



Highgate School MSC 4Phase

Ecology Report

Produced for Highgate School

By Applied Ecology Ltd

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1 Introduction

Background

- 1.1 In April 2022, Applied Ecology Ltd (AEL) were commissioned to conduct a Preliminary Ecological Appraisal (PEA) of an area of land at Highgate School Mallinson Sports Centre, London (hereafter referred to as “the Site”). The survey was required to inform various proposals for redevelopment of parts of the Site (“the Development”). The proposed site plan for the Development is provided in **Appendix A** and the Site location is shown by **Figure 1.1**.
- 1.2 Part of the Site was subject to previous ecological survey by AEL in 2015¹ and 2019.
- 1.3 AEL was also commissioned to complete Biodiversity Net Gain (Defra Metric 3.1) and BREEAM assessments (BREEAM 2018 LE02–LE05) of the proposed Development, as well as to produce a Landscape Ecological Management Plan (LEMP) for the scheme.
- 1.4 This report presents the findings of a PEA completed by AEL on 12 April 2022 in Chapter 2, and highlights any significant ecology constraints and opportunities relating to the proposed developments going forward. It provides a Biodiversity Net Gain assessment in Chapter 3, a BREEAM assessment in Chapter 4, and Chapter 5 provides the LEMP for the Development.

Legislation and Planning

Legislation

- 1.5 The Wildlife and Countryside Act 1981 (as amended) provides the main legal framework for nature conservation and species protection in the UK. The Site of Special Scientific Interest (SSSI) is the main statutory nature conservation designation in the UK. Such sites are notable for their plants, or animals, or habitats, their geology or landforms, or a combination of these. Natural England is the key statutory agency in England for advising Government, and for acting as the Government’s agent in the delivery of statutory nature conservation designations.
- 1.6 Designation of a SSSI is a legal process, by which sites are notified under the Wildlife and Countryside Act 1981. The 1981 Act makes provision for the protection of sites from the effects of changes in land management, and owners and occupiers receive formal notification specifying why the land is of special scientific interest, and listing any operations likely to damage the special interest.
- 1.7 The Countryside and Rights of Way Act 2000, and The Natural Environment and Rural Communities (NERC) Act 2006, provide supplementary protected species legislation. Specific protection for badgers *Meles meles* is provided by the Protection of Badgers Act 1992.

¹ Applied Ecology Ltd (2015) *Highgate School – Mallinson Sports Centre Project – Ecology Report*. Unpublished report to Highgate School, January 2015.



Habitats and Species of Principal Importance in England

- 1.8 The Natural Environment and Rural Communities (NERC) Act came into force on 1 October 2006. Section 41 (S41) of the Act requires the Secretary of State to publish a list of habitats and species which are of principal importance for the conservation of biodiversity in England. The list has been drawn up in consultation with Natural England, as required by the Act.
- 1.9 The S41 list is used to guide decision-makers such as public bodies, including local and regional authorities, in implementing their duty under section 40 of the Natural Environment and Rural Communities Act 2006, to have regard to the conservation of biodiversity in England, when carrying out their normal functions.

Habitats of Principal Importance

- 1.10 Fifty-six habitats of principal importance are included on the S41 list. These are all the habitats in England that were identified as requiring action in the UK Biodiversity Action Plan (UK BAP) and continue to be regarded as conservation priorities in the subsequent UK Post-2010 Biodiversity Framework. They include terrestrial habitats such as upland hay meadows to lowland mixed deciduous woodland, and freshwater and marine habitats such as ponds and sub-tidal sands and gravels.

Species of Principal Importance

- 1.11 There are 943 species of principal importance included on the S41 list. These are the species found in England which were identified as requiring action under the UK BAP and which continue to be regarded as conservation priorities under the UK Post-2010 Biodiversity Framework. In addition, the hen harrier *Circus cyaneus* has also been included on the list because without continued conservation action it is unlikely that the hen harrier population will increase from its current very low levels in England.
- 1.12 In accordance with Section 41(4) the Secretary of State will, in consultation with Natural England, keep this list under review and will publish a revised list if necessary.

National Planning Policy Framework

- 1.13 The National Planning Policy Framework (NPPF) was published in March 2012 (and replaced previous planning policy guidance (PPS 9) on biodiversity. The NPPF was updated in July 2018, February 2019, and in July 2021, and states the following in relation to biodiversity and planning:

“When determining planning applications, local planning authorities should apply the following principles:

- *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;*
- *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;

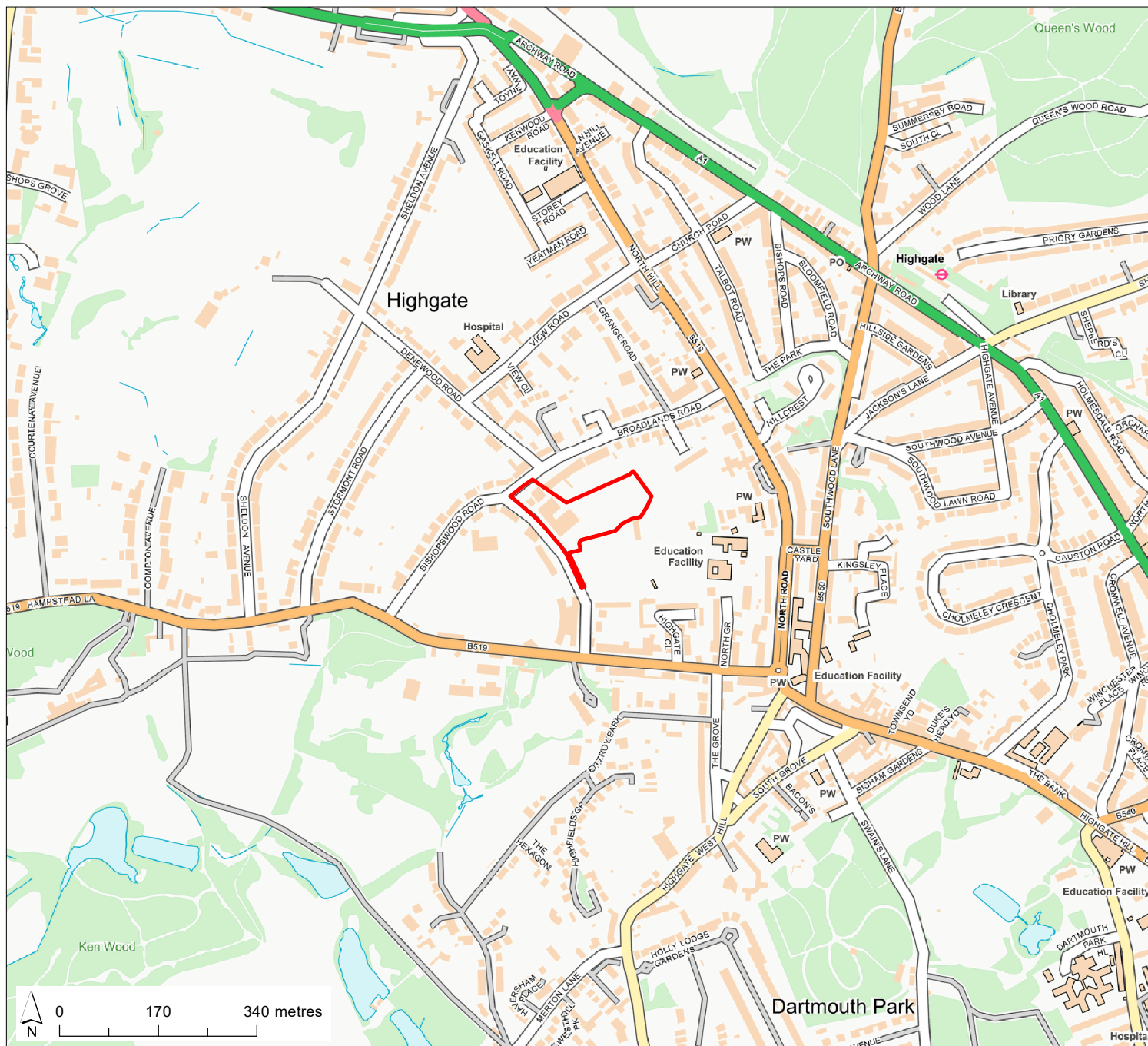
- *development resulting in the loss or deterioration of irreplaceable habitats (such as ancient woodland and ancient or veteran trees) should be refused, unless there are wholly exceptional reasons and a suitable compensation strategy exists; and*
- *development whose primary objective is to conserve or enhance biodiversity should be supported; while opportunities to improve biodiversity in and around developments should be integrated as part of their design, especially where this can secure measurable net gains for biodiversity or enhance public access to nature where this is appropriate.*

The following should be given the same protection as habitats sites:

- *potential Special Protection Areas and possible Special Areas of Conservation;*
- *listed or proposed Ramsar sites; and*
- *sites identified, or required, as compensatory measures for adverse effects on habitats sites, potential Special Protection Areas, possible Special Areas of Conservation, and listed or proposed Ramsar sites.*

The presumption in favour of sustainable development does not apply where the plan or project is likely to have a significant effect on a habitats site (either alone or in combination with other projects), unless an appropriate assessment has concluded that the plan or project will not adversely affect the integrity of the habitats site”.





Highgate School MSC 4Phase

Site location

 Site boundary

Figure 1.1

Map Scale @ A4: 1:10,000

Surveyed by: n/a

Survey date: n/a

Drawn by: RD

Checked by: DP

Status: Final



2 Preliminary Ecological Appraisal

Methodology

Existing Biological Records

- 2.1 Greenspace Information for Greater London (GIGL) were commissioned by AEL to complete a records search within a 1 km buffer around the central point of the Site.

Habitats and Plants

- 2.2 An extended Phase 1 habitat survey was undertaken for the Site on 12 April 2022 by AEL ecologist Richard Dale MCIEEM² in dry and bright conditions. The methodology adopted followed the standard JNCC approach to Phase 1 habitat survey (JNCC, 1993³) by which all habitats present within the site were classified and mapped according to standard categories. Target notes were used to describe areas of both typical and unique botanical character. Habitat patches were mapped as polygon features, and if sufficient space on the map linear features (such as walls and fences) as lines where this provided added value. Point features were recorded where there were notable isolated trees or scrub. Plant species abundance was noted using the DAFOR⁴ system.
- 2.3 The habitat map was subsequently digitised using a Geographical Information System (ArcGIS).
- 2.4 The survey was completed within the accepted season for completing Phase 1 habitat survey (which runs from late March until mid-October in southern England).

