



Far Field, Highgate School, London

Biodiversity Net Gain Assessment Report

Produced for Highgate School
By Applied Ecology Ltd

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Artist's impression – view looking west from the south-east corner



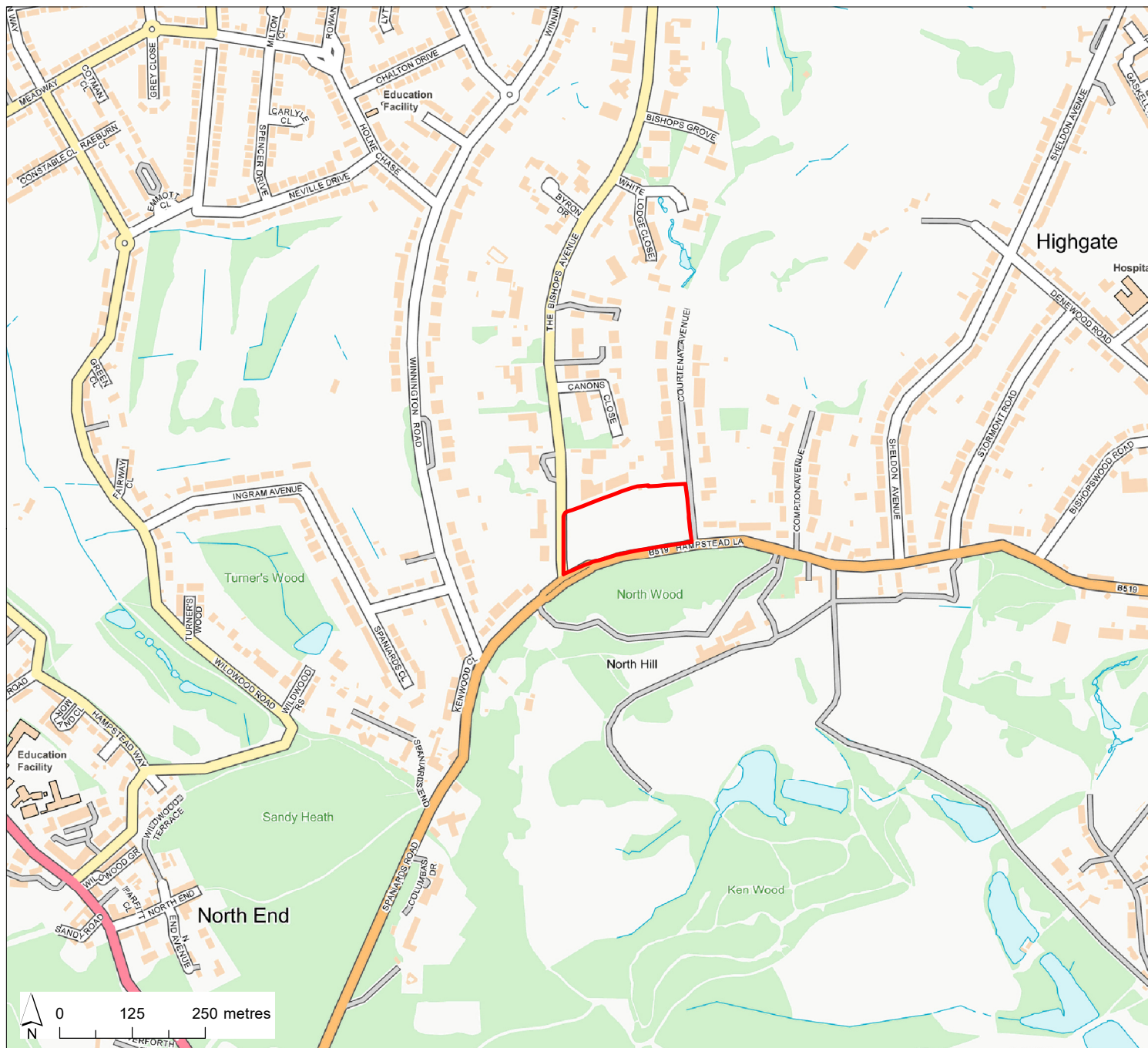
1 Introduction

Background

- 1.1 In September 2022, Applied Ecology Ltd (AEL) was commissioned by Highgate School to carry out a biodiversity net gain assessment of a proposed development on land at Far Field, Highgate School, Highgate, London, N6 4LL ("the Site"). A plan showing the location of the Site is provided in **Figure 1.1**.
- 1.2 The proposal is for the installation of two artificial-surface hockey pitches on an existing area of amenity grassland playing fields ("the Development").
- 1.3 The proposed Development layout is provided in **Appendix A**.
- 1.4 The Site was previously subject to a Preliminary Ecological Appraisal (PEA), including the mapping of pre-development baseline habitats in accordance with the JNCC Phase 1 habitat mapping methodology, by AEL in September 2022¹.
- 1.5 This report also includes a Biodiversity Enhancement Strategy for the management of proposed habitat enhancements.

¹ Applied Ecology Ltd (2022) *Far Field, Highgate School, London – Preliminary Ecological Appraisal*. Unpublished report for Highgate School.





Far Field, Highgate School, London

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 Methodology

Pre-existing Data Records

- 2.1 The biodiversity net gain assessment of the proposed development has been completed using DEFRA's Biodiversity Metric 3.1 Calculation Tool². The calculation 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. Linear habitat features, namely hedgerows, are assessed using a separate metric to area habitats.
- 2.2 The pre-development habitat baseline for the Site was derived using the Phase 1 habitat map of the Site produced by AEL in September 2022 with the Phase 1 habitat types converted into their respective UK Habitat Classification (UKHab) habitat types using professional judgement and the relevant guidance. The post-development habitat type and area, for use in the biodiversity metric calculator, were also informed by the proposed Site plan (**Appendix A**) and further consultation with Highgate School.
- 2.3 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 criteria³.
- 2.4 The area of on-site trees has been calculated using the metric's in-built tree calculator tool, assigning trees into size categories: small (>30 cm Diameter at breast height (DBH)), medium (30–90 cm DBH), and large (>90 cm DBH).
