above ground level, ideally near undergrowth such as ivy to provide cover for the bird

box.

6.33. Locations of the artificial enhancement within the Approved Development Site are shown within the Soft Landscape Proposal as seen in **Appendix 4 and 5**.

7 MONITORING

- 7.1. Upon completion of the construction phase, the Approved Development Site will be inspected by an ecologist to confirm the development has adhered to the HMMP. Where discrepancies are identified, these are to be reported to the Developer and Mid Sussex District Council. The discrepancies will be corrected under the supervision of the ecologist where required. Discrepancies can include missing bird and bat boxes, tree failure etc.
- 7.2. The Approved development site will be maintained, managed and monitored for a period of 30 years according to the S106 Agreement Schedule 3. The HMMP will be reviewed by the District Council to confirm all habitats, both on site and off-site Biodiversity Areas have been completed to a satisfactory condition, following this, a BNG Certification of Practical Completion will be issued, the date of BNG Certification is known as Covenant Start Date. After certification, the Approved Development site will be monitored on the two year anniversary of the Covenant Start date, followed by five year anniversary, ten year anniversary, twenty year anniversary and thirty year anniversary. by an ecologist and will be amended as necessary.
- 7.3. Relevant data from the surveys will be sent to the following organisations where necessary:
- Mid Sussex District Council;
 - Local Records Centre;
 - Relevant national recording scheme; and
 - ACD Environmental Ltd (if required).

8 SCHEDULE OF WORKS

- 8.1. The work schedule for monitoring, maintenance and management activities are set out within **Table 1**. The works schedule below may be subject to changes in timings subject to the construction phase schedule. In the instance that any changes in timings are required, the Developer and/or the appointed management company is to contact an ecologist at ACD Environmental Ltd to confirm agreement to any amendments.
- 8.2. The colour coding within **Table 1** is as follows:

	Optimal months
	Sub-optimal months (may be acceptable if appropriate mitigation/supervision undertaken)
	Unsuitable months

- 8.3. Where ECoW presence is required the relevant species/species group consideration is demonstrated as follows:

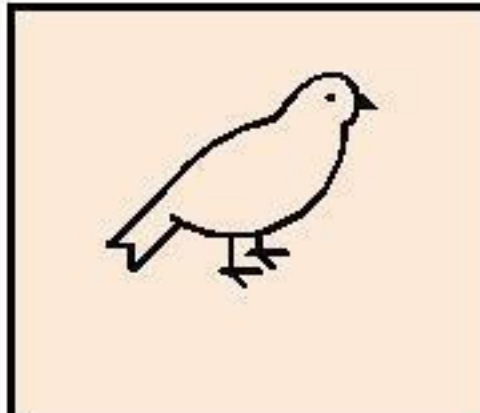
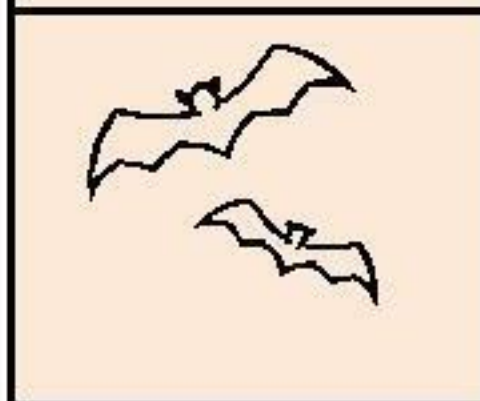
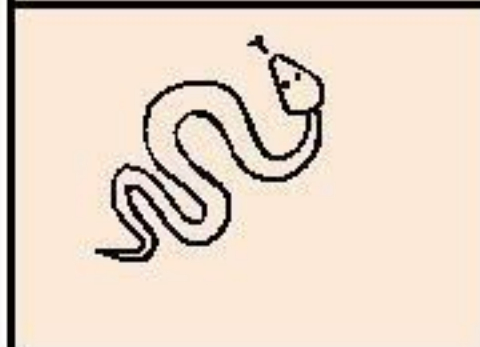
	Nesting birds
	Roosting bats
	Reptiles

Table 1: Work schedule for management, maintenance and monitoring schedules.