Fauna

- 2.5 The standard Phase 1 habitat survey was “extended” to include a search for evidence of or potential for the presence of protected animal species or species of nature conservation interest within and close to the Site. This was not a detailed survey for such species, but included noting the presence of habitats suitable to support specific protected species, and where seen, any evidence of presence such as droppings, mammal tracks and footprints, shelters (or nests/roosts), hair caught on fence-wire, foraging signs, and so on.

Preliminary Bat Roost Assessment

- 2.6 An external preliminary bat roost assessment survey of the on-Site buildings was completed by Richard Dale as part of the walkover survey on 12 April 2022.
- 2.7 The inspection of buildings to assess their suitability for and roosting use by bats can be conducted at any time of year, according to the best practice survey guidance (Collins (2016)⁵). However, finding evidence of bats (e.g., their droppings) on external surfaces that

² Level 4 Botanical Society of Britain and Ireland (BSBI) Field Identification Skills Certificate.

³ JNCC (1993) *Handbook for Phase 1 Habitat Survey – A technique for Environmental Audit*. JNCC, Peterborough.

⁴ DAFOR: whereby species occurrence may be classified as being dominant, abundant, frequent, occasional or rare. Rare in the context of a DAFOR score should not be confused with species rarity in the more widely accepted meaning of general scarcity.

⁵ Collins, J. (2016) *Bat Surveys for Professional Ecologists – Good Practice Guidelines – 3rd Edition*. Bat Conservation Trust, London



are unprotected from rainfall may be restricted if undertaken outside the main bat active season (May to September) and/or after periods of wet weather. Bat droppings inside buildings may also quickly disintegrate in damp conditions.

- 2.8 A systematic, ground-level survey of the exterior of the on-Site buildings was completed, in line with Collins (2016), using binoculars and torches (Exposure 800, 875 and 1300 lumen models) as necessary and as possible, to search for evidence of bats.
- 2.9 Evidence of bats would include bat droppings on floors, walls and other exposed surfaces, staining (caused by bat fur oils and/or urine spots), the characteristic odour of accumulated bat droppings in confined (typically poorly ventilated) spaces, bat insect feeding remains (such as discarded moth/butterfly wings and spider exoskeletons), and live/dead bats (e.g. roosting against ridge beams and/or in cracks and crevices in brickwork and structural timbers).
- 2.10 A full inspection of all trees on-Site was beyond the scope of the initial survey; however, notes were made of any trees with obvious bat roost features.
- 2.11 The February survey focussed on two trees scheduled for removal, and a further three potentially to be impacted by trench works. These were inspected from ground level with binoculars.
- 2.12 The suitability of buildings and trees within the Site for roosting bats were classified according to the categories and descriptions defined by Collins (2016) for roosting habitats, as summarised in **Table 2.1**.

Table 2.1: Guidelines for assessing the potential suitability of proposed development sites for bats, based on the present of habitat features within the landscape, to be applied using professional judgement (after Collins, 2016).

Suitability	Description of roosting habitat
Negligible	Negligible habitat features on site likely to be used by roosting bats.
Low	A structure with one or more potential roost sites that could be used by individual bats opportunistically. However, these potential roost sites do not provide enough space, shelter, protection, appropriate conditions and/or suitable surrounding habitat to be used on a regular basis or by larger number of bats (i.e. unlikely to be suitable for maternity or hibernation). A tree of sufficient size and age to contain Potential Roost Features (PRFs) but with none seen from the ground or features seen with only very limited roosting potential.
Moderate	A structure or tree with one or more potential roost sites that could be used by bats due to their size, shelter, protection, conditions and surrounding habitat but unlikely to support a roost of high conservation status (with respect to roost type only – the assessments in this table are made irrespective of species conservation status, which is established after presence is confirmed).
High	A structure or tree with one or more potential roost sites that are obviously suitable for use by larger numbers of bats on a more regular basis and potentially for longer periods of time due to their size, shelter, protection, conditions and surrounding habitat.



Survey Findings

Existing Biological Records

Designated Wildlife Sites

- 2.13 The Site itself carries no statutory or non-statutory wildlife designation. A single nationally important statutory wildlife site is located within the 1 km buffer search area, namely **Hampstead Heath Woods Site of Special Scientific Interest (SSSI)** which is located 640 m to the south-west of the Site. A single locally important statutory site, **Parkland Walk Local Nature Reserve (LNR)**, is also located within the search area, 735 m north-east of the Site (see **Figure 2.1**).
- 2.14 A number of non-statutory Sites of Importance for Nature Conservation (SINC) occur within 1 km of the Site. Three are located within 500 m as follows:
- **Hampstead Heath SINC (M072)** (site of Metropolitan Importance) located 225 m to the south-west.
 - **Highgate Cemetery SINC (M088)** (site of Metropolitan Importance) located 350 m to the north.
 - **Highgate Golf Course SINC (HgBII08)** (site of Borough Grade II importance) located 460 m to the north-west.
- 2.15 A number of other non-statutory SINC occur at least partly within the search area (but beyond 500 m from the Site), including Parkland Walk, Queen's Wood and Highgate Wood SINC (Metropolitan), Waterlow Park SINC (Borough Grade I), Holly Lodge Gardens SINC (Local), Harrington Site, Southwood Lane Wood and Yeatman Road Allotments SINC (Local).

Protected and notable Species

- 2.16 A wide range of records of protected species and species of conservation concern were provided by GIGL. The majority of the records, including those of higher plants, birds and invertebrates, relate to areas with known ecological importance such as Hampstead Heath and Highgate Wood, and are not considered relevant to the Site given the lack of suitable habitat.
- 2.17 The GIGL records can be summarised as follows:
- A range of notable higher plants (21 species in total), mainly associated with woodland, and damp heathland and grassland habitats such as lemon-scented fern *Oreopteris limbosperma*, snake's-head fritillary *Fritillaria meleagris* and round-leaved mint *Mentha suaveolens*.
 - A wide range of invertebrates (44 species in total), mainly beetles (including stag beetle *Lucanus cervus*) and moths recorded from Highgate Wood.
 - Records of three amphibian and one reptile species, namely common toad *Bufo bufo* (closest record 544 m to the south-west in 1998), palmate newt *Lissotriton helveticus* (266 m to the north in 2007), common frog *Rana temporaria* (67 m to the west in 1999) and common lizard *Zootoca vivipara* (580 m to the north in 2001–02).
 - A range of birds (31 species in total), including rapidly declining species such as nightingale *Luscinia megarhynchos* (last recorded in 1986), spotted flycatcher *Muscicapa striata* (last recorded 2009) and lesser spotted woodpecker *Dendrocopos*



minor (last recorded 2011) with all records appearing to coincide with designated wildlife sites. The closest record of house sparrow *Passer domestica* (a more widely distributed species of urban areas) was 574 m to the north of the Site in 2003.

- Records of hedgehog *Erinaceus europaeus* with the closest 266 m to the north in 2007.
- A range of bat records (all appearing to be non-roosting records), mainly associated with woodland areas, including common pipistrelle *Pipistrellus pipistrellus*, Nathusius's pipistrelle *P. nathusii*, Soprano pipistrelle *P. pygmaeus*, serotine *Eptesicus serotinus*, Daubenton's bat *Myotis daubentonii*, Natterer's bat *M. nattereri*, Leisler's bat *Nyctalus leisleri*, noctule *N. noctula* and brown long-eared bat *Plecotus auritus*.

Habitats and Plants

- 2.18 The Phase 1 habitat map is provided in **Figure 2.2**. A summary of the habitats recorded is provided in **Table 2.2** below, and a selection of habitat survey photographs can be found in **Figure 2.3**. Full species lists are provided in **Appendix B**, where necessary.

Table 2.2: Summary of habitat types recorded on the Site.

Habitat	Area (ha)	% of Site
Amenity grassland	0.842	50.4
Broad-leaved plantation woodland	0.353	21.1
Buildings	0.268	16.0
Hard-standing	0.181	10.8
Poor semi-improved neutral grassland	0.027	1.6

- 2.19 In summary, the Site consisted of a school sports centre, with a number of buildings adjacent to amenity grassland playing fields. Other habitats on-Site included small areas of broad-leaved plantation woodland, hedgerows and ditches.

Amenity grassland

- 2.20 The east of the Site was dominated by short-sward, regularly mown amenity grassland. Grasses were dominated by perennial rye-grass *Lolium perenne*, with Yorkshire-fog *Holcus lanatus* and rough meadow-grass *Poa trivialis*. Forb species included white clover *Trifolium repens*, creeping buttercup *Ranunculus repens* and greater plantain *Plantago major*.

Poor semi-improved neutral grassland

- 2.21 A small area of unmanaged grassland was present on the edge of the woodland block. This was dominated by Yorkshire-fog, with cock's-foot *Dactylis glomerata* and rough meadow-grass. Forbs included broad-leaved dock *Rumex obtusifolius* and great willowherb *Epilobium hirsutum*.

Broad-leaved plantation woodland

- 2.22 A stand of broad-leaved plantation woodland was present within the Site. This was dominated by sycamore *Acer pseudoplatanus*, with ash *Fraxinus excelsior*, silver birch *Betula pendula* and pedunculate oak *Quercus robur*, and understorey species including holly *Ilex aquifolium*, yew *Taxus baccata* and bramble *Rubus fruticosus*. The ground layer was sparse with the exception of abundant ivy *Hedera helix* in places. It was both heavily



shaded and subject to disturbance through recreational use and dumping of gardening waste.

Hedges and other trees

- 2.23 A species-rich hedgerow with trees formed the southern boundary of the woodland and one of the playing fields, running parallel to a dry ditch. This comprised hawthorn *Crataegus monogyna*, hazel *Corylus avellana*, pedunculate oak, yew, holly, ivy *Hedera helix* and bramble.
- 2.24 A short line of trees was present between the sports centre buildings and the playing field, comprising sycamore trees with some sparse hawthorn and holly.
- 2.25 Along the Site's eastern and northern boundaries various trees were present in short lines and groups. These included pedunculate oak, ash, sycamore, wild cherry *Prunus avium*, common lime *Tilia x europaea* and broad-leaved lime *Tilia platyphyllos*.

Ditches

- 2.26 Dry, shallow drainage ditches were present alongside the hedgerows and line of trees surrounding the playing field.

Buildings and other habitats

- 2.27 Three buildings were present within the Site boundary, comprising the school sports centre, including indoor sports and Eton fives courts.
- 2.28 The remainder of the Site was made up of areas of hard-standing, including various paths, as well as associated artificial grass paths.