- 2.5 An area of off-site land along the northern Site boundary was subject to habitat condition assessment alongside the PEA survey in September 2022.

² Available from <http://publications.naturalengland.org.uk/publication/6049804846366720?cache=1650634410.64> Accessed on 08/11/2022.

³ Panks, S.; White, N.; Newsome, A.; Potter, J.; Heydon, M.; Mayhew, E.; Alvarez, M.; Russel, T.; Scott, S.J.; Heaver, 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.



3 Results

Baseline habitats

- 3.1 The baseline habitats within the Site, as surveyed in 2020, consisted primarily of an area of amenity grassland paying fields, with small areas of buildings and hard-standing and groups of mature trees along the eastern, southern and western boundaries.
- 3.2 The amenity grassland was in poor condition as, due to its low species density, it failed the first assessment criterion for moderate condition:
- 3.3 *“There must be 6–8 species per m². If a grassland has 9 or more species per m² it should be classified as a medium distinctiveness grassland habitat type. NB - this criterion is essential for achieving moderate condition.”*
- 3.4 The mature trees were assessed as being in moderate condition, as <70% of the trees were native species, relatively little deadwood habitat was present (due to regular maintenance) and no semi-natural vegetation was present beneath the tree canopies, thereby failing three of the six condition assessment criteria.
- 3.5 A strip of woodland outside of the Site boundary but adjacent to the Site along the northern boundary is proposed as off-site habitat enhancement measure to partially offset losses within the Site. This was a strip of mature deciduous trees comprising sessile oak *Quercus petraea*, sycamore *Acer pseudoplatanus*, common lime *Tilia x europaea* and crack willow *Salix fragilis*. There was a sparse shrub layer primarily comprising young sycamores and a ground layer heavily dominated by ivy *Hedera helix* and bramble *Rubus fruticosus*.
- 3.6 The woodland was assessed against the 13 woodland habitat condition assessment criteria and scored a total of 25 points, equivalent to poor condition.
- 3.7 The Phase 1 habitat map is provided in **Figure 3.1**.
- 3.8 The pre-development baseline habitat value of the Site was calculated as **14.19 habitat units** as detailed in **Table 3.1** below. The off-site baseline was calculated to be **0.43 habitat units**, as detailed in **Table 3.2**.