Action		J	F	M	A	M	J	J	A	S	O	N	D
CONSTRUCTION													
	Planting of native hedgerow and ornamental hedgerow.												
	Planting of scattered trees and mixed native scrub												
	To seed wildflower meadow, amenity grassland and modified grassland.												
	Planting of bulb mix.												
	Planting of ornamental shrub.												
POST COMPLETION - YEAR 1													
Year 1	Post completion survey to be undertaken by an ecologist. Results used to feedback into HMMP as required and to rectify any issues.												
	Year 1 monitoring survey undertaken by an ecologist. Results used to feedback into HMMP as required and to rectify any issues.												
	Weekly watering of new planting (March to September)												
	Regular check of new planting to ensure maturing as expected. Litter and weeds removed. Remedial measures undertaken as necessary such as plant replacement.												
	Annual check of hedgerows and trees to check for signs of damage, deterioration or distress.												
	Annual formative pruning undertaken as required on new tree and hedgerow planting (optimal timing may be species dependent). Cutting hedgerow margin to 15cm.												
	Regular cuts of modified grassland (EL1 seed mix) to 5-10cm to prevent weeds colonising.												
	Monthly visual inspection of artificial habitats for any signs of damage. Remedial action/replacement undertaken as necessary.												

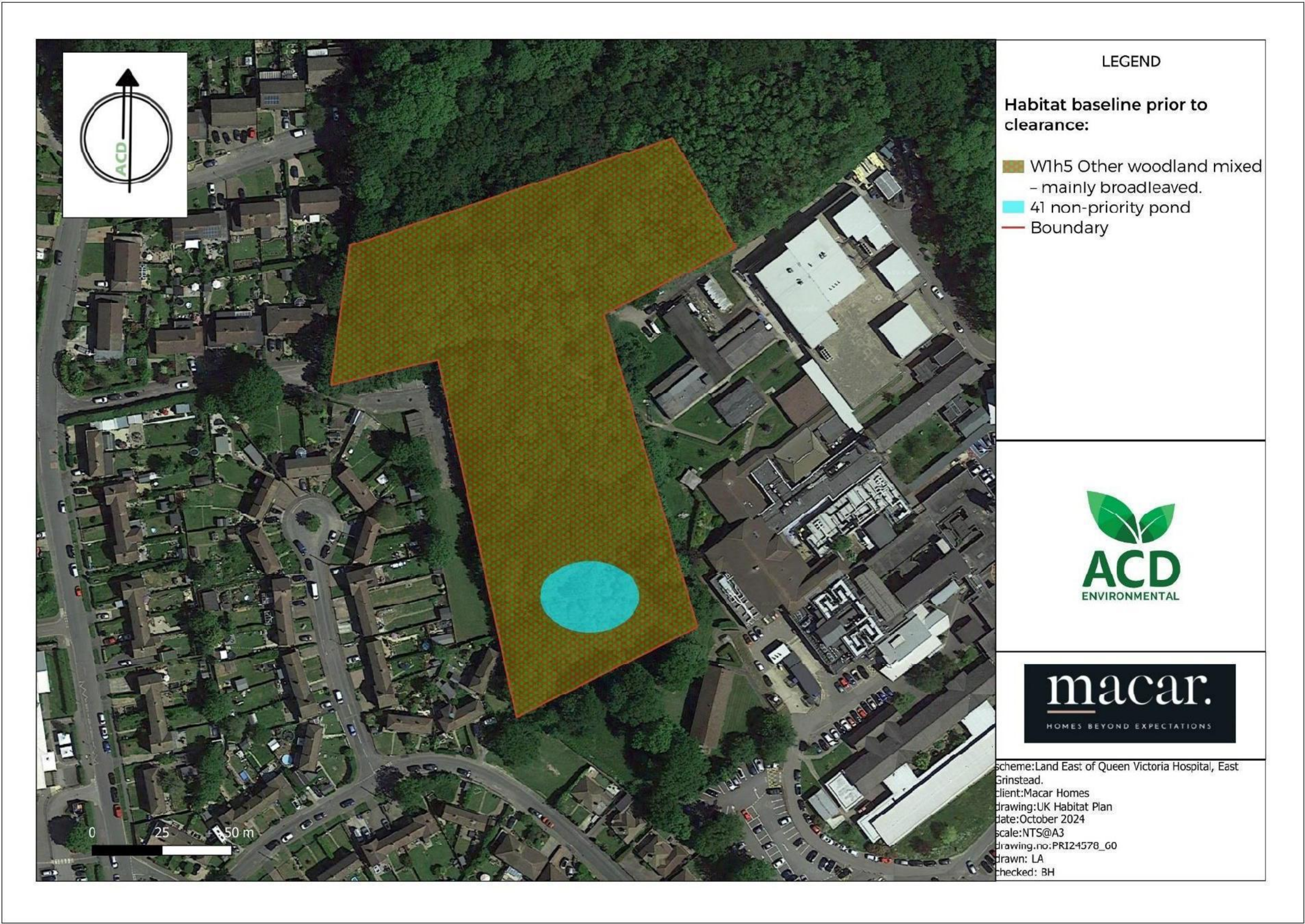
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	Monthly visual inspection of artificial habitats for any signs of damage. Remedial action/replacement undertaken as necessary.												
	Monthly inspection of scattered trees and native scrub for pest, disease and health.												
Annual	Annual check of habitats to include hedgerows, scrub and trees to check for signs of damage, deterioration or distress.												
	Wildflower meadow (EW1 mix) to be cut annually, no lower than a heigh of 40-70cm.												
	Cutting of ornamental hedgerow to a height of 1m.												
2-3 years	Monitoring surveys undertaken by an ecologist every three years. Results used to feedback into HMMP as required and to rectify any issues.												
	Cut established mixed native hedgerows in January once every three years; Native mixed hedgerow cut on a targeted section rotation of one side once every three years.												
5 years	Five-year review of HMMP undertaken. Results provided to Mid Sussex District Council, Local Records Centre and Developer as required. HMMP updated and monitoring continued in line with HMMP.												