Fauna

- 2.29 A range of common garden and woodland bird species were recorded during the survey. These included great spotted woodpecker *Dendrocopos major*, goldcrest *Regulus regulus*, nuthatch *Sitta europaea* and blackbird *Turdus merula*. The only species of elevated conservation concern⁶ recorded was the Amber-listed dunnock *Prunella modularis*, which remains a common breeding species, particularly in gardens.
- 2.30 With the exception of the above listed bird species, no evidence of protected animals was recorded during the walkover survey. In particular no evidence of badger in the form of their setts or other signs of their activity was seen, and no habitat potentially suitable for reptiles was present.
- 2.31 On the basis of the habitats present and existing species records, it is conceivable that the Site could support hedgehog and stag beetle, and while specific surveys to confirm the presence / absence of these species are not considered necessary, appropriate measures should be adopted during site clearance and construction in order to avoid / minimise impact risk.

⁶Stanbury, A.; Eaton, M. A.; Aebischer, N. J.; Balmer, D.; Brown, A.; Douse, A.; Lindley, P.; McCulloch, N.; Noble, D. and Win, I. (2021). *The status of our bird populations: the fifth Birds of Conservation Concern in the United Kingdom, Channel Islands and Isle of Man and second IUCN Red List assessment of extinction risk for Great Britain*. British Birds **114**, 723–747.



- 2.32 The stand of plantation woodland within the Site is likely to provide a foraging resource for small numbers of common bat species, and the lines of trees may provide commuting routes for bats. The Study Area was assessed as being of **Low** value for commuting and foraging bats in line with best practice guidance (Collins (2016)).

Preliminary bat roost appraisal

- 2.33 The three buildings at the Site were surveyed as part of the preliminary bat roost assessment. These are shown in **Figure 2.4**, with photographs provided in **Figure 2.3**, and are discussed in turn in below.

Building 1

- 2.34 A squash court of concrete construction with pebble-dashed exterior, an upper section of corrugated aluminium sheet cladding and a sloping roof. No features of use to roosting bats were present and the building was assessed as being of **Negligible** value to roosting bats.

Building 2

- 2.35 Eton Fives courts, consisting of an open-fronted brick and concrete structure with a single-pitched glass roof. No features of use to roosting bats were present and the building was assessed as being of **Negligible** value to roosting bats.

Building 3

- 2.36 Main sports centre building, comprising a pair of linked main buildings with various flat-roofed extensions.
- 2.37 The building was of brick construction, and the southern, swimming pool buildings had extensive metal cladding on and around a sloping roof, while the main northern building had a flat, unlined corrugated metal roof. The building was in an excellent state of repair and lacked any obvious gaps, cracks or crevices around cladding, in brickwork or associated with the roof structures. No evidence of bats was present and the building was assessed to be of **Negligible** bat roost potential.

Trees

- 2.38 An area of the western part of the woodland is proposed to be impacted by the creation of a new football pitch (see **Figure 2.4**); however, the trees in this part of the woodland were all relatively young secondary growth (mostly sycamore and silver birch). None of the trees to be impacted supported features of value to roosting bats, all being assessed as negligible value in this respect.



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Designated sites and ancient woodland

-  Site boundary
-  Hampstead Heath Woods SSSI
-  Parkland Walk LNR
-  Queen's Wood LNR
-  ancient semi-natural woodland

Figure 2.1

Map Scale @ A4: 1:12,000

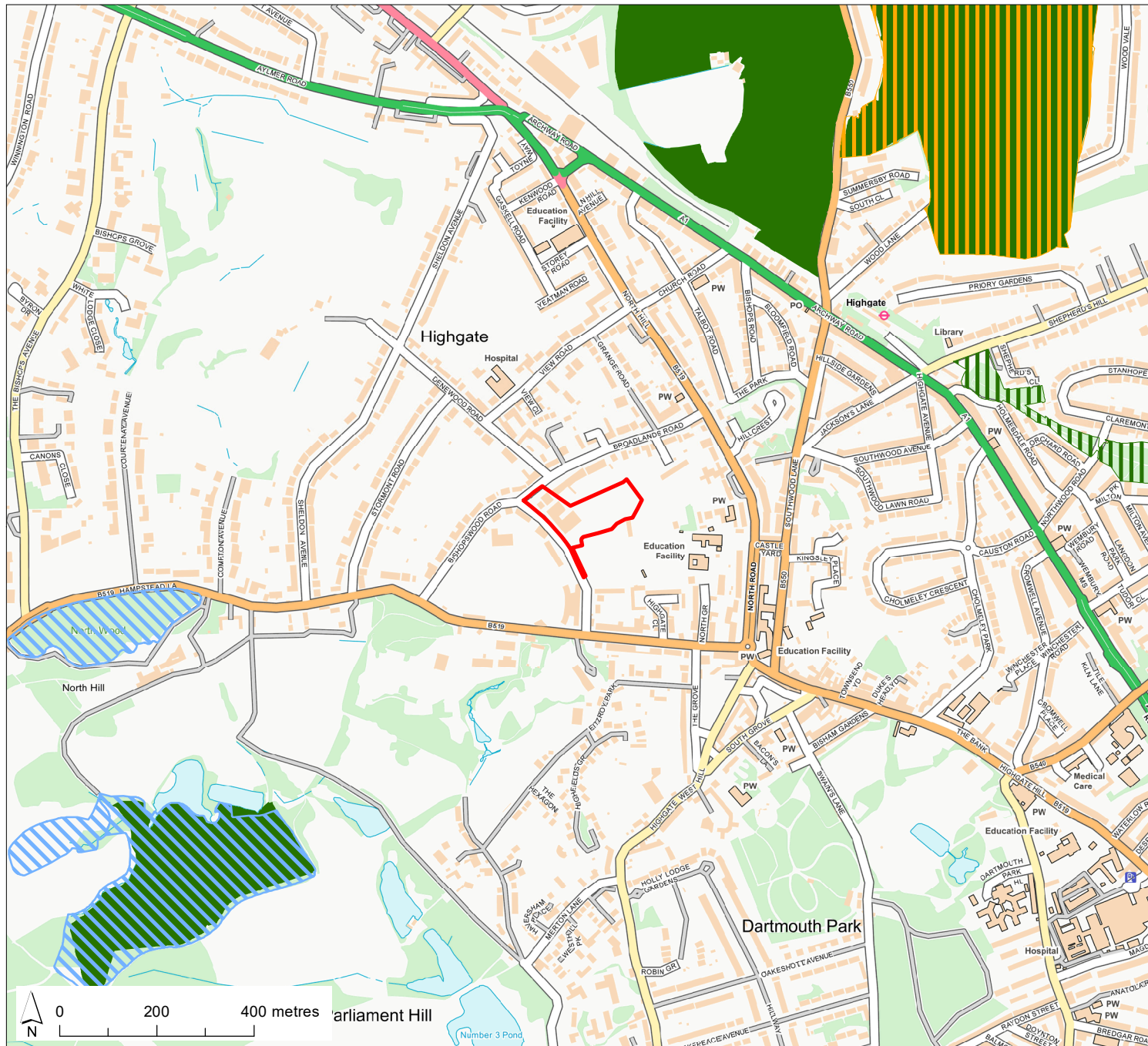
Surveyed by: n/a

Survey date: n/a

Drawn by: RD

Checked by: DP

Status: Final



Highgate School MSC 4Phase

Phase 1 habitat map

-  Site boundary
-  broad-leaved plantation woodland
-  SI poor semi-improved neutral grassland
-  amenity grassland
-  hard-standing
-  buildings
-  dry ditch
-  line of trees
-  species-rich hedge with trees
-  individual tree (indicative location)
-  scattered scrub

Figure 2.2

Map Scale @ A4: 1:1,300

Surveyed by: RD

Survey date: 12 April 2022

Drawn by: RD

Checked by: DP

Status: Final

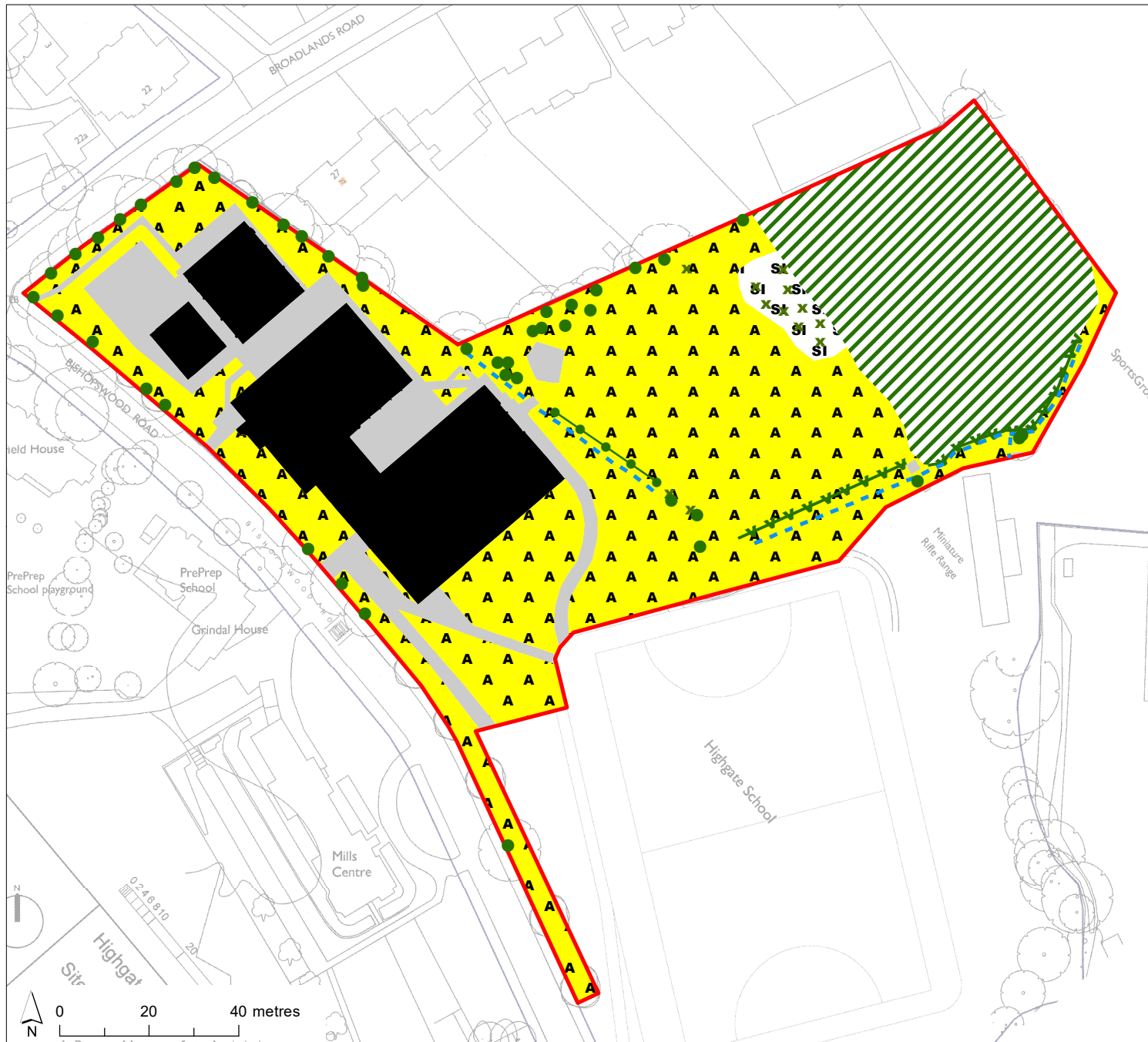


Figure 2.3: Selection of habitat survey photographs.