Table 3.1: Baseline habitats.

Habitat (Phase 1)	Habitat (UKHab)	Condition	Area (ha)	Habitat unit value	Area lost to development (ha)
Amenity grassland	Grassland: Modified grassland	Poor	2.229	4.46	1.537
Artificial grass	Urban: Artificial unvegetated, unsealed surface	N/A	0.007	0	0.007
Buildings and hard-standing	Urban - Developed land, sealed surface	N/A	0.013	0	0
Individual trees	Urban: Urban tree (30x medium and 29x small trees)	Moderate	1.217	9.74	0



Table 3.2: Off-site baseline habitats.

Habitat (Phase 1)	Habitat (UKHab)	Condition	Area (ha)	Habitat unit value	Area lost to development (ha)
Broad-leaved plantation woodland	Woodland and forest: Other woodland, broadleaved	Poor	0.107	0.43	0

Post-intervention habitats

- 3.9 The post-intervention habitats, including the proposed area of developed land (buildings and hard-standing) and other newly created habitats within the Site, are presented in **Table 3.3–5** and shown in **Figure 3.2**. The proposed post-development habitats comprise the new artificial turf sports pitches, retained amenity grassland and trees, and an area of grassland enhanced through oversowing and improved management to form shade-tolerant wildflower grassland. In addition, a total of 356 m of new species-rich hedgerow is proposed to reinforce the existing green corridors along the eastern southern and western boundaries.
- 3.10 The shade-tolerant wildflower is assessed as being other neutral grassland in moderate condition as the best match for the proposed habitat and likely ecological value.
- 3.11 The off-site woodland is proposed to be enhanced through the creation of more varied understorey and ground layers comprising native species, including the sowing of a shade-tolerant woodland ground layer. These measures should increase in the diversity of native species present and increase the diversity of vertical structure, thereby improving the results for assessment criteria #4, #5 and #10, and possibly #9. The woodland would need to attain at least 26 points across the 13 criteria to achieve moderate condition.
- 3.12 The post-development habitats score a post-intervention value of **11.90 habitat units** and **2.38 hedgerow units**.

Table 3.3: Post-intervention habitats.

Habitats (UKHab)	Condition	Area (ha)	Habitat units value
Retained habitats			
Grassland: Modified grassland (amenity grass)	Poor	0.538	1.08
Urban: Developed land, sealed surface	N/A	0.013	0
Urban: Urban tree (30x medium and 29x small trees)	Moderate	1.217	9.74
Enhanced habitats			
Grassland: Other neutral grassland (shade-tolerant wildflower grassland)	Moderate	0.154	0.96
New habitats			
Urban: Artificial unvegetated, unsealed surface	N/A	1.481	0
Grassland: Modified grassland (amenity grass)	Poor	0.071	0.14



Table 3.4: Off-site post-intervention habitats.

Habitats (UKHab)	Condition	Area (ha)	Habitat units value
Enhanced habitats			
Woodland and forest: Other woodland, broadleaved	Moderate	0.107	0.73

Table 3.5: Post-intervention hedgerows.