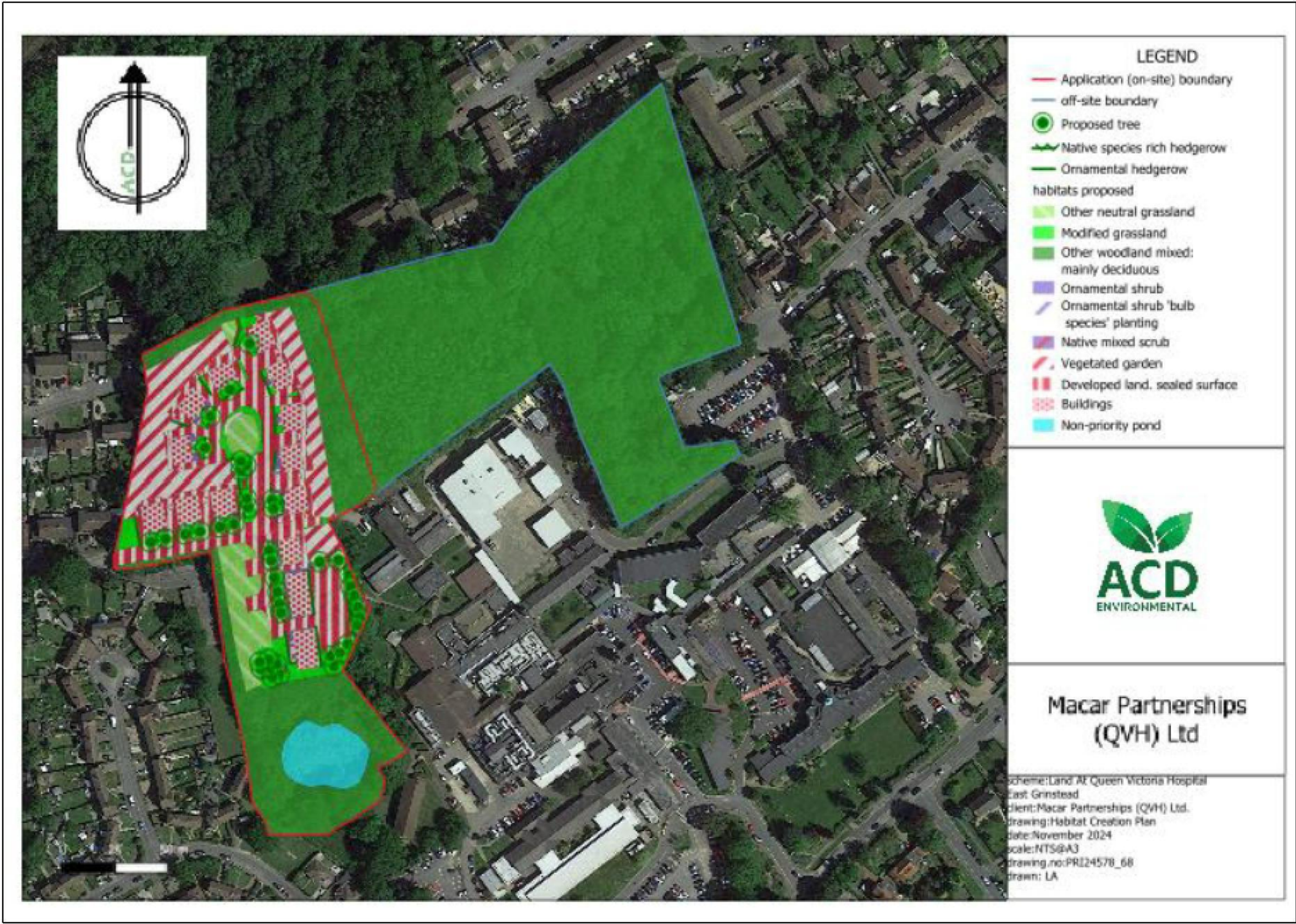
9 CONCLUSIONS

- 9.1. This HMMP has been produced to fulfil the S106 Sch 3 requirements and **Condition 7** relating to planning ref **DM/24/2704**, for the planning consent for the Approved Development Site.
- 9.2. The Developer and Site Manager will be responsible for ensuring that the habitats are created and managed as described within this report. Once the construction phase is complete, the maintenance and management of the habitats on the Approved Development Site will be the responsibility of a private management company appointed by the Developer.
- 9.3. This HMMP sets out the ongoing maintenance, management and monitoring programme to be undertaken at the Approved Development Site post-completion.
- 9.4. With implementation of the measures outlined within this report, it is considered that the ecologically valuable habitats within the Approved Development Site will be maintained in a favourable condition and enhancements will provide foraging and nesting opportunities for a variety of wildlife.