(a) Amenity grassland playing fields and line of trees.



(b) Hard-standing, amenity grassland and sports centre buildings.



(c) Small area of poor semi-improved neutral grassland with scattered bramble scrub at edge of broad-leaved plantation woodland.



(d) Broad-leaved plantation woodland.



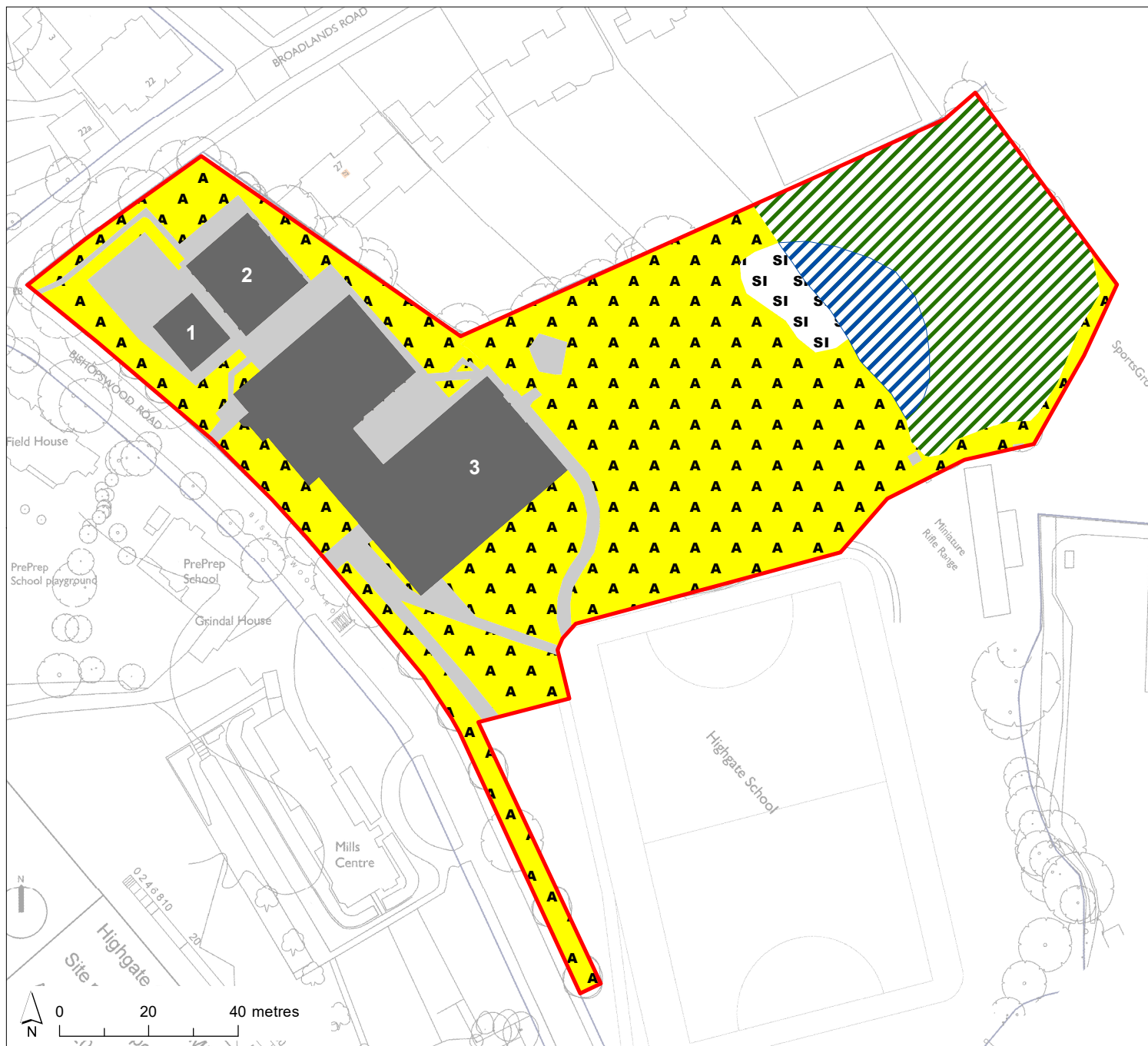


(e) Buildings 1 and 2, squash court (right) and Eton fives courts.



(f) Northern part of Building 3.





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Preliminary bat roost assessment

- Site boundary
- area of woodland subject to bat roost inspections
- Bat roost potential of buildings**
- Negligible

Figure 2.4

Map Scale @ A4: 1:1,300

Surveyed by: RD

Survey date: 12 April 2022

Drawn by: RD

Checked by: DP

Status: Final



Conclusions and Recommendations

Conclusions

Protected sites

- 2.39 No impacts on statutory or non-statutory wildlife sites are anticipated as a consequence of the proposed development given the distance between the designated sites and the Site, and the scale and type of development being proposed.

Habitats

- 2.40 The Site was dominated by amenity grassland, buildings and hard-standing, all habitats of negligible ecological and biodiversity value that do not represent a significant development constraint.
- 2.41 The woodland, hedgerows and mature and semi-mature trees were of elevated ecological value and should be retained and protected where possible.

Fauna

- 2.42 The Site is likely to support a breeding assemblage of mostly common garden and woodland birds, primarily in the areas of woodland.
- 2.43 None of the buildings within the Site were assessed as being of value to roosting bats, and the woodland area and lines of trees were assessed as being of low value to commuting and foraging bats.
- 2.44 The presence of hedgehog and stag beetle cannot be discounted, and although specific survey to confirm their presence / absence is not considered necessary in this instance it is recommended that consideration is given to avoid impacts on these species by adopting reasonable impact avoidance measures during Site clearance and construction, and targeted enhancement measures provided as part of the proposals.

Recommendations

Further survey

- 2.45 Although the proposed Development will result in small losses to the stand of woodland, the integrity of the woodland block will not be affected. Furthermore, the nearby hedgerows and lines of trees will be retained, and the woodland is proposed to be enhanced through thinning and additional planting, with additional tree planting planned surrounding the new football pitch and no additional after dark lighting proposed in these areas. It is therefore considered that the scheme is unlikely to negatively affect foraging or commuting bats and may have an overall net benefit for bats. As such, no further bat survey is recommended.

Site Clearance, Development Design and Biodiversity Enhancement

- 2.46 The following general recommendations should be considered as part of development planning and design to comply with National Planning Policy Framework (NPPF) guidance:



- Development-related habitat loss should be minimised where possible, with retained habitats and features to be protected from damage and excessive disturbance during construction.
- Any clearance of trees or vegetation necessary to enable development should be conducted outside of the bird breeding season (i.e., during the period September–February) or, if during the breeding season, immediately after a check by an experienced ornithologist that verifies nesting bird absence from the Site.
- Any areas of shrubs, dense litter or log piles should be searched and/or removed carefully by hand prior to Site clearance.
- Additional after-dark lighting, particularly of woodland habitats, should be minimised to reduce potential adverse impacts on nocturnal wildlife.
- Any Development-related habitat loss should be compensated through new habitat creation and species-specific enhancements, such as integrated bird and bat boxes on new buildings.



3 Biodiversity Net Gain Assessment

Approach

- 3.1 A biodiversity net gain assessment of the proposed Development has been completed using the Natural England Biodiversity Metric 3.1⁷. The metric tool compares the relative biodiversity value of the pre-development habitats with the proposed post-development habitats with the comparison including an assessment of habitat type, condition and, in the case of newly created post-development habitats, difficulty of creation.
- 3.2 The pre-development habitat baseline for the Site was derived using the habitat map presented in Chapter 2, with the Phase 1 habitat types converted into their respective UK Habitat Classification (UKHab) habitat types using professional judgement.
- 3.3 The post-development habitat types and areas for use in the biodiversity metric calculator, were informed by the Development Layout Plan in **Appendix A** and the Landscape Strategy Report⁸. Habitat management recommendations to achieve the targeted post-intervention conditions
- 3.4 The condition of pre-development habitats and target conditions of post-development created habitats were determined in line with the Biodiversity Metric 3.1 Calculation Tool Technical Supplement condition assessment criteria⁹.
- 3.5 The woodland scored 23 points on the woodland condition assessment criteria and was therefore assigned poor condition (poor condition = 13–25 points).
- 3.6 Trees have been assigned to a size class based on the following criteria and entered into the Metric using the in-built urban tree calculation tool:
 - Small <30 cm DBH;
 - Medium 30–90 cm DBH;
 - Large > 90 cm DBH.

Baseline Habitats

- 3.7 The habitat areas and their assessed conditions are detailed in **Table 3.1** and shown in **Figure 3.1**. Overall, the baseline habitat value of the Site was calculated at **11.02 habitat units**.
- 3.8 The Site also had a baseline value of **2.07 hedgerow units**, although no impacts are predicted to occur to the hedgerows or lines of trees at the Site and as such no net loss or gain is predicted for this habitat. The baseline value of the hedgerows present is provided in **Table 3.2**.

⁷ Available from <http://publications.naturalengland.org.uk/publication/6049804846366720?cache=1650634410.64> Accessed on 21/06/2022.

⁸ Robert Myers Associates (2022) *Highgate School MSC 4Phase Landscape Strategy Report – 733.01(RP)001 Rev A*.

⁹ Panks, S.; White, N.; Newsome, A.; Potter, J.; Heydon, M.; Mayhew, E.; Alvarez, M.; Russel, T.; Scott, S.J.; Heaven, M.; Scott, S.C.; Treweek, J.; Butcher, B. and Stone, D. (2021) *Biodiversity Metric 3.1: Auditing and accounting for biodiversity – technical supplement*. Natural England.



Table 3.1: Baseline habitat value.

Habitat (Phase 1)	Habitat (UKHab)	Condition	Area (ha)	Habitat unit value
Amenity grassland	Modified grassland	Poor	0.842	1.68
Poor semi-improved neutral grassland	Grassland: Modified grassland	Moderate	0.027	0.11
Broad-leaved plantation woodland	Woodland and forest: Other woodland, broadleaved	Poor	0.353	1.41
Buildings and hard-standing	Urban: Developed land, sealed surface	N/A	0.449	0
Individual trees	Urban: Urban tree (25x medium, 15x small)	Moderate	0.977	7.82

Table 3.2: Baseline hedgerow value.