Habitats (UKHab)	Condition	Length (km)	Hedgerow units value
Retained habitats			
Native species-rich hedgerow	Moderate	0.356	2.38



Far Field, Highgate School, London

Phase 1 habitat map

-  Site boundary
-  amenity grassland
-  artificial grass surface
-  hard-standing
-  building
-  individual tree (indicative location)
-  off-site broad-leaved plantation woodland

Figure 3.1

Map Scale @ A4: 1:1,300

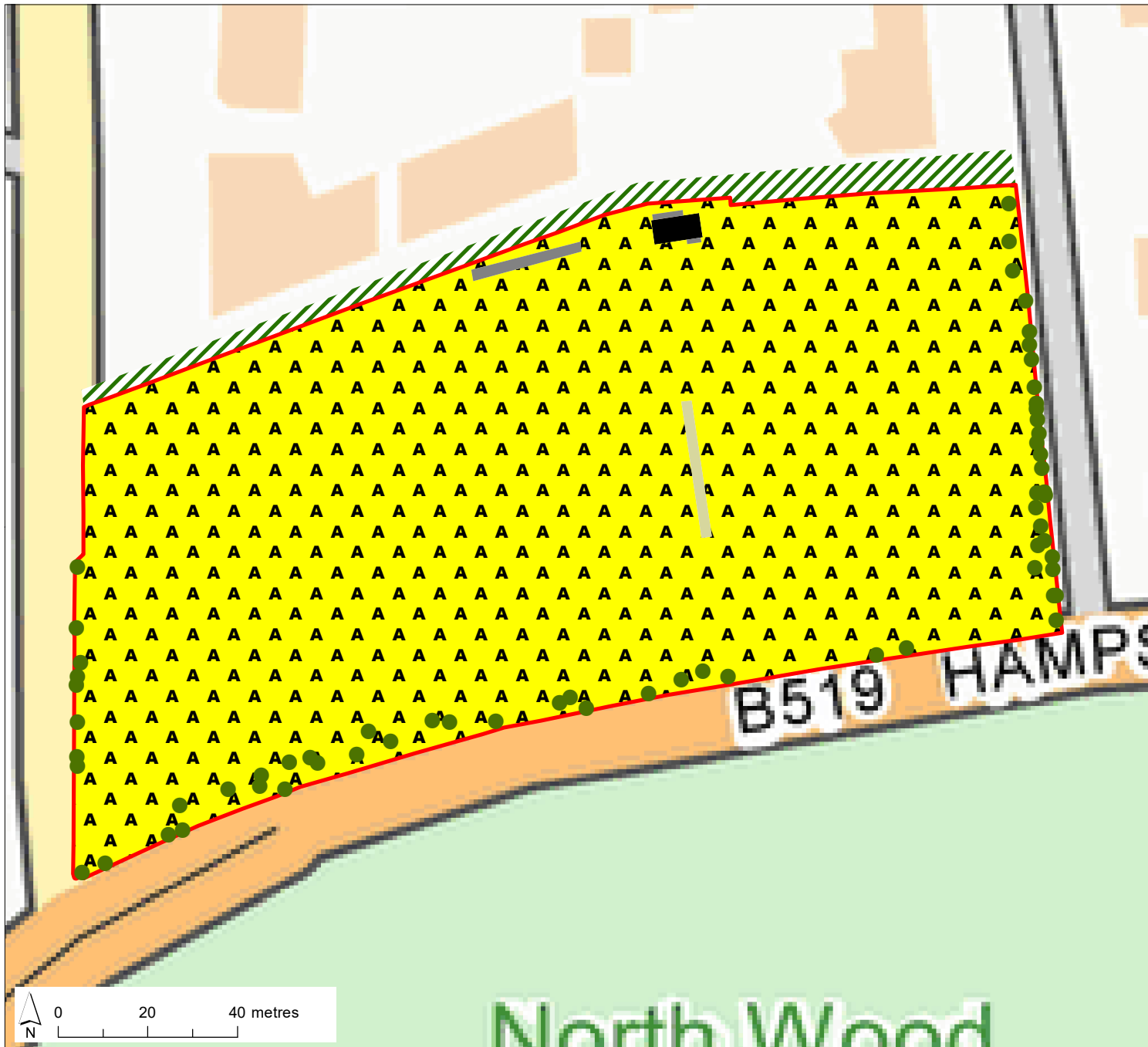
Surveyed by: RD

Survey date: 13 Sept 2022

Drawn by: RD

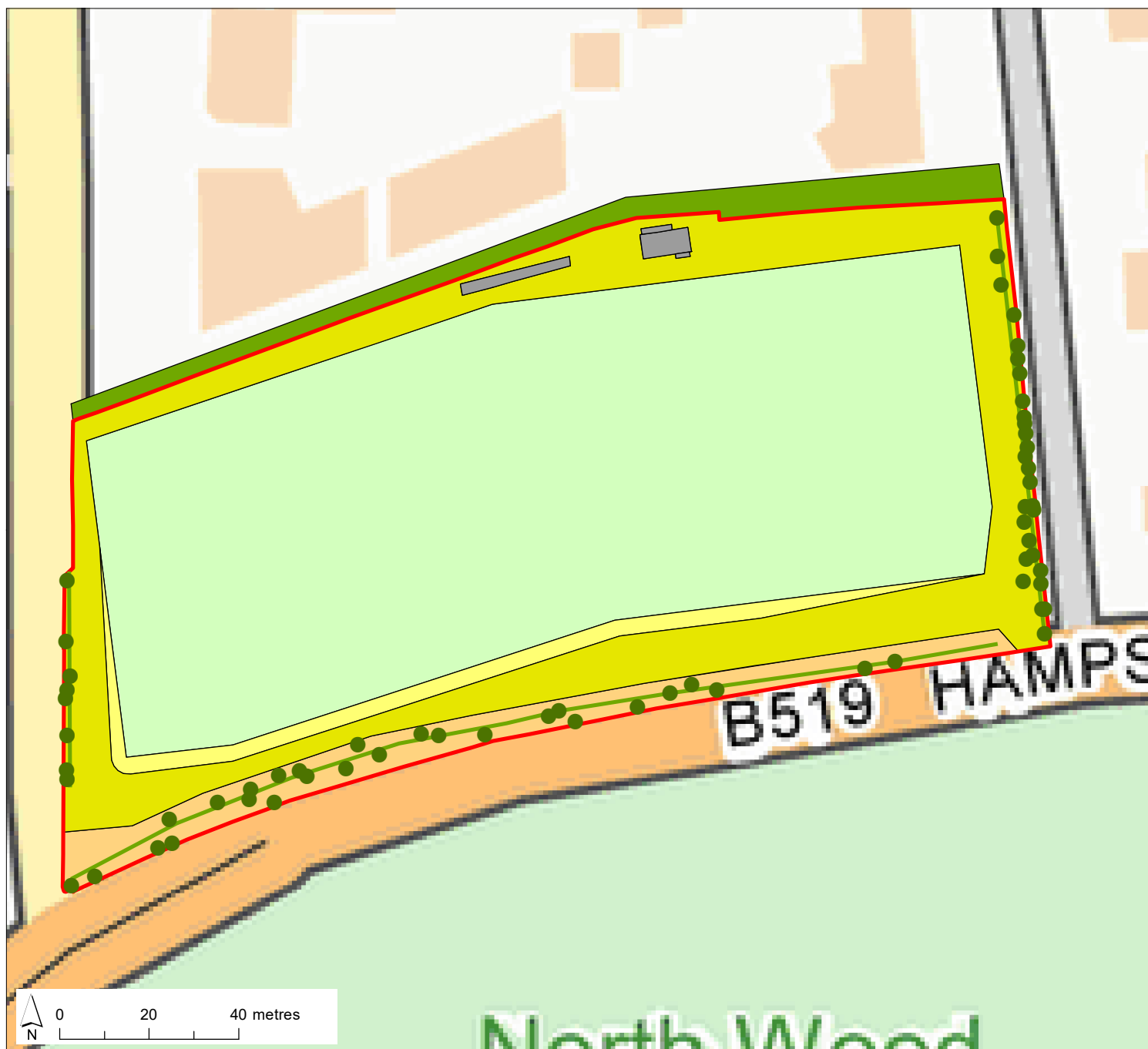
Checked by: DP

Status: Final



Artist's impression – view looking east from the south-west corner





Far Field, Highgate School, London

Post-intervention habitats

- Site boundary
- Urban: Developed land, sealed surface, N/A
- retained Grassland: Modified grassland, poor
- enhanced Grassland: Other neutral grassland, moderate
- Grassland: Modified grassland, poor
- Urban: Artificial unvegetated, unsealed surface, N/A
- off-site enhanced Woodland and forest: Other woodland, broadleaved, moderate
- Species-rich native hedgerow, moderate
- Urban: Urban tree, moderate

Figure 3.2

Map Scale @ A4: 1:1,300

Surveyed by: n/a

Survey date: n/a

Drawn by: RD

Checked by: DP

Status: Draft



4 Conclusions