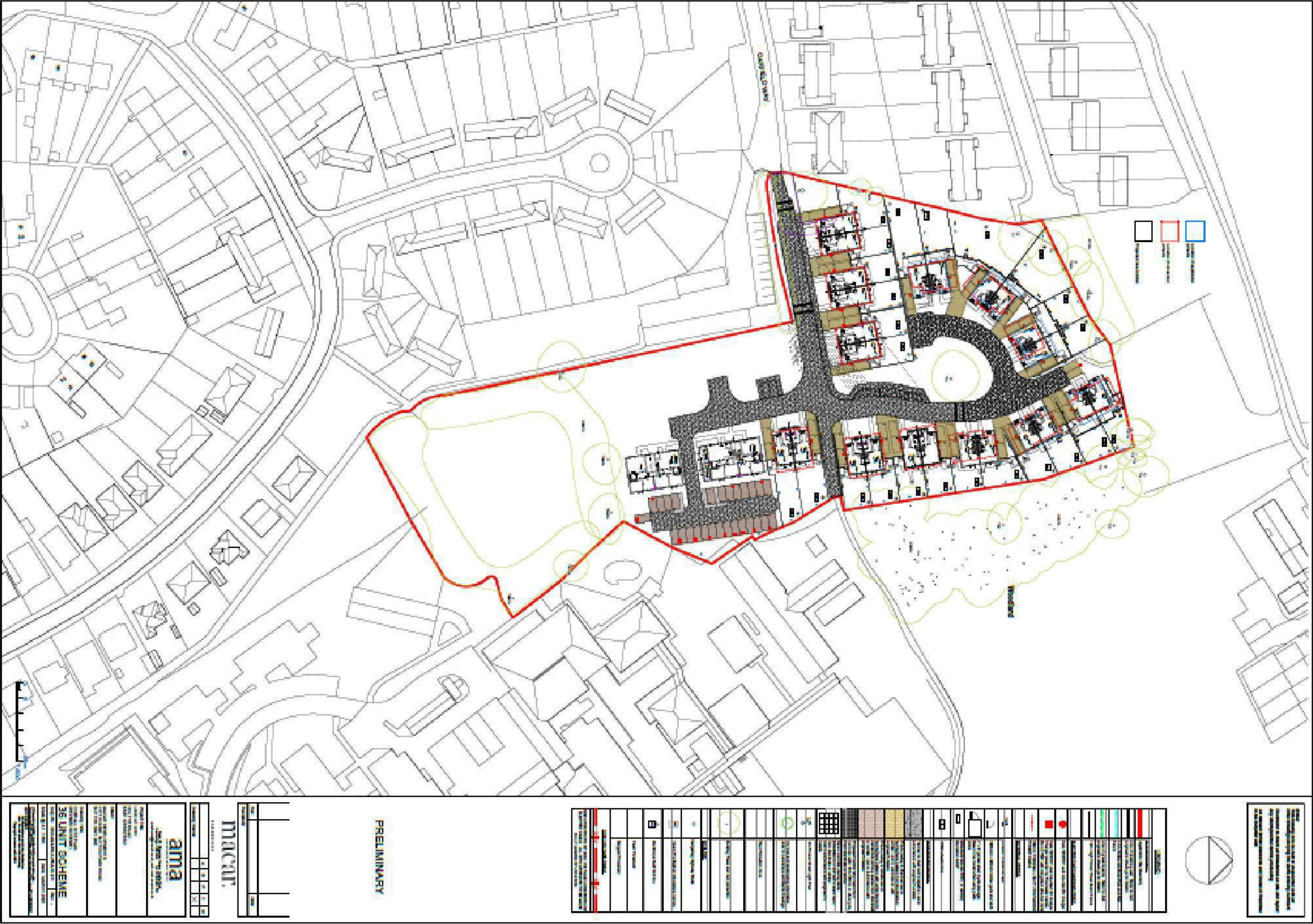
APPENDIX 1: BASELINE HABITAT MAP



APPENDIX 2: HABITAT CREATION MAP

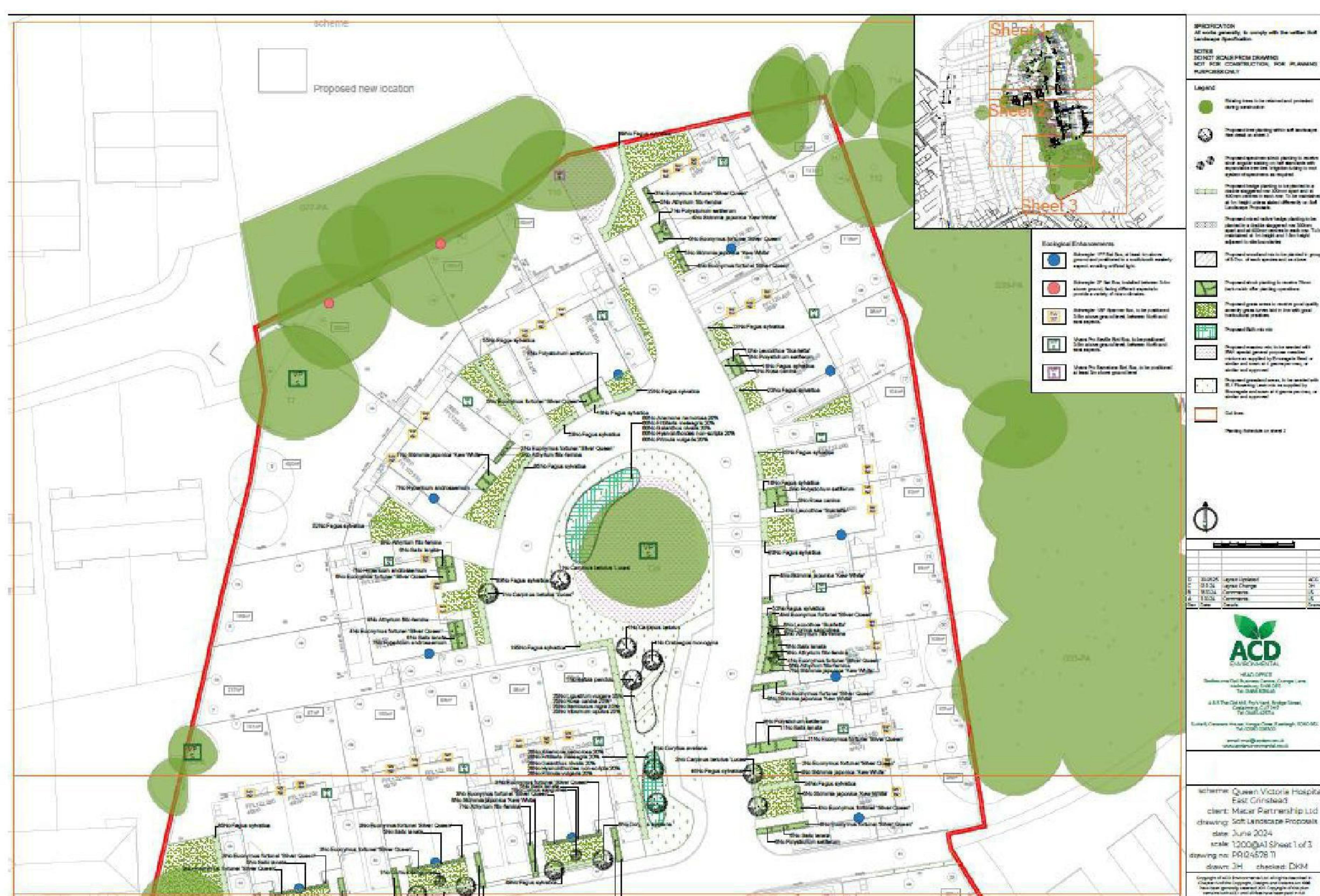


APPENDIX 3: PROPOSED SITE LOCATION PLAN