Habitat (Phase 1)	Habitat (UKHab)	Condition	Length (km)	Hedgerow unit value
Species-rich hedge with trees	Native species-rich hedgerow with tree – associated with bank or ditch	Moderate	0.048	0.77
Species-rich hedge with trees	Native species-rich hedgerow with tree – associated with bank or ditch	Moderate	0.041	0.66
Line of trees	Line of trees (ecologically valuable) – with bank or ditch	Moderate	0.028	0.22

Post-intervention Habitats

- 3.9 The post-development habitats, including the proposed area of developed land (buildings and hard-standing) and other newly created habitats within the Site, are presented in **Table 3.3** and shown in **Figure 3.2**.
- 3.10 The habitats shown are based on those detailed in the Landscape Strategy Report. The assumptions made are as follows:
- The woodland will be enhanced from poor to moderate condition through selective felling (to focus on sycamore), planting of suitable native species, sowing of Emorsgate Woodland Mixture EW1 to enhance the ground layer, restricted recreational use and removal/cessation of dumping of gardening waste.
 - The area surrounding the amphitheatre to be seeded with Emorsgate Woodland Mixture EW1 and, in the absence of a directly comparable habitat within the Metric, has been entered as 'Grassland: Other neutral grassland' to capture its likely value. It is assumed it will be managed as a shaded meadow sward and achieve moderate condition.
 - The green roof is proposed as a mix of sedum and low native wildflower plugs and as such is considered to be best represented by Urban: Biodiverse green roof and likely to achieve moderate condition.



- A total of 23 new small trees (trees likely to attain a DBH of <30 cm in 30 years) has been included using the in-built urban tree calculator tool.

3.11 Overall, the post-intervention habitats score a post-development value of **13.09 habitat units**.

Table 3.3: Post-intervention habitats.

Habitats (UKHab)	Target condition	Area (ha)	Habitat units value
Retained habitats			
Grassland: Modified grassland	Poor	0.015	0.03
Urban: Urban trees (25x medium, 15x small)	Moderate	0.977	7.82
Enhanced habitats			
Woodland and forest: Other woodland, broadleaved	Moderate	0.307	2.09
New habitats			
Grassland: Modified grassland	Poor	0.342	0.66
Grassland: Other neutral grassland	Moderate	0.195	1.31
Urban: Developed land, sealed surface	N/A	0.532	0
Urban: Introduced shrub	N/A	0.138	0.27
Urban: Biodiverse green roof	Moderate	0.141	0.63
Urban: Urban trees (23x new small trees)	Moderate	0.094	0.29

Conclusion

3.12 Based on the above assumptions, the proposed Development delivers at on-site **net gain of +1.13 habitat units, equivalent to a net gain of +18.74%**. There is no change in the value of the Site's hedgerows (2.07 hedgerow units).





Highgate School MSC 4Phase

Baseline habitats

- Site boundary
- Developed land, sealed surface; N/A
- Modified grassland; Moderate
- Modified grassland; Poor
- Other woodland, broadleaved; Poor
- Line of trees (ecologically valuable) associated with bank or ditch; Moderate
- Native species-rich hedgerow with trees with bank or ditch; Moderate

Urban trees

- Medium; Moderate
- Small; Moderate

Figure 3.1

Map Scale @ A4: 1:1,300

Surveyed by: RD

Survey date: 12 April 2022

Drawn by: RD

Checked by: DP

Status: Final





Highgate School MSC 4Phase

Post-intervention habitats

- Site boundary
- Developed land, sealed surface; N/A
- Introduced shrub; N/A
- Modified grassland; Poor
- Modified grassland; Poor; Retained
- Biodiverse green roof; Moderate
- Other neutral grassland; Moderate
- Other woodland, broadleaved; Moderate; Enhanced
- Line of trees (ecologically valuable) associated with bank or ditch; Moderate
- Native species-rich hedgerow with trees with bank or ditch; Moderate; Retained

Urban trees

- Medium; Retained
- Small; Retained
- Small; New

Figure 3.2

Map Scale @ A4: 1:1,250

Surveyed by: n/a

Survey date: n/a

Drawn by: RD

Checked by: DP

Status: Final



4 BREEAM 2018 Assessment

Background

- 4.1 The baseline habitat conditions and recommendations to protect and enhance ecology in line with national and local planning policy were provided by the Preliminary Ecological Appraisal detailed in Chapter 2 of this report.
- 4.2 This report provides a BREEAM assessment of the development following the BREEAM UK New Construction, Non-Domestic Buildings (United Kingdom), Technical Manual SD5078: BREEAM UK New Construction 2018 3.0, and covers Land Use and Ecology LE 01 – LE 05.
- 4.3 The change in ecological value calculations used in LE04 are as reported in the Biodiversity Net Gain assessment in Chapter 3 of this report.
- 4.4 The assessment was completed by AEL senior ecologist Richard Dale MCIEEM and verified by Rob Hutchinson MCIEEM, a Suitably Qualified Ecologist (SQE) as defined by BREEAM.

Assessment

- 4.5 The subsequent assessment and guidance follow the BREEAM New Construction, Non-Domestic Buildings (United Kingdom) Technical Manual SD5078 – 2018, and cover Land Use and Ecology LE02–LE05. The LE02–LE05 criteria are outlined in the section below along with guidance on whether the development will meet each criterion, and a summary of the BREEAM credits that can be awarded. The assessment was completed in July 2022.
- 4.6 The pre-development baseline habitats are shown in **Figure 2.2** and **3.1** and the post-development habitats are shown by **Figure 2.2** and in **Appendix A**. The recommendations in Chapter 2 and Landscape Ecological Management Plan in Chapter 5 also inform this assessment.

LE 01 Site Selection

- 4.7 Up to two credits are available under LE 01, there is no prerequisite and no exemplary credits are available.

Previously occupied land (1 credit)

Criterion 1

- 4.8 *“At least 75% of the proposed development is on previously occupied land”*
- 4.9 Only approximately 50% of the Site qualifies as previously developed land as defined by BREEAM, as such the Site does not qualify for this credit. The relevant definition of previously development land excludes: *“land in built-up areas such as parks, recreation grounds and allotments which, although they may feature paths, pavilions and other buildings, have not been previously occupied.”* As such the playing fields and amenity areas, as well as the woodland, does not fir the definition of previously developed land.



Contaminated land

Criterion 2

- 4.10 *“A contaminated land professional undertakes a site investigation, risk assessment and appraisal which deems that land within the development footprint to be affected by contamination. This report identifies:*

2.a: The degree of contamination.

2.b: The contamination sources or types.

2.c: The options for remediating sources of contamination which present an unacceptable risk.”

Criterion 3

- 4.11 *“The client of principal contractor confirms that a remediation strategy will be implemented, in line with the report.”*
- 4.12 The Site does not constitute contaminated land and therefore the scheme does not qualify for this credit.

LE 02 Ecological Risks and Opportunities

- 4.13 In addition to a prerequisite, this route is split into two parts. One credit can be awarded for each of these. A further exemplary credit can also be awarded.

Prerequisite – statutory obligations

Criterion 1

- 4.14 *“The client or contractor confirms compliance is monitored against all relevant UK and EU or international legislation relating to the ecology of the site”*
- 4.15 The ecological survey work undertaken on the Site and recommendations in Chapter 2 of this report have ensured that the proposed development will be compliant with all relevant UK and EU/international legislation relating to ecology.

Survey and evaluation (1 credit)

Criterion 3

- 4.16 *“A Suitably Qualified Ecologist (SQE) carries out a survey and evaluation (see Methodology) for the site early enough to influence site preparation works, layout and, where necessary, strategic planning decisions (typically Preparation and brief stage) (see Definitions).”*
- 4.17 Robert Hutchinson MCIEEM, an SQE, has verified the findings and conclusions of this report. The information from the PEA has been used to inform mitigation requirements and biodiversity enhancements. In addition to the PEA reported in Chapter 2, AEL has previously completed PEAs of the Site in 2015 and 2019, providing ongoing ecological advice throughout the design process.

Criterion 4

- 4.18 *“The SQE’s survey and evaluation determines the site’s ecological baseline (see Definitions), including:*



4.a: Current and potential ecological value and condition of the site and related areas within the Zone of Influence.

4.b: Direct and indirect risks to current ecological value from the project.

4.c: Capacity and feasibility for enhancement of the site's ecological value and, where relevant, areas within the Zone of Influence."

- 4.19 The PEA report summarised the relevant baseline ecological data for the Site and identified its key ecological features (primarily the woodland block and associated mature trees and hedges). It outlined the likely risks of development and put forward relevant mitigation measures to reduce/remove these risks. Ecological enhancements have been considered throughout the process via a Biodiversity Net Gain assessment which has informed the development and landscaping design.

Criterion 5

- 4.20 *"Recommendations and data collected from the survey and evaluation are shared with appropriate project team members to influence decisions made for activities during site preparation, design and construction works, which can support ecological features (see Methodology and Definitions)."*
- 4.21 Survey and evaluation data, including preliminary biodiversity net gain assessments, have been shared with project team members and these have been used to inform production of the landscape design proposal, including the enhancement of retained woodland, native wildflower planting and green roofs.
- 4.22 As all three criteria have been met **one credit** can be awarded.

Determining ecological outcomes (1 credit)

Criterion 6

- 4.23 *"Survey and evaluation criteria relevant to the chosen route (Criterion 2 if following the Foundation route or Criteria 3–5 for the Comprehensive route)."*
- 4.24 This criterion can be met as Criteria 3–5 have all been met.

Criterion 7

- 4.25 *"The project team liaise and collaborate with representative stakeholders (see Methodology) early enough to influence key planning decisions (typically Concept Design stage), to:*

7.a: Identify the optimal ecological outcomes for the site.

7.b: Identify, appraise and select measures to meet the optimal ecological outcomes for the site (criterion 7.a), in line with the mitigation hierarchy of action, according to the route being used (see Definitions):"

The mitigation hierarchy used for the comprehensive route is as follows:

1. *Avoidance*
2. *Protection*
3. *Reduction or limitation of negative impacts*
4. *On-site compensation*



5. *Enhancement, considering the capacity and feasibility within the site, or where viable, off-site.*

- 4.26 Formal Consultation with relevant ecological stakeholders (such as local government and NGOs such as the Wildlife Trusts and the Bat Conservation Trust) is considered necessary under BREEAM 2018 only for projects that are large or that may impact sensitive areas. Smaller-scale projects are not required to formally engage with these organisations if they incorporate decisions which comply with or exceed local and national policy on biodiversity.
- 4.27 The development meets and exceeds relevant national policy in regards to its impacts on ecology. For example, overall, the development will result in a net gain for biodiversity, which relevant national policy (the NPPF) states should be a requirement of development. This has been demonstrated by the Biodiversity Net Gain assessment detailed in Chapter 3.
- 4.28 The mitigation hierarchy has been followed throughout the project design and mitigation process.
- 4.29 Because both criteria have been met **one credit** can be awarded.