- 4.1 The biodiversity net gain assessment for the development at Far Field, Highgate School, results in a net loss of **-1.99 habitat units, equivalent to a net loss of -14.02%**. However, it delivers a net gain of **+2.38 hedgerow units, equivalent to a nominal net gain of 100%** (reported as +100% by the metric, although as the baseline value for hedgerows is zero, +100% is a nominal value as an actual percentage change from zero cannot be calculated).
- 4.2 While the replacement of a large area of grassland with artificial turf results in a loss of habitat units that cannot be fully mitigated by the habitat measures proposed in the available remaining land area, this loss has been minimised as far as practicable to do so within the constraints of the scheme. Furthermore, although not directly comparable, the delivery of 356 m of new species-rich native hedgerow, calculated as a net gain of +2.38 hedgerow units, represents a meaningful biodiversity enhancement which, in addition to the inherent ecological value of the hedgerows, serves to reinforce and enhance the habitat connectivity function of the existing green corridor formed by the mature trees along the boundaries of the Site.
- 4.3 Further biodiversity enhancements, not taken into account by the metric assessment, are proposed in Chapter 5.



Artist's impression – view looking west from the changing pavilion living roof



5 Biodiversity Enhancement Strategy

Native Species Wildflower Planting

- 5.1 The levelling of the sports field will result in the creating of a new natural grass-covered bank and plateau with seating areas along the field's southern boundary. The intention is to preserve and enhance the existing boundary bank along Hampstead Road as a wildlife corridor and biodiversity enhancement.
- 5.2 The retention of this bank provides opportunities for species-rich, shade-tolerant wildflower planting, to promote the conservation of invertebrate species as well as aiding the aesthetic value of the Development.
- 5.3 It is suggested that an off the shelf wildflower seed mix is used, with Emorsgate's **EW1F – Wild Flowers for Woodland** mixture being recommended. This woodland seed mix contains species that are shade tolerant and will bloom in spring and early summer, being characteristic of woodland ground layers, including garlic mustard *Alliaria petiolata*, ramsons *Allium ursinum*, betony *Stachys officinalis*, rough chervil *Chaerophyllum temulum*, foxglove *Digitalis purpurea*, bluebell *Hyacinthoides non-scripta*, ragged robin *Lychnis flos-cuculi* and wood sage *Teucrium scorodonia*.
- 5.4 It is recommended that the same mix is used within the off-site woodland area.