APPENDIX 4: SOFT LANDSCAPE PLAN

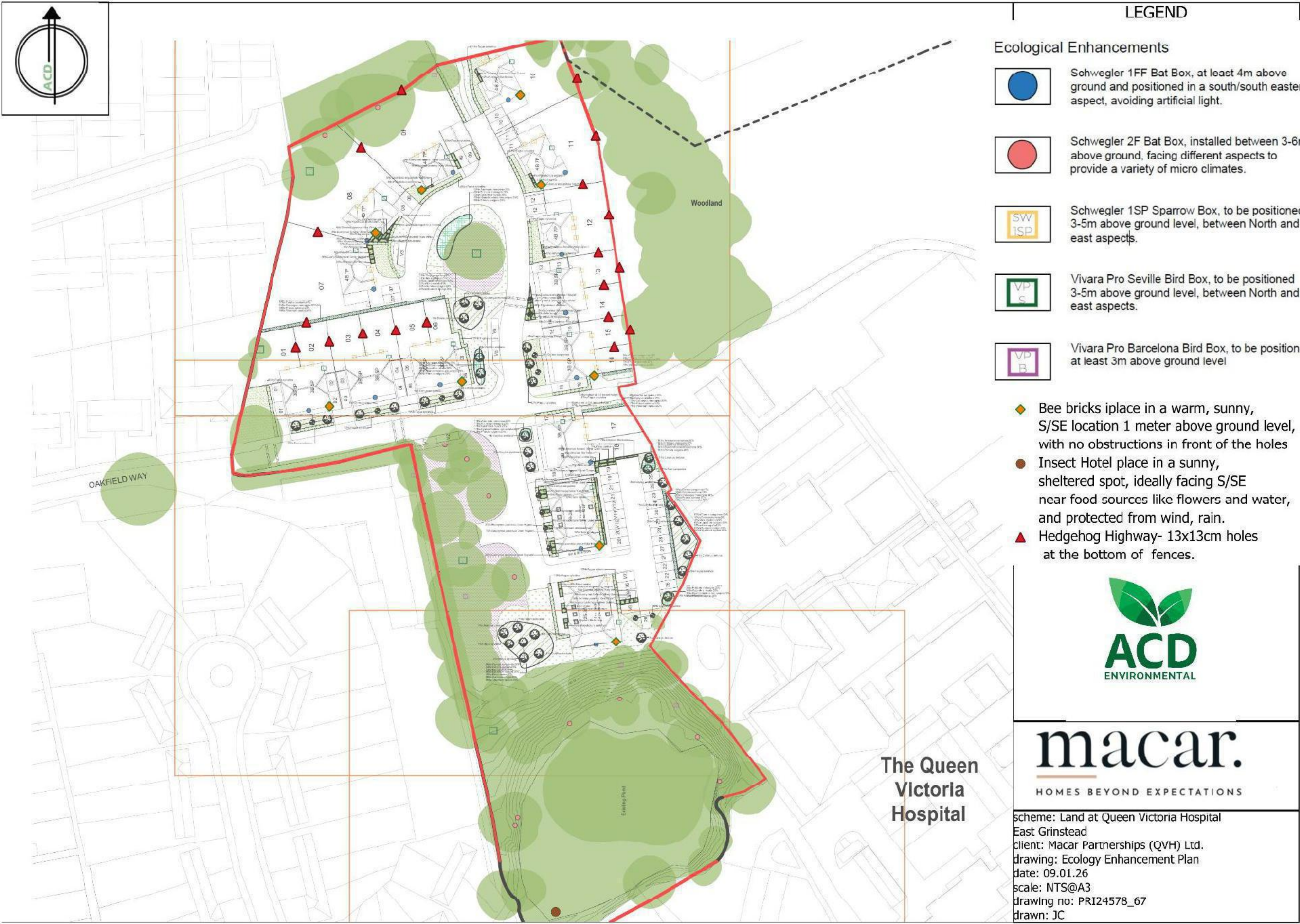