Exemplary level criteria – wider site sustainability (1 exemplary credit)

Criterion 8

- 4.30 *“Achieve criterion 7”*
- 4.31 This criterion has been achieved.

Criterion 9

- 4.32 *“Wider sustainability related activities and potential ecosystem service benefits (see Definitions) are considered as part of determining the optimal ecological outcomes for the site (criterion 7), including the areas outlined in the Methodology.”*
- 4.33 The ecosystem services benefits of the habitats on Site (e.g., in terms of providing habitat for pollinators and providing recreation and amenity value for the school) have been considered throughout the design process.

Criterion 10

“10.a: Hea 07 Safe and healthy surroundings – Both credits

10.b: Pol 03 Flood and surface water management – Achieve credits for 'Surface water run-off' and 'Minimising watercourse pollution'

10.c: Pol 05 Reduction of noise pollution”

- 4.34 It is not known at this stage if these credits will be achieved by the scheme and as such this credit is not currently available.

LE 03 Managing Impacts on Ecology

- 4.35 LE03 is split into two parts with a total of three credits available for the comprehensive route. There is a prerequisite but no exemplary credits.



Prerequisite – ecological risks and opportunities

Criterion 1

- 4.36 *“LE 02’s ‘Survey and evaluation and Determining ecological outcomes’ criteria have been achieved using the Foundation route (Route 1) or the Comprehensive route (Route 2).”*
- 4.37 All of the LE 02 criteria have been achieved using Route 2.

Planning and measures on-site (1 credit)

Criterion 2

- 4.38 *“Further planning to avoid and manage negative ecological impacts on-site is carried out (see Methodology) early enough to influence the concept design and design brief as well as site preparation planning (typically Concept Design stage).”*
- 4.39 Potential negative ecological impacts were identified during the initial PEA survey, which identified the potential of trees, hedges and woodland to support nesting birds, as well as the biodiversity value of these habitats and their function as part of the wider ecological network. Subsequently, the retention and protection, where possible, of these habitats and enhancement through improved management and supplementary tree planting was adopted as part of the landscape design.

Criterion 3

- 4.40 *“On-site measures for managing negative ecological impacts during site preparation and construction are implemented in-practice (e.g., mitigation measures to protect existing ecological features) (see Methodology).”*
- 4.41 Following the PEA, the recommendations for the protection of potential bird nesting habitat during the breeding season and minimising after dark lighting will be adopted during Site preparation and construction.

Criterion 4

- 4.42 *“Criteria 2–3 are based on input from the project team in collaboration with representative stakeholders and data collated as part of the ‘Determining ecological outcomes’ in LE 02 Ecological risks and opportunities (see Methodology).”*
- 4.43 The aforementioned mitigation strategy was completed based on data collected from the initial surveys and followed the mitigation hierarchy. Due to scale of the development, ecological stakeholders do not need to be formally consulted as long as decisions comply with or exceed recommendations provided by local or national policy or guidance produced by conservation NGOs.
- 4.44 As all three criteria have been met and **one credit** can be awarded.

Managing negative impacts (up to 2 credits)

Criterion 7

- 4.45 *“Criteria 2–4 have been achieved.”*
- 4.46 Criteria 2–4 have all been achieved.



Criterion 8

- 4.47 *“Negative impacts from site preparation and construction works have been managed according to the mitigation hierarchy, in line with the SQE's recommendations (see Methodology) and, either:*

8.a: No overall loss of (see Definitions) ecological value has occurred (two credits).

OR when 8.a is not possible:

8.b: The loss of ecological value has been minimised (Minimising Loss) (one credit).”

- 4.48 Potential impacts on nesting birds will be avoided by following the timing recommendations made in the PEA report and no overall loss of the ecological value of the habitats on Site has occurred (see LE04 section).

- 4.49 As a result, **one credit** can be awarded.

LE04 Ecological Change and Enhancement

Prerequisite – managing negative impacts on ecology

- 4.50 Up to four credits are available for LE04, which is split into two parts when following the Comprehensive route (in addition to a prerequisite).

Criterion 1

- 4.51 *“Criterion 6 (for Foundation route) or 8 (for Comprehensive route) in LE 03 has been achieved”*

- 4.52 Criterion 8 has been achieved using the Comprehensive route for LE03.

Criterion 2

- 4.53 *“The client or contractor confirms compliance is monitored against all relevant UK, EU or international legislation relating to the ecology of the site.”*

- 4.54 The ecological work undertaken on the Site has ensured that the proposed development will be compliant with all relevant UK and EU/international legislation relating to ecology.

Ecological enhancement (1 credit)

Criterion 4

- 4.55 *“Measures have been implemented that enhance ecological value, which are based on input from the project team and SQE in collaboration with representative stakeholders and data collated as part of the ‘Determining ecological outcomes’ in LE 02 (see Methodology). Measures are implemented in the following order:*

4.a: On site, and where this is not feasible,

4.b: Off site within the Zone of Influence.”

- 4.56 Measures to enhance the ecological value of the Site have been implemented, see section on biodiversity net gain assessment in Chapter 3.

Criterion 5

“Data collated are analysed and where potentially valuable, provided to the local environmental records centres nearest to, or relevant for, the site.”



- 4.57 No relevant data were provided to the local environmental records centre as part of the PEA due to the limited ecological value of the habitats at the Site and lack of protected species surveys.
- 4.58 The relevant criteria have been met and **one credit** can be awarded.

Change and enhancement of ecology (up to 3 credits)

Criterion 6

- 4.59 *“Up to three credits are awarded based on the change in ecological value occurring as a result of the project. This must be calculated in accordance with the process set out in GN36 – BREEAM, CEEQUAL and HQM Ecology Calculation Methodology – Route 2. Credits are awarded in line with the Reward Scale table in GN36 where there are no residual impacts on protected sites or irreplaceable habitats.”*
- 4.60 The change in ecological development on the Site as a result of development has been calculated using the Defra Metric 3.1 as detailed in Chapter 3, rather than using the GN36 method.
- 4.61 The calculation shows post intervention gain of +18.74% and therefore a post-development area-based biodiversity unit value of 118.74% of the pre-development baseline. It therefore achieves **three credits** for achieving a net gain for the habitats assessed.

Exemplary level criteria (one credit)

Criterion 7

- 4.62 *“The change in ecological value calculated under criterion 6 above confirms significant net gain has been achieved as set out in GN36 - BREEAM, CEEQUAL and HQM Ecology Calculation Methodology – Route 2.”*
- 4.63 The scheme achieves **one exemplary credit** for achieving a significant net gain (a post-development value of over 110%).

LE05 Long Term Ecology Management and Maintenance

Prerequisite – statutory obligations, planning and site implementation

Criterion 1

- 4.64 *“The client or contractor has confirmed that compliance is being monitored against all relevant UK, EU and international standards relating to the ecology of the site.”*
- 4.65 Based on the recommendations in the PEA the client has confirmed that the development will be compliant with all relevant UK and EU/international legislation relating to ecology.

Criterion 2

- 4.66 *“The following must be achieved, according to the route being assessed:*
- 2.a: Foundation route (Route 1) - Criterion 6 in LE 03 has been achieved.*
- 2.b: Comprehensive route (Route 2) - Criterion 8 in LE 03 has been achieved, and at least one credit under LE 04 for 'Change and Enhancement of Ecology' has been awarded.”*
- 4.67 Criterion 8 in LE 03 has been achieved and four LE 04 'Change and Enhancement of Ecology' credits can also be awarded.



Management and maintenance throughout the project (1 credit)*Criterion 3*

- 4.68 *“Measures have been implemented to manage and maintain ecology throughout the project. These measures are based on input from the project team in collaboration with representative stakeholders and data collated as part of the ‘Determining ecological outcomes’ in LE 02 (see Methodology). To ensure the optimal ecological outcomes agreed in LE 02 are met in-practice, these measures must monitor and review the effectiveness of the mitigation and enhancement measures in place for LE 03 & LE 04 to ensure they are implemented.”*
- 4.69 Prescribed measures to monitor and review the effectiveness of mitigation and enhancement measures are provided in the Landscape Ecological Management Plan in Chapter 5 of this report. **One credit** is therefore awarded.

Landscape and Ecology Management Plan (1 credit)*Criterion 5*

- 4.70 *“A Landscape and Ecology Management Plan, or equivalent, has been developed in accordance with BS 42020:2013 Section 11.11 covering at least the first five years after project completion as a minimum and including:*
- 5.a: Actions and responsibilities of relevant individuals prior to handover*
 - 5.b: The ecological value and condition of the site at handover and how this is expected to develop and change over time*
 - 5.c: Identification of opportunities for ongoing alignment with activities beyond the development project, which support the aims of BREEAM's Strategic Ecology Framework*
 - 5.d: Identification and guidance to trigger appropriate remedial actions to address previously unforeseen impacts*
 - 5.e: Clearly defined and allocated roles and responsibilities for delivering the plan”*
- 4.71 The Landscape Ecological Management Plan is provided in Chapter 5 of this report. **One credit** can be awarded.



Summary

- 4.72 A summary of the BREEAM assessment for LE 01 – LE 05 is provided in **Table 4.1** below. The table indicates the credits available to the current scheme for each subsection of LE 02 – LE 05, providing all necessary conditions continue to be met.

Table 4.1: Summary of BREEAM LE 02 – LE 05 credits awardable.

Issues	Criteria	Total credits available	Credits achieved	Potential additional credits achievable
LE 01 Site selection	Previously occupied land	1	0	0
	Contaminated land	1	0	0
LE 02 Identifying and understanding the risks and opportunities for the project	Survey and evaluation	1	1	0
	Determining the ecological outcomes for the Site	1	1	0
	Exemplary level criteria	1	0	1
LE 03 Managing negative impacts on ecology	Planning, liaison, implementation and data	1	1	0
	Managing negative impacts of project	2	2	0
LE 04 Change and enhancement of ecological value	Ecological enhancement	1	1	0
	Change and enhancement of ecology	3	3	0
	Exemplary level criteria	1	1	0
LE 05 Long-term ecology management and maintenance	Planning, liaison, data, monitoring and review management and maintenance	1	1	0
	Landscape and ecology management plan (or similar) development	1	1	0
Total credits awardable =			12	1

- 4.73 A total of **12 credits** can be awarded at this stage, with a possible additional credit available depending on meeting the exemplary credit conditions for LE 02.