Ground preparation

- 5.5 Good ground preparation for the bank is essential to the successful establishment of the grassland so existing grass and weeds should be controlled in order to produce a good quality seed bed before sowing.
- 5.6 The seed bed should be prepared by first carefully removing unwanted vegetation from the areas to be sown to create suitable bare ground, ploughing or digging to bury the surface vegetation, and harrowing or raking to produce a medium tilth, followed by rolling or treading to produce a firm surface. Cultivation close to existing tree and shrubs can be damaging to their roots systems so care should be taken to not dig too deep and keep disturbance to the minimum required to expose some fresh soil.

Sowing

- 5.7 The EW1F seed should be sown in the autumn or early spring. The seed must be surface sown and should be applied by machine or broadcast by hand. Bulk up the seed with an inert carrier (e.g., sand or compost) if needed to help spread the seed evenly and sparingly. The sown seed should not be incorporated or covered, but firmed in with a roll, or by treading, to give good soil/seed contact.

Aftercare

- 5.8 An annual cut mid-summer may be required for a more managed appearance and to keep weeds of partial shade, such as nettle and bramble, in check, but otherwise minimal management should be necessary.



Woodland

- 5.9 The off-site woodland area should be managed as follows to ensure it achieves moderate condition:
- Selective planting of appropriate native understory species such as hazel *Corylus avellana* and hawthorn *Crataegus monogyna*.
 - Selective removal of non-native saplings and secondary growth such as sycamore.
 - Sowing with a shade-tolerant woodland seed mix as described above, likely requiring the removal of ivy ground cover in places before seeding.

Hedgerows

- 5.10 The new hedgerows should comprise a range of native species (at least five species), such as hawthorn, blackthorn *Prunus spinosa*, hazel, etc.
- 5.11 Excessive trimming should be avoided, enabling the hedge to eventually exceed 1.5 m in height and 1.5 m in width.
- 5.12 Any cutting back of the hedgerows should occur outside of the bird breeding period (March–August, inclusive) and ideally late in the winter (January–February), thereby allowing the hedgerows to provide fruits for foraging wildlife.
- 5.13 Any individual shrubs that die should be replaced to avoid gaps appearing in the hedgerow.

Invertebrate Nesting

- 5.14 Piles of dead wood within the wildlife corridor and off-site woodland would provide habitat for a range of invertebrates.
- 5.15 Opportunities to further increase the value of the new bank for invertebrates could be achieved with the installation of integrated invertebrate hibernacula; these installations contain cavities which will be utilised by solitary bees. The addition of these hibernacula will ensure a more permanent provision of nesting resources. They can be installed partially concealed below the surface and require no maintenance.

Bird and Bat Boxes

- 5.16 Bird and bat boxes should be erected on boundary trees as an additional biodiversity enhancement measure, for example, the **Schwegler 1B (32 mm hole)** bird nest box and **Schwegler 2F** general purpose bat box.



Appendix A

Development Layout





INTERNAL ONLY	Rev: N/A Date: By: OH
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AREAS: BIO-DIVERSITY NET GAIN

(Calculation includes woodland area to Northern boundary of area approx.
 $\approx 996\text{m}^2$)

Existing natural grass area = 22082m²

Proposed ATP area = 13970m²

Retained natural grass area = 8112m²

Proposed Hedge:
Height 0.75m (nominal)
Length (overall) = 340m

Legend - Surfaces

- | | |
|---|---------------------------|
|  | Synthetic playing surface |
|  | Grass banks |
|  | Grass |
|  | Grass (reinforced) |
|  | Footpath |

Client:

Highgate School
Highgate, London

Project:

Far Field: Proposed Pitch Renovation Works
Adjacent Courtney Avenue, Highgate,
London. (Nearest Postcode N6 4LP)

Title:

SITE PLAN
SKETCH - EXTENT OF PROPOSED HEDGE

Drawn by: ODH	Checked by: DKH
Scale: 1:500	Original size: A1
Date: DEC 2019	Revision:
Drawing Number: 1704-FF-SK_20210205-HEDGES	N/A

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