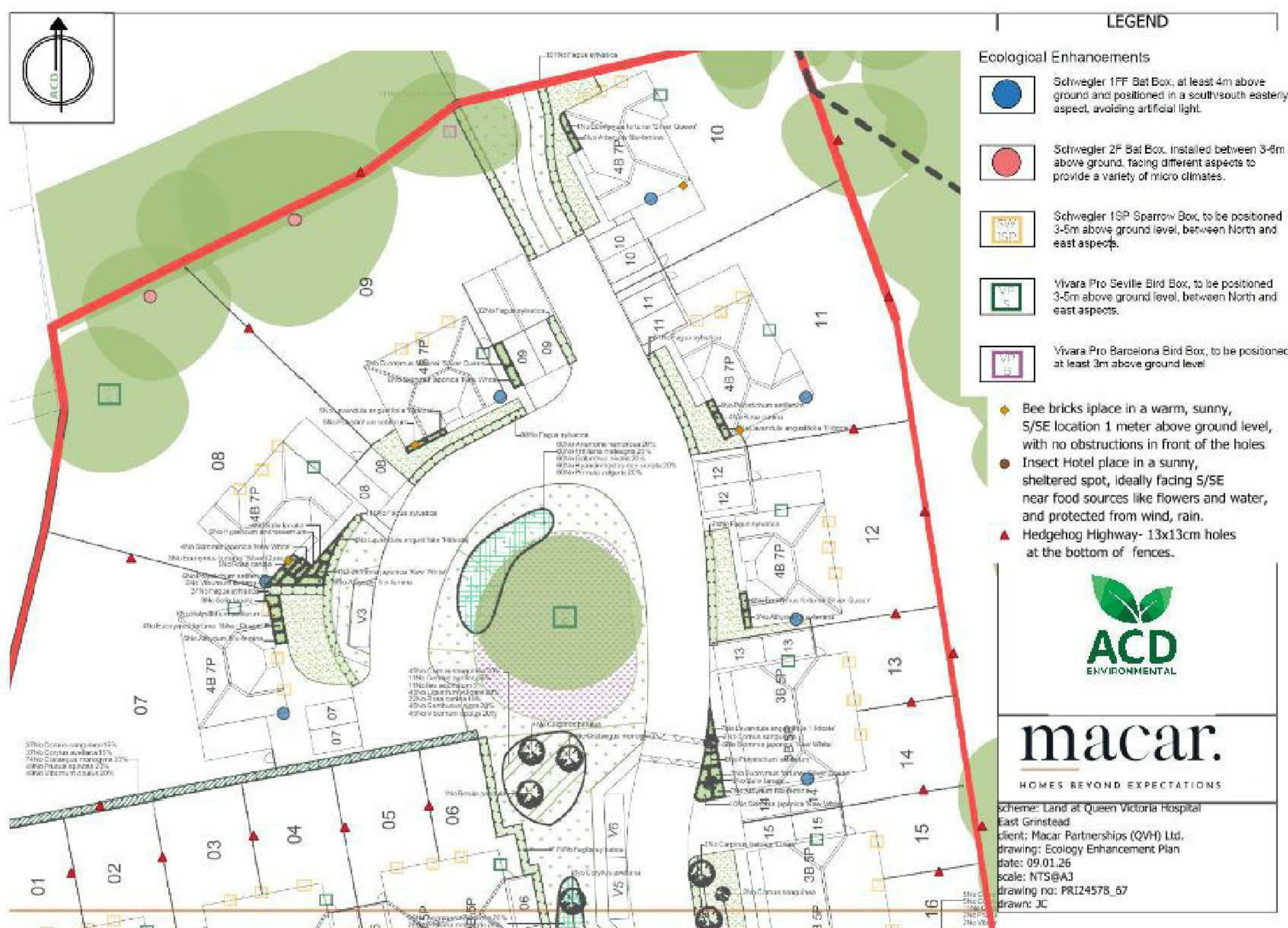


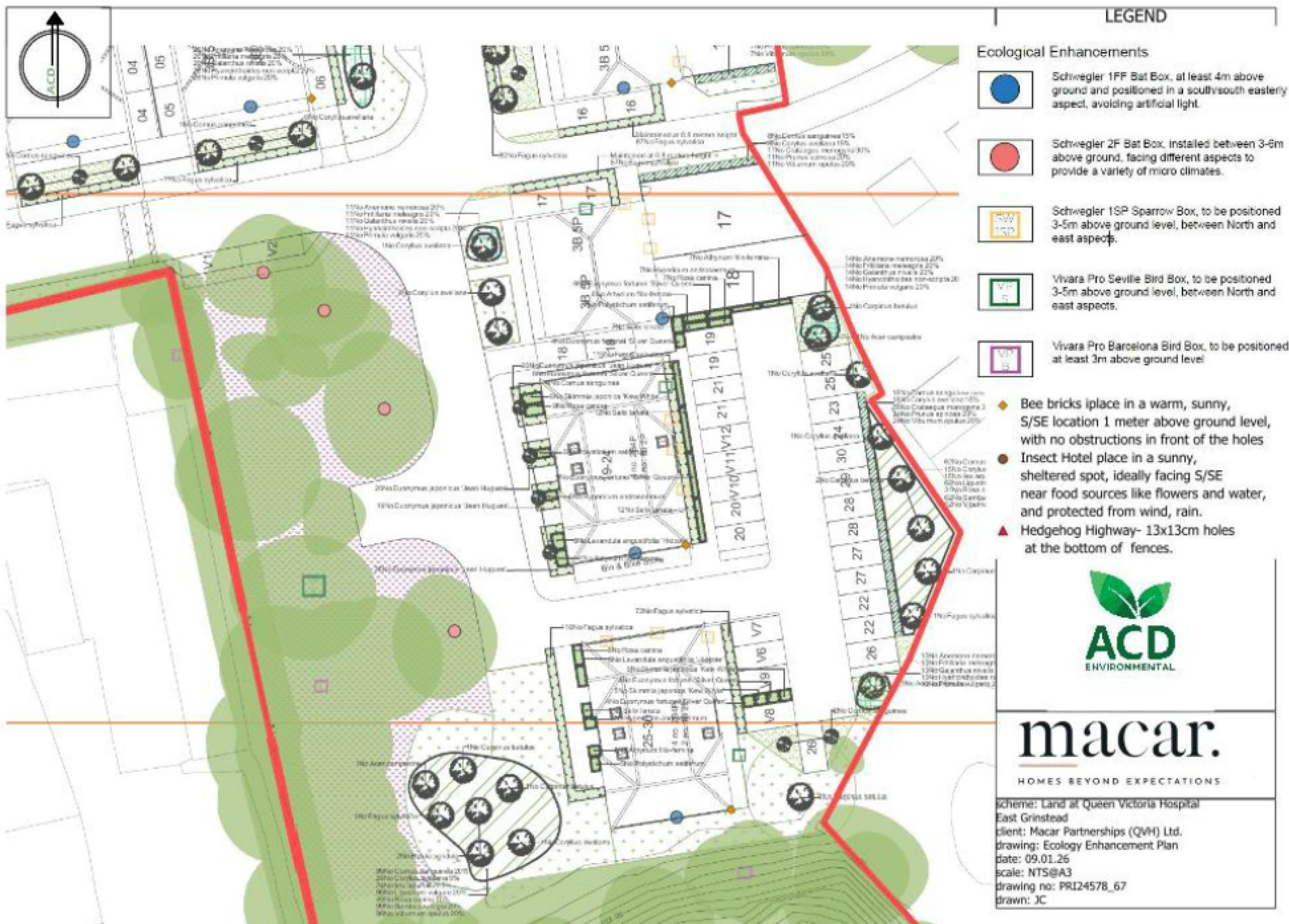




APPENDIX 5: ECOLOGICAL ENHANCEMENT PLAN









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