5 Landscape Ecological Management Plan

Aims and Objectives

- 5.1 The purpose of this document is to set out the proposed biodiversity enhancements measures proposed by the Development to ensure that, once implemented, the landscape is managed and maintained to a high standard. It will ensure the significant landscape and ecological enhancements proposed as part of the Development are maintained and continue to contribute positively for the long term. In particular, management prescriptions will ensure the habitat types and conditions targeted in the Biodiversity Net Gain (BNG) assessment in **Chapter 3** of this report are achieved.
- 5.2 The Landscape Ecological Management Plan (LEMP) will contain the following:
- 5.3 *a) Description and evaluation of features to be managed.*
- 5.4 *b) Aims and objectives of management, including how a positive outcome in biodiversity enhancement will be achieved.*
- 5.5 *c) Appropriate management options for achieving aims and objectives.*
- 5.6 *d) Prescriptions for management actions.*
- 5.7 *e) Prescription of a work schedule (including an annual work plan capable of being rolled forward over a five-year period).*
- 5.8 *f) Details of the body or organisation responsible for implementation of the plan.*
- 5.9 *g) Ongoing monitoring and remedial measures.*

Features to be Managed

- 5.10 The features of ecological importance to be managed under the terms of the LEMP reflect the post-intervention habitats for the Site (see **Chapter 3**) and are listed below. Amenity grassland and introduced shrub beds are excluded from the LEMP as these are low distinctiveness habitats only targeting the minimum 'poor' condition under the Biodiversity Net Gain assessment which are not expected to be managed for the benefit of biodiversity.
- Woodland (Woodland and forest: Other woodland, broadleaved in moderate condition);
 - Woodland wildflowers and grasses (Grassland: Other neutral grassland in moderate condition);
 - Green roofs (Biodiverse green roof in moderate condition);
 - Trees (Urban: Urban trees in moderate condition).
- 5.11 Precise details of seed mixes to be used and tree species to be planted are provided in the Landscape Strategy Report. The initial establishment phase for each habitat should be provided in detail by the landscape architect and is not covered here



Ecological Trends and Constraints

- 5.12 The following ecological trends and constraints are likely to influence future management of the Site:

Ecological trend

- The ongoing growth of existing and planted vegetation once established – notably the existing woodland and newly planted trees and scrub in common spaces which will necessitate overhanging vegetation across public rights of way to be periodically cut back to maintain access for health and safety reasons.

Ecological constraint

- The presence of legally protected wildlife – namely nesting birds and their dependent young within the Site between March and August.

Aims and Objectives of Management

- 5.13 Management of the habitats at the Site is aimed at delivering the best possible landscape and wildlife value by achieving the habitat types and conditions set out in the BNG assessment. The habitats should be maintained at the minimum target conditions set out in the BNG assessment for at least 30 years following creation.
- 5.14 The relevant condition assessment criteria for each habitat are as follows:

Woodland and forest: Other woodland, broadleaved

Woodland condition assessment criteria

- 5.15 This condition sheet is based on the England Woodland Biodiversity Group (EWMG) Woodland Condition Survey Method¹⁰.

Table 5.1: Woodland condition assessment criteria.

<i>Indicator</i>	<i>Good (3 points)</i>	<i>Moderate (2 points)</i>	<i>Poor (1 point)</i>
1. Age distribution of trees.	Three age classes present.	Two age classes present.	One age class present
2. Wild, domestic and feral herbivore damage.	No significant browsing damage evident in woodland.	Evidence of significant browsing pressure is present in 40% or less of whole woodland.	Evidence of significant browsing pressure is present in 40% or more of whole woodland
3. Invasive plant species.	No invasive species present in woodland.	Rhododendron or laurel not present, other invasive species < 10% cover.	Rhododendron or laurel present, or other invasive species > 10% cover.
4. Number of native tree species.	Five or more native tree or shrub species found across woodland parcel.	Three to four native tree or shrub species found across woodland parcel.	None to two native tree or shrub species across woodland parcel.
5. Cover of native tree and shrub species.	> 80% of canopy trees and >80% of understory shrubs are native.	50-80% of canopy trees and 50-80% of understory shrubs are native.	< 50% of canopy trees and <50% of understory shrubs are native.

¹⁰ <https://woodlandwildlifetoolkit.sylva.org.uk/assess> Accessed 21/06/2022.



<i>Indicator</i>	<i>Good (3 points)</i>	<i>Moderate (2 points)</i>	<i>Poor (1 point)</i>
6. Open space within woodland.	10–20% of woodland has areas of temporary open space, unless woodland is <10ha in which case lower threshold of 10% does not apply.	21–40% of woodland has areas of temporary open space.	More than 40% of woodland has areas of temporary open space.
7. Woodland regeneration.	All three classes present in woodland; trees 4–7cm DBH, saplings and seedlings or advanced coppice regrowth.	One or two classes only present in woodland.	No classes or coppice regrowth present in woodland.
8. Tree health.	Tree mortality less than 10%, no pests or diseases and no crown dieback.	11% to 25% mortality and/or crown dieback or low risk pest or disease present.	Greater than 25% tree mortality and or any high-risk pest or disease present.
9. Vegetation and ground flora.	Ancient woodland flora indicators present.	Recognisable NVC plant community present	No recognisable NVC community
10. Woodland vertical structure.	Three or more storeys across all survey plots or a complex woodland.	Two storeys across all survey plots.	One or less storey across all survey plots.
11. Veteran trees.	Two or more veteran trees per hectare.	One veteran tree per hectare.	No veteran trees present in woodland.
12 Amount of deadwood.	50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps.	Between 25% and 50% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps.	Less than 25% of all survey plots within the woodland parcel have standing deadwood, large dead branches/ stems and stumps.
13. Woodland disturbance.	No nutrient enrichment or damaged ground evident.	Less than 1 hectare in total of nutrient enrichment across woodland area and/or less than 20% of woodland area has damaged ground.	More than 1 hectare of nutrient enrichment and/or more than 20% of woodland area has damaged ground.

- 5.16 In order to achieve moderate condition, the woodland must achieve between 26–32 points after ten years following enhancement (the woodland was assessed as scoring 23 points in the baseline assessment).

Grassland: Other neutral grassland

Medium distinctiveness grassland condition assessment criteria

1. *The appearance and composition of the vegetation closely matches characteristics of the specific grassland habitat type (see UKHab definition). Wildflowers, sedges and indicator species for the specific grassland habitat type are very clearly and easily visible throughout the sward. NB – This criterion is essential for achieving moderate condition for non-acid grassland types only.*
2. *Sward height is varied (at least 20% of the sward is less than 7 cm and at least 20% is more than 7 cm) creating microclimates which provide opportunities for insects, birds and small mammals to live and breed.*
3. *Cover of bare ground is between 1% and 5%, including localised areas, for example, rabbit warrens.*



4. *Cover of bracken is less than 20% and cover of scrub (including bramble) is less than 5%.*
 5. *There is an absence of invasive non-native species (as listed on Schedule 9 of WCA, 1981). Combined cover of species indicative of sub-optimal condition and physical damage (such as excessive poaching, damage from machinery use or storage, damaging levels of access, or any other damaging management activities) accounts for less than 5% of total area.*
 6. *There are greater than 9 species per metre squared. NB - This criterion is essential for achieving good condition (non-acid grassland types only).*
- 5.17 In order to achieve moderate condition at least three of the above criteria, including essential criterion #1 must be met after five years following creation and maintained subsequently.

Urban: Biodiverse green roof

Urban condition assessment

1. *Vegetation structure is varied, providing opportunities for insects, birds and bats to live and breed. A single structural habitat component / vegetation type should not account for more than 80% of the total habitat area.*
 2. *Vegetation structure is varied, providing opportunities for insects, birds and bats to live and breed. A single structural habitat component / vegetation type should not account for more than 80% of the total habitat area.*
 3. *Invasive non-native species (Schedule 9 of WCA) cover less than 5% of total vegetated area. NB - To achieve GOOD condition, criterion 3 must be satisfied by a complete absence of invasive non-native species (rather than <5% cover). Buddleja davidii should be assessed alongside Schedule 9 species. This species impairs the health of the local ecosystem and reduces the biodiversity potential of the roof. It is also a sign that a roof has not been planted and seeded correctly in subsequent years.*
 4. *C2 – only applicable to biodiverse green roof habitat types: Have a varied depth of 80–150 mm at least 50% is at 150 mm and is planted and seeded with wildflowers and sedums or is pre-prepared with sedums and wildflowers. To achieve Good condition some additional habitat, such as sand piles, logs etc should be present.*
- 5.18 In order to achieve moderate condition at least two criteria must be met five years following creation and maintained subsequently.

Urban: Urban tree

Urban tree condition assessment criteria

1. *The tree is a native species (or more than 70% within the block are native species).*
2. *The tree canopy is predominantly continuous, with gaps in canopy cover making up <10% of total area and no individual gap being >5 m wide (individual trees automatically pass this criterion).*
3. *The tree is mature or veteran (or more than 50% within the block are mature or veteran).*



4. *Micro-habitats for birds, mammals and insects are present e.g., presence of deadwood, cavities, ivy or loose bark.*
 5. *More than 20% of the tree canopy area is oversailing vegetation beneath.*
- 5.19 In order to achieve moderate condition at least three of the above criteria must be met after 27 years following creation and maintained subsequently.

Management Recommendations and Prescriptions

- 5.20 In order to meet the aims and objectives outlined above, the following management recommendations are made and should be adopted by the landscape maintenance contractor:

Woodland and forest: Other woodland, broadleaved

- 5.21 Initial felling of predominantly non-native tree species (mostly sycamore) and supplementary planting with native species is proposed which will result in uplifts for assessment criteria #4 and #5. Management should focus on reducing recreational use of the woodland and damaging management such as the dumping of garden waste to target uplifts in assessment criteria #7, #9 and #13.
- Regular checks for non-native invasive species should be made and where present these should be removed. In particular, existing cherry laurel should be removed from the woodland wherever possible;
 - Recreational access to some or all of the woodland should be restricted to allow the establishment of an appropriate ground layer and regeneration of trees;
 - Piles garden waste and other waste should be removed and further dumping within the woodland should be prevented;
 - Periodic coppicing of understorey species, particularly hazel, should be carried out in order to promote a varied structure within the woodland. Coppicing should occur on a 7–15-year rotation, and no more than 25% of the woodland should be subject to coppicing in any one year.
 - Coppicing should occur outside of the bird nesting season and while dormice are in hibernation, i.e., during the period December–February, inclusive.
 - Coppicing produces large volumes of arisings. Some, where possible, should be stacked on Site to provide dead wood habitat and shelter; the remainder will need to be removed from Site or burnt.

Grassland: Other neutral grassland

- 5.22 With suitable management all five criteria could be achievable, although the impacts of recreational pressure from school children is likely to preclude achieving good condition:
- Once established grassland should be subject to wildflower meadow management. It should not be cut from early spring through to late-July/August to give the species present an opportunity to flower. After flowering, in mid-July or August a cut back with a tractor mower or similar to c.50 mm should be completed with the cuttings left to dry and shed seed for 1–7 days before being removed from the Site. An early spring cut



should be avoided as many woodland and shade tolerant species flower early in the year.

- Regular checks for species indicative of sub-optimal condition (such as creeping thistle *Cirsium arvense*, spear thistle *Cirsium vulgare*, curled dock *Rumex crispus*, broad-leaved dock *Rumex obtusifolius*, common nettle *Urtica dioica*, creeping buttercup *Ranunculus repens*, greater plantain *Plantago major*, cow parsley *Anthriscus sylvestris*) should be made and, if coverage of these species is >5%, these should be manually removed or spot-treated with herbicide.
- Recreational use should be prevented where possible.

Urban: Biodiverse green roof

5.23 In order to fulfil the definition of a biodiverse green roof, the roof should support a varied substrate depth between 80–150 mm, with at least 50% at 150 mm and should support a wide range of dry grassland wildflower and sedum species. The provision of areas of bare ground, piles of dead wood would provide valuable invertebrate habitat. In general, a biodiverse roof should require little management largely due to the exposed, stressed, low nutrient, shallow substrates and root barriers that also slow the process of ecological succession. Ideally a biodiverse green roof should receive two maintenance visits per year by a suitably qualified contractor. Habitat management will depend on the range of habitat types established but is likely to include:

- Cut back taller flowering species to approximately 150 mm above substrate surface in autumn/winter after seeding;
- Excess
- Re-establishment of any bare ground areas colonised by unwanted vegetation;
- Regular checks for invasive non-native species, particularly butterfly-bush *Buddleja davidii*, should be made and if present these should be manually removed or spot-treated with herbicide;
- Species with large growth habits or aggressive root systems should also be removed where found, these include docks *Rumex* spp., thistles, dandelion *Taraxacum officinale* agg., etc.

Urban: Urban tree

5.24 Once established, trees should need minimal management. Pruning and removal of deadwood should be avoided where possible to allow natural growth to occur and microhabitats for wildlife to establish.

Management Responsibility

5.25 The maintenance of the Site will be the responsibility of a landscape management company – details to be confirmed.

Monitoring and Remedial Measures

5.26 Monitoring of the habitats listed above should take place at the following intervals following Development completion: 2, 5, 10, 15, 20, 25 and 30 years.



- 5.27 Monitoring visits should be completed by a suitably qualified ecologist during the accepted Phase 1 habitat survey period (late-March to mid-October in Southern England), and assessments of the condition of the relevant habitats should be made with reference to the above condition assessment criteria. Where habitats are failing to meet the required criteria for their specified target condition, appropriate management action should be identified by the ecologist and incorporated into the management programme for the next five-year cycle. In particular, monitoring visits would be required to identify undesirable or invasive species for targeted removal.
- 5.28 Following each monitoring visit a short report should be submitted, detailing the condition of the habitats inspected, including specific condition criteria met and failed, and recommendations of changes to the management prescriptions to allow the habitats to continue to meet the long-term condition objectives.

Annual Work Plan

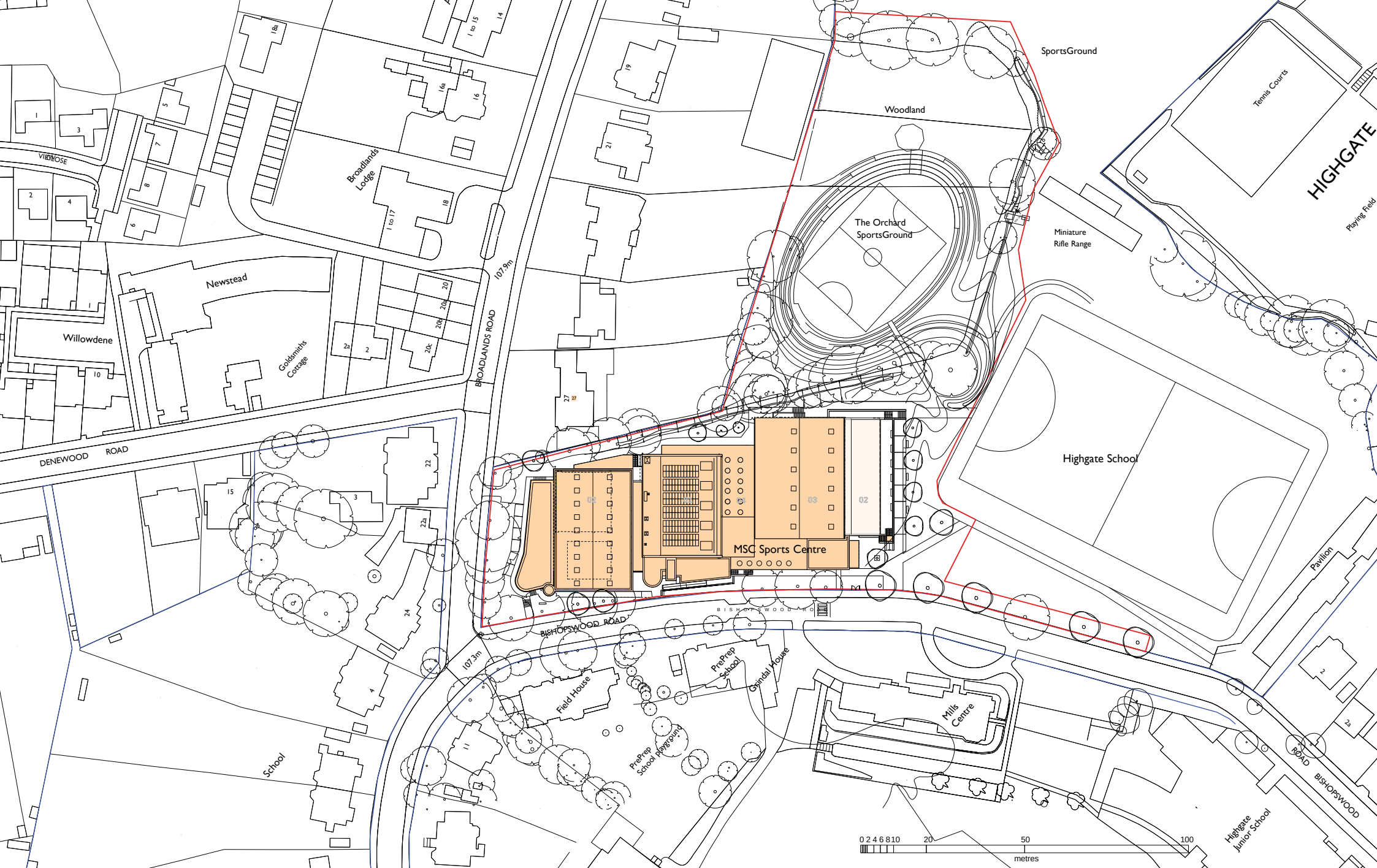
Action	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Targeted removal of non-native species in woodland												
Coppicing of woodland understorey (on 7–15-year rotation)												
Wildflower grassland mowing												
Cutting back tall vegetation on green roof												
Monitoring visits (every five years)												



Appendix A

Proposed Site Plan





ed toovey architects

studio 401 royle building
31 wenlock road
london n1 7sh
07880 725763
edtoovey@yahoo.co.uk

Revisions:

PLANNING ISSUE - OPTION 28/02/2022

- Always take site measurements
to verify dimensions
- Refer to M&E Engineers
drawings for all services



Highgate School MSC 4-Phase Scheme

Site plan proposed

August 2018

Drwg No. 1182 / GL / 012 -

Scale 1:500 @ A1 / 1:1000 @ A3

Appendix B

Plant Species Lists



Notes: DAFOR: D = dominant, A = abundant, F = frequent, O = occasional, R = rare, (LA = locally abundant).

Broad-leaved plantation woodland.

Species	DAFOR
Sycamore <i>Acer pseudoplatanus</i>	D
Pedunculate oak <i>Quercus robur</i>	F
Hazel <i>Corylus avellana</i>	F
Bramble <i>Rubus fruticosus</i>	F
Ivy <i>Hedera helix</i>	F
Ash <i>Fraxinus excelsior</i>	O
Willow <i>Salix</i> spp.	O
Broad-leaved lime <i>Tilia platyphyllos</i>	O
Horse chestnut <i>Aesculus hippocastanum</i>	O
Holly <i>Ilex aquifolium</i>	O
Cherry laurel <i>Prunus laurocerasus</i>	O
Common nettle <i>Urtica dioica</i>	O
Wood avens <i>Geum urbanum</i>	O
London plane <i>Platanus x hispanica</i>	R

Poor semi-improved neutral grassland.

Species	DAFOR
Yorkshire-fog <i>Holcus lanatus</i>	A
Rough meadow-grass <i>Poa trivialis</i>	A
Cock's-foot <i>Dactylis glomerata</i>	F
Broad-leaved dock <i>Rumex obtusifolius</i>	O
Great willowherb <i>Epilobium hirsutum</i>	O
Bramble <i>Rubus fruticosus</i>	O
Soft rush <i>Juncus effusus</i>	O

Amenity grassland.

Species	DAFOR
Perennial rye-grass <i>Lolium perenne</i>	D
White clover <i>Trifolium repens</i>	F
Yorkshire-fog <i>Holcus lanatus</i>	O
Rough meadow-grass <i>Poa trivialis</i>	O
Creeping buttercup <i>Ranunculus repens</i>	O
Dandelion <i>Taraxacum officinale</i>	O
Autumn hawkbit <i>Leontodon autumnalis</i>	O
Daisy <i>Bellis perennis</i>	O
Ribwort plantain <i>Plantago lanceolata</i>	O



Species	DAFOR
Yarrow <i>Achillea millefolium</i>	O
Spear thistle <i>Cirsium vulgare</i>	R
Red dead-nettle <i>Lamium purpureum</i>	R
Common mouse-ear <i>Cerastium fontanum</i>	R
Groundsel <i>Senecio vulgaris</i>	R
Swine-cress <i>Coronopus squamatus</i>	R
Common bent <i>Agrostis capillaris</i>	R
Cut-leaved crane's-bill <i>Geranium dissectum</i>	